APPENDICES

Appendix A

FAA Reauthorization Act of 2018 (Public Law 115-254), Section 163 Determination

U.S Department
of Transportation

**Federal Aviation
Administration**

Western-Pacific Region
Office of Airports
San Francisco Airports District Office

Federal Aviation Administration
1000 Marina Blvd, Suite 220
Brisbane, CA 94005

November 18, 2021

Ryan Sheelen
Airport Planner IV
Planning and Development Division
1701 Airport Blvd. Ste. B-1130
San Jose, CA 95110

Dear Mr. Sheelen:

Re: FAA Approval Authority Review – Norman Y. Mineta San Jose International Airport (SJC), San Jose, CA - Terminal Expansion Project

This letter is in response to SJC Airport's email dated July 7, 2021 requesting review of Section 163 applicability for new South Concourse project and connected actions to accommodate the new facility.

Recent changes in federal law have required the Federal Aviation Administration (FAA) to revisit whether FAA approval is needed for certain types of airport projects throughout the nation. On October 5, 2018, HR 302, the "FAA Reauthorization Act of 2018" (the Act) was signed into law (P.L. 115-254). In general, Section 163(a) limits the FAA's authority to directly or indirectly regulate an airport operator's transfer or disposal of certain types of airport land. However, Section 163(b) identifies exceptions to this general rule. The FAA retains authority:

1. To ensure the safe and efficient operation of aircraft or safety of people and property on the ground related to aircraft operations;
2. To regulate land or a facility acquired or modified using federal funding;
3. To ensure an airport owner or operator receives not less than fair market value (FMV) in the context of a commercial transaction for the use, lease, encumbrance, transfer, or disposal of land, any facilities on such land, or any portion of such land or facilities;
4. To ensure that that airport owner or operator pays not more than fair market value in the context of a commercial transaction for the acquisition of land or facilities on such land;
5. To enforce any terms contained in a Surplus Property Act instrument of transfer; and
6. To exercise any authority contained in 49 U.S.C. § 40117, dealing with Passenger Facility Charges.

In addition, Section 163(c) preserves the statutory revenue use restrictions regarding the use of revenues generated by the use, lease, encumbrance, transfer, or disposal of the land, as set forth in 49 U.S.C. §§ 47107(b) and 47133.

Section 163(d) of the Act limits the FAA's review and approval authority for Airport Layout Plans (ALPs) to those portions of ALPs or ALP revisions that:

1. Materially impact the safe and efficient operation of aircraft at, to, or from the airport;
2. Adversely affect the safety of people or property on the ground adjacent to the airport as a result of aircraft operations; or
3. Adversely affect the value of prior Federal investments to a significant extent.

Proposed Project

The proposed project is:

1) Construct 16 airline gates with jet bridges and up to 750,000SF of terminal building space
2) Reconstruct up to 300,000SF of deteriorated airfield apron at the south end of the Terminal B South Concourse to support aircraft parking
3) Construct a new On-Airport Business Hotel (up to 300,000SF, 330 guest rooms and 300 parking spaces)
4) Construct a new terminal area multi-level parking structure (up to 5,000 parking spaces)
5) Demolish the former San Jose Police Department (SJPD) building and associated hangar buildings and construct replacement SJPD hangar in the Southwest quadrant
6) Demolish existing Belly Freight Building and construct new Belly Freight Building in the Southeast quadrant
7) Demolish Facilities/Maintenance buildings and construct two new facilities/maintenance buildings in the Southwest quadrant
8) Demolish two existing 10,000-gallon underground fuel (unleaded/diesel) storage tanks and conduct remediation (if any), construct new fueling station consisting of one (1) 20,000 gallon diesel and one (1) 10,000 gallon unleaded above ground double wall fuel storage tanks for the City Airport Vehicles in the Northeast quadrant adjacent existing Airline jet fuel facility
9) Demolish existing Waste Disposal Facility and construct new Waste Disposal Facility in the Northeast quadrant adjacent existing airline jet fuel facility
10) Decommission existing compressed natural gas (CNG) station, including: Removal compressor and associated equipment

The FAA's Determination Regarding Changes to the Airport Layout Plan

For the purpose of determining whether the proposed project requires FAA ALP approval, we have made the following determinations:

1. Because portions of the proposed development may have a material impact on aircraft operations, at, to, or from the airport; may affect the safety of people and property on the ground; would have an adverse effect on the value of prior Federal investments to a significant extent, the FAA retains the legal authority to approve or disapprove the following changes to the SJC ALP:

    a. Construct 16 airline gates with jet bridges and up to 750,000SF of terminal building space

    b. Reconstruct up to 300,000SF of deteriorated airfield apron at the south end of Terminal B South Concourse to support aircraft parking
    c. Demolish the SJPD associated hangar buildings and construct replacement SJPD hangar in the Southwest quadrant

2. Because the remaining portions of the proposed development would have no material impact on aircraft operations at, to, or from the airport, would not affect the safety of people and property on the ground, and would not have an adverse effect on the value of prior Federal investments to a significant extent, the FAA lacks the legal authority to approve or disapprove changes to the SJC ALP for the following project components:

    a. Construct a new On-Airport Business Hotel (up to 300,000SF, 330 guest rooms and 300 parking spaces)
    b. Construct a new terminal area multi-level parking structure (up to 5,000 parking spaces)
    c. Demolish existing Belly Freight Building and construct new Belly Freight Building in the Southeast quadrant
    d. Demolish the former SJPD building
    e. Demolish Facilities/Maintenance buildings and construct two new facilities/maintenance buildings in the Southwest quadrant
    f. Demolish two existing 10,000-gallon underground fuel (unleaded/diesel) storage tanks and conduct remediation (if any), construct new fueling station consisting of one (1) 20,000 gallon diesel and one (1) 10,000 gallon unleaded above ground double wall fuel storage tanks for the City Airport Vehicles in the Northeast quadrant adjacent existing airline jet fuel facility
    g. Decommission existing compressed natural gas station, including removal of compressor and associated equipment

FAA's Authority to Regulate Land Use

Because portions of the proposed project may affect the safe and efficient operation of aircraft or safety of people and property on the ground related to aircraft operations, the FAA retains the authority to regulate the use of the land associated with construct 16 airline gates with jet bridges and up to 750,000SF of terminal building space, reconstruct up to 300,000SF of deteriorated airfield apron at the south end of Terminal B South Concourse to support aircraft parking and demolish the SJPD associated hangar buildings and construct replacement SJPD hangar in the Southwest quadrant. But because these portions of the proposed project are for aeronautical purposes, no change in land use is required. Therefore, FAA approval is not needed for the proposed uses of land associated with these projects.

Applicability of the National Environmental Policy Act (NEPA)

The FAA's ALP approval authority for portions of the proposed project, and any other Federal approvals associated with the project, such as funding under the AIP or PFC programs, is a federal action subject to the National Environmental Policy Act (NEPA). Therefore, the sponsor will be required to perform an appropriate level of environmental review for the proposed project. Contact the SFO ADO for guidance on preparing the environmental document for these actions.

Sponsor Obligations Still In Effect

This determination only addresses FAA's approval authority for this project. It is not a determination that the project complies with the sponsor's federal grant assurances. The sponsor must continue to comply with all of its Federal grant obligations, including but not limited to Grant Assurance #5, Preserving Rights and Powers; Grant Assurance #19, Operation and Maintenance; Grant Assurance #20, Hazard Removal and Mitigation; Grant Assurance #21, Compatible Land Use; and Grant Assurance #25 Airport Revenue.

Section 163 and Grant Assurance 25 require the airport sponsor to receive not less than fair market value for the use, lease, encumbrance, transfer, or disposal of land, any facilities on such land, or any portion of such land or facilities. The sponsor must ensure that all revenues generated as a result of this project may only be expended for the capital or operating costs of the airport; the local airport system; or other local facilities which are owned or operated by the owner or operator of the airport and which are directly and substantially related to the actual air transportation of passengers or property; or for noise mitigation purposes on or off the airport.

The sponsor also has the responsibility to comply with all federal, state, and local environmental laws and regulations.

Additionally, any development on this parcel is still subject to airspace review under the requirements of 14 CFR part 77, and, Grant Assurance 29 still requires the airport to update and maintain a current ALP. An updated ALP should be submitted to the SFO ADO if the project is completed.

This is a preliminary determination, and does not constitute a final agency action or an "order issued by the Secretary of Transportation" under 49 U.S.C. § 46110.

If you have further questions or need for clarification, please feel free to contact me at
650-827-7601.

Sincerely,

LAURIE J
XSUTTMEIER

Digitally signed by LAURIE J
SUTTMEIER
Date: 2021.11.18 10:41:07
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Laurie Suttmeier
Manager

Laurie J. Suttmeier
Manager
San Francisco Airports District Office

Appendix B

Aviation Activity Forecasts

CONTENTS

Attachment 1

Mineta San José International Airport Aviation Activity Forecasts

July 16, 2021

NORMAN Y. MINETA
SAN JOSE
INTERNATIONAL
AIRPORT
SILICON VALLEY'S AIRPORT

July 16, 2021

Laurie Suttmeier
San Francisco Airport District Office (ADO)
Federal Aviation Administration (FAA)
1000 Marina Boulevard, Suite 220
Brisbane, CA 94005

SUBJECT: Mineta San José International Airport Aviation Activity Forecasts

Dear Ms. Suttmeier:

This letter serves to highlight key considerations in support of Norman Y. Mineta San José International Airport's (SJC's) Draft EA originally submitted to the ADO on 4/10/2020 and the updated information to address the FAA's subsequent request for revised passenger forecasts reflecting pandemic related passenger declines and SJC's growth recovery forecasts. SJC has aligned with the FAA's 2020 Terminal Area Forecast (TAF), published final in May 2021. We understand the FAA may be further revising the 2020 TAF forecasts upwards as airports recover more quickly than originally forecast, however, we have aligned with the FAA's most current TAF 2020 forecasts which are more conservative.

As presented and discussed in several of the SJC / ADO coordination meetings and subsequent workshop with your staff, SJC presented our historic passenger performance and SJC's passenger growth forecasts capturing the adverse impacts caused by the pandemic and related deferral of our Capital Improvement Plan (CIP). SJC's CIP includes several enabling projects and the Terminal B South Concourse Improvements, which are all consistent with the Airport Master Plan Amendment approved by our City Council in March 2020 and FAA's ALP conditional approval on 6/19/2020.

Terminal Planning is Based on Planning Activity Levels

In 2017, SJC contracted with the national airport planning firm Landrum & Brown (L&B) to develop a Terminal and Landside gap analysis to identify problematic areas within our facilities and assess how best to accommodate a forecast 14.2 Million Annual Passengers (MAP), the activity level associated with significant limitation in capacity of terminal processing functions and degradation of Level of Service (LOS). At the time the study was prepared in 2017, our passenger numbers were 12.5 MAP and our Airport was already experiencing significant facility and operational constraints. Additionally, SJC staff determined that the Airport's gate utilization-based capacity was estimated to be 18.6 MAP.

> ✈*SJC experienced significant facility and operational constraints with declines in Level of Service at 14.2 MAP*

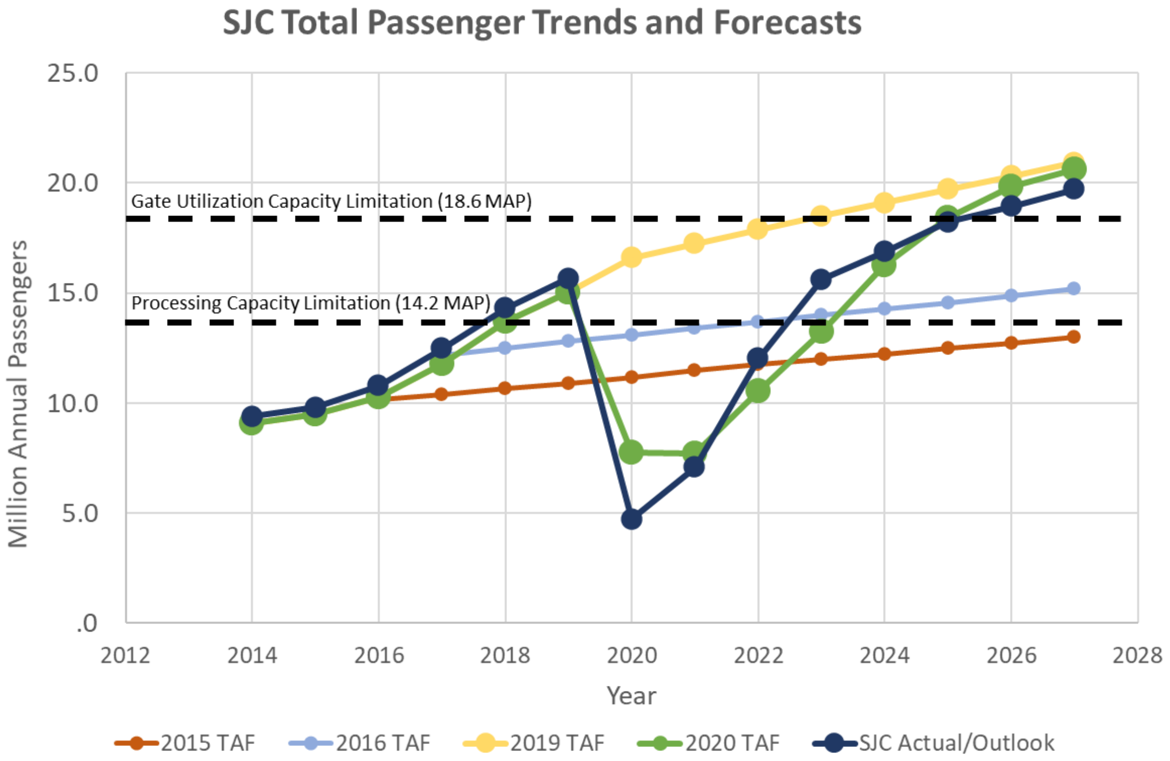
The gap analysis study suggested and later confirmed significant constraints at our Terminal A and B hold rooms, security areas, and curbside roadways, prompting construction of our six-gate Interim Facility. The Interim Facility (an extension of the more congested Terminal B) was primarily constructed to provide temporary additional gates with minimal added hold-room area. However, it did not provide the needed infrastructure that will be included in the Terminal B South Concourse Improvements, which is planned to address outstanding issues such as constructing additional outbound Baggage Handling System (BHS) capacity, hold-room and secured areas, inbound baggage system improvements, System (BHS) increasing capacity, hold-room and secured areas, inbound baggage system improvements, elongated curbside drop-off area, concessions, and other modernization features for SJC to maintain an optimal Level of Service, while processing the increased passenger levels.

> ✈*Prior to the pandemic, SJC was on track to achieve 16.5 MAP in 2020, well beyond the 14.2 MAP which would have justified the Terminal B South Concourse Improvements.*

Terminal Extension Need Persists Post-Pandemic

The COVID-19 pandemic brought sudden and unpredictable changes in passenger levels throughout the National Airspace System (NAS). In order to confirm the need for the Terminal B South Concourse Extension, SJC requested that HNTB, SJC's EA Consultant, review the 2020 TAF, recent aviation recovery activity in 2021, and underlying economic factors to support the selection of the 2020 TAF to justify the Draft EA's Proposed Action. The forecast review concluded that the conservative 2020 TAF and projections by Airport staff, which align with observed activity in the first half of 2021, justify the need for Terminal B South Concourse Extension by 2024, which is likely sooner than the extension can be completed due to the multi-year procurement, design, and construction process required for this program. Therefore, the program should proceed without delay.

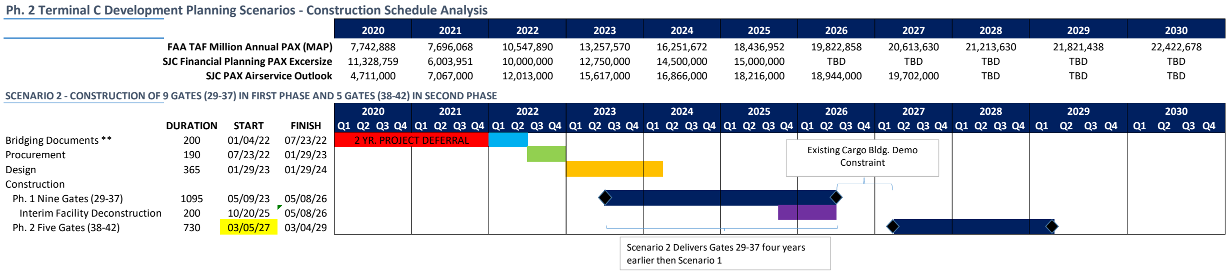
✈*The 2020 TAF and SJC's latest outlook both predict a return to 14 MAP passenger level by 2024*.



Request for Forecast Concurrence to Continue work on the EA

In conclusion, SJC has spent considerable time, effort, and resources with the original forecasts and subsequent update and request EA approval by Q1 2022. Similarly, we request resources be assigned to mitigate any FAA workload issues, and if needed, transfer of review and approval responsibility to another Region to mitigate the ongoing and anticipated delay.

The information herein this submission addresses all FAA comments to date and supports our need to begin the planning, approvals, financing, design, and procurement to extend Terminal B and additional Gates 29-37 no later than Q1 2022. The Terminal B South Concourse Extension is a large and complex project that is projected to take at least four years to complete start to finish, as illustrated in the graphic below. It is critical the Airport obtain EA approval by Q1 2022 prior to committing the considerable required resources. It is worth noting that construction of this program is not planned to begin until Q2 2023, with an anticipated completion date of Q2 2026. Therefore, SJC does not intend to commit considerable resources or start actual construction of the Terminal B South Concourse Extension until the passenger traffic levels needed to support such a commitment are achieved.



Ph. 2 Terminal C Development Planning Scenarios - Construction Schedule Analysis

	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
FAA TAF Million Annual PAX (MAP)	7,742,888	7,696,068	10,547,890	13,257,570	16,251,672	18,436,952	19,822,858	20,613,630	21,213,630	21,821,438	22,422,678
SJC Financial Planning PAX Excersize	11,328,759	6,003,951	10,000,000	12,750,000	14,500,000	15,000,000	TBD	TBD	TBD	TBD	TBD
SJC PAX Airservice Outlook	4,711,000	7,067,000	12,013,000	15,617,000	16,866,000	18,216,000	18,944,000	19,702,000	TBD	TBD	TBD

SCENARIO 2 - CONSTRUCTION OF 9 GATES (29-37) IN FIRST PHASE AND 5 GATES (38-42) IN SECOND PHASE

	DURATION	START	FINISH
Bridging Documents **	200	01/04/22	07/23/22
Procurement	190	07/23/22	01/29/23
Design	365	01/29/23	01/29/24
Construction			
Ph. 1 Nine Gates (29-37)	1095	05/09/23	05/08/26
Interim Facility Deconstruction	200	10/20/25	05/08/26
Ph. 2 Five Gates (38-42)	730	03/05/27	03/04/29

Yellow date above reflects a schedule constraint where physical construction of Gates 38-42 cannot begin until New Cargo Facility is constructed and existing Cargo Facility is demolished. Gates 38-42 will be constructed within the footprint of existing Cargo Facility location after it is demolished.

For any questions or comments, please contact Ryan Sheelen at 408-392-1193 / rsheelen@sjc.org or Andres ‘Drew’ Niemeyer at aniemeyer@sjc.org / 669-282-0382.

Respectfully,
NORMAN Y. MINETA SAN JOSE INTERNAL AIRPORT

Andres 'Drew' Niemeyer
Digitally signed by Andres 'Drew' Niemeyer
DN: C=US, E=aniemeyer@sjc.org, O=City of San Jose - SJC Airport, OU=Norman Y. Mineta San Jose International Airport, CN=Andres 'Drew' Niemeyer
Reason: I am approving this document
Date: 2021.07.16 08:22:16-07'00'

Andres ‘Drew’ Niemeyer
Airport Deputy Director – Planning & Development

cc: Airport Sr. Staff
Mark Kiehl, Air Service Development
Ryan Sheelen, Acting Airport Sr. Planner
Katherine Kennedy, FAA ADO
Ron Biaoco, FAA Program Manager

Enclosures
2021 Forecast Review by Consultant (HNTB)
2020 Terminal Area Forecast (FAA)
2021 SJC Current Air Service Analysis (SJC)
2019 and 2029 Design Day Flight Schedules (HNTB)
2017 Near Term Capacity Analysis by Consultant (L&B)

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Executive Summary

Purpose of this Document

This memorandum serves to clearly identify SJC's selected forecast (the FAA's 2020 TAF, published in May 2021) to justify the improvements associated with the Draft EA's Proposed Action and to review current and projected economic and aviation indicators that may influence SJC's recovery from the pandemic. This memorandum also includes responses to each of the key indicators requested by the San Francisco ADO and includes a discussion on the terminal processing and gate capacity limitations that were determined from SJC's 2017 *Near-Term Terminal Capacity Analysis* study.

Recent Historical Conditions at the Airport

During the five years preceding the pandemic (2014-2019), SJC's growth was 67 percent, significantly exceeding the 22 percent national average growth within the same timeframe. Similarly, SJC's passenger enplanements consistently outperformed the FAA's TAF forecasts (reference **Figure 1** below).

Planning Activity Levels

SJC has planned for the implementation of a two-phase terminal extension to coincide with increasing passenger activity. To accommodate surging demand, SJC crafted an interim phase where six new interim gates were constructed and opened in 2019 to provide sufficient time to go through the environmental process to move forward with the full implementation of the Terminal B South Concourse. The trigger for the first phase of the terminal extension occurs at 14.2 Million Annual Passengers (determined as the processing-based capacity limitation for the existing terminal facilities), which was previously experienced in 2018 and 2019. The second phase is triggered at 18.6 MAP, which is the gate-based capacity limitation of the current terminal facilities, the timing of which has been affected by the pandemic. It is worth noting that the interim gate extension provided gate capacity but did little to increase passenger processing capacity, and therefore, passenger processing functions will perform sub-optimally until the construction of additional passenger processing facilities in the first phase of the program.

TAF Comparison

Initial planning for the terminal extension started in 2015 and 2016, at which time the 14.2 MAP trigger was anticipated in approximately 2022. Tremendous growth through 2019 triggered the interim gates to be constructed and opened in 2019. Examining post-COVID conditions, the 2020 TAF and the Airport's own working projections agree that the 14 MAP trigger will be achieved by 2024, at which point passenger processing functions will perform sub-optimally. Further, projections are aligned that the 18.6 MAP planning activity level triggering the need for additional gates beyond the interim project, will occur in approximately 2025, as illustrated in **Figure 1** below. Due to the time it takes to implement a complex program such as this (approximately four years), improvements will lag behind the time where they are needed.

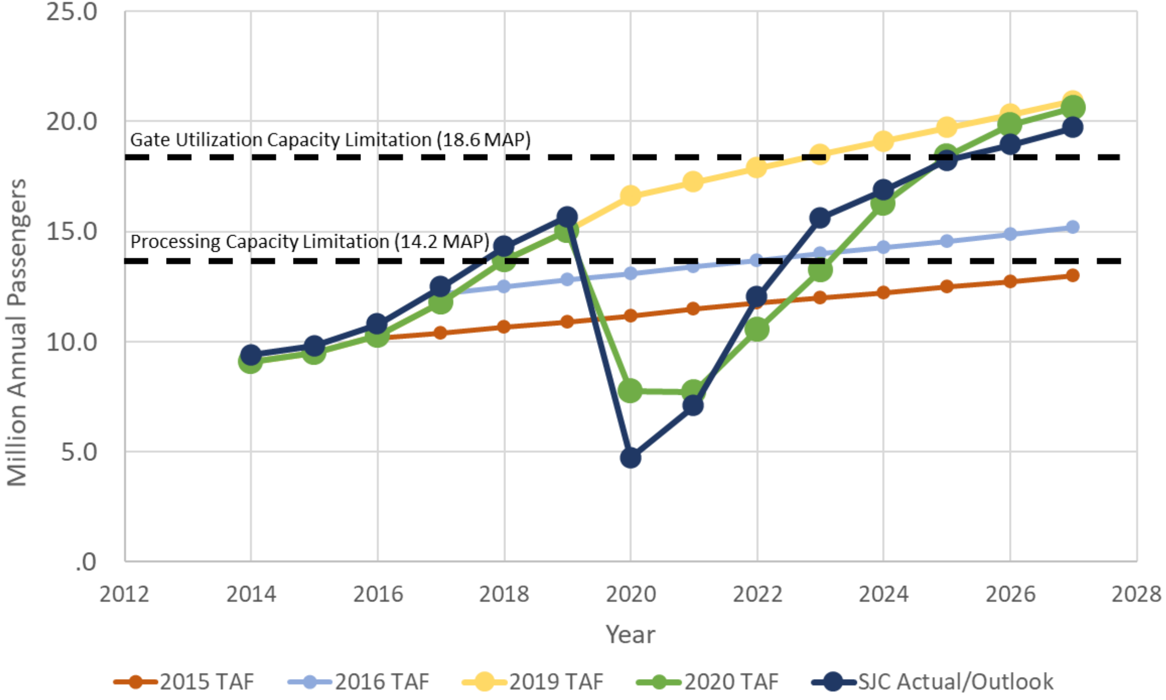
COVID-19 Recovery

The uncertainty in passenger activity introduced by the pandemic is fading at the mid-point of 2021, as airlines have added flights back to the schedule and passengers are returning. Strong underlying economic factors in Silicon Valley, including a growing technology employment base are contributing to a healthy and rapid recovery in aviation activity.

Local Economics and Employment

Employment has remained strong in and around Silicon Valley throughout the pandemic. Consumers have increasingly relied on Tech companies to serve their communication, work, and goods and services needs. Silicon Valley observed positive job growth within the technology sector of 1.8 percent during the pandemic and prospects remain strong for even greater job growth as the economy further recovers. There are 53 million square feet of developments planned or under construction within close proximity to SJC that are forecast to result in the creation of nearly 160,000 new jobs.

Figure 1: 2020 TAF Forecast Summary



Source: FAA TAF, SJC Airport Staff

Changes in Airline Service

The number of passengers flying through SJC in July 2021 has tripled since the beginning of 2021. Operations are up by nearly 59% since the beginning of the year as well. Many airlines have announced service restoration, including JetBlue to Boston and New York-JFK and British Airways to London, England.

Passenger Confidence in Air Travel

The counties that primarily make up SJC's Air Trade Area are among the nation's leading counties in terms of fully vaccinated adults. A highly vaccinated population coupled with high income and pent up travel demand has led to the airlines adding a significant amount of capacity back to SJC.

Organization and Behavioral Changes that May Impact Air Travel

Many of Silicon Valley's leading employers have instituted policies where employees are expected to be in their expansive campuses at least a few days per week. This indicates that employees will likely continue to live near their job centers and continue to fly for business and leisure as the pandemic continues to subside. Many of the largest employers are continuing to expand their campuses and fully intend to have a collaborative in-person environment to foster cutting-edge innovation. Further, those employees that may be remote full-time will likely be expected to return to their headquarters for training, conferences, and other periodic meetings.

Aircraft Type Requirements by Airlines or Manufacturers

SJC will see a modest up-gauging in aircraft resulting from the phase out of existing Airbus A319/320/321 Classics with A319/320/321 NEO and Boeing 737 Next Generation series with the Boeing 737 MAX series, however, the airport will still mainly serve Aircraft Design Group (ADG) III aircraft.

International Travel Restrictions and Trends

In 2019, international activity only made up 6% of the passenger volume at SJC. As destination countries ramp up their vaccination efforts, international traffic will begin to return to those levels experienced in 2019, however, service has been maintained to Mexico throughout the pandemic and British Airways has recently announced its intention to resume service to London, England.

Discussion on Previous Recovery From Events

The COVID-19 pandemic is a very different event than prior system events, including the "Dot Com Bust", 9/11 Terrorist attacks, and the 2008/2009 Great Recession, all of which had significant impacts on local jobs and the economy. This pandemic actually expanded the key Tech businesses that drive the Silicon Valley economy. As noted above, Tech industry jobs expanded by 1.8% during the pandemic and firms and developers are actively expanding their presence in the area.

Terminal Programming Implications

Since the previous terminal programming work is based on planning activity levels, many of the conclusions about passenger processing deficiencies hold true under post-COVID conditions.

Design Flight Schedule (DDFS) Derivation

An updated Design Day Flight Schedule (DDFS) for 2029 is derived from the 2020 TAF and presented in this memorandum, which leverages post-COVID aviation activity data and considers recent trends in the industry. The DDFS confirms that the initial terminal planning is valid, and 42 gates are needed to gate the anticipated 2029 aviation activity demand.

Confirmation of Terminal Extension Need

This forecast review and the new DDFS analysis confirm an urgent need for SJC to continue with Phase 2 of the Terminal Extension program, in order to meet the 14.2 MAP passenger processing trigger and subsequent 18.6 MAP passenger gate capacity limitations (See Terminal Capacity Section for additional details). Recognizing that the implementation of this complex project will take at least four years accounting for procurement, design, permitting, enabling work, and construction of the terminal improvements, any additional delays to the program may result in the inability to accommodate forecast aviation activity demand. SJC needs to complete and obtain EA approval no later than Q1 2022 so that this program is not delayed and that needed improvements can be brought online as they are needed.

Introduction

SJC experienced record-breaking growth between 2016 and 2019 prior to the outbreak of the COVID-19 pandemic. The airport recorded a Compounded Annual Growth Rate (CAGR) of 13.40% in passenger enplanements during this time period, as well as a CAGR of 13.96% in passenger air carrier operations. This growth trend was approximately three times higher than the national average. The high level of per capita income, strong regional employment, and competitive fares led SJC to be well-positioned to continue its rapid growth for both domestic and international activity. This sustained high growth rate triggered an early need to construct six "interim" gates at SJC to meet the surging passenger and air-carrier operational demands. Interim Gates 31-36 opened on June 13, 2019, providing needed contact gate positions, however it did not include any improvements for passenger processing infrastructure (e.g. additional curbside space, security checkpoint area, increased BHS capacity, proportionate hold-room space and supporting concessions).

The COVID-19 pandemic has disrupted the aviation industry in an unprecedented manner. In the immediate aftermath of the spread of COVID-19 in 2020, travel restrictions were implemented, flights were suspended, business travel virtually disappeared, and airports were brought to a halt in the U.S. and throughout the world. SJC was no exception to this trend and the outbreak caused the Airport's rapid growth to stall. SJC had reached a record level of 15 MAP in 2019, recorded 15.8 MAP on a rolling 12-month basis from March 2019 thru February 2020, and was on track to have a record-breaking year of more than 16 MAP in 2020. By the end of 2020, however, overall passenger traffic levels decreased by nearly 70 percent and passenger air carrier operations decreased by 44 percent from 2019 levels.

Even though the magnitude of COVID-19's effect within the National Airspace System (NAS) has no precedent, the industry has experienced sudden system impacts before and has shown resilience for efficient recoveries. Every previous shock event to the industry, including previous recessions and the 9/11 terrorist attacks, has had immediate and significant impacts on the aviation industry. However, the system has consistently been able to recover during subsequent years, showing resilience due to the underlying demand for air transportation for both leisure and business. In contrast to the recovery period after the 2008 recession, when the technology sector was one of the most negatively affected industries, the COVID-19 pandemic has allowed "Tech Giants" based in Silicon Valley to further establish themselves in an even greater position of strength and influence as the global economy suffered major losses. Companies like Facebook, Apple, and Google capitalized on the fact that they are viewed as essential services for the public in lockdown. While the global economy faced major unemployment issues, the tech giants have greatly capitalized from new consumer habits initiated during lockdowns that will likely turn into long-term benefits. Because large tech companies play such an important role in the local economy, it is expected that the local population will observe the benefits at a much larger scale than the national average, ultimately accelerating the recovery period in demand for air travel at SJC.

As mentioned above, SJC had reached a level of 15 MAP in 2019, presenting significant LOS impacts to various terminal processing functions. This exceeded the 14.2 MAP trigger point identified as the practical limit of passenger processing capacity, such as Transportation Security Administration (TSA) passenger security screening checkpoints, inbound and outbound BHS, Federal Inspection Services (FIS) international passenger processing, and curbside facilities. The interim gates opened in 2019 provided additional passenger gate capacity, and SJC staff has identified that the current terminal configuration is able to accommodate approximately 18.6 MAP. However, passenger processing capacity limitations remain at approximately 14.2 MAP.

The FAA's 2020 TAF, as well as SJC's projected activity outlook, imply urgency to begin planning, design, and procurement for additional gates requiring Terminal B's extension. Both projections are projecting nearly 20 MAP by the year 2026, which would occur prior to SJC's anticipated need for additional permanent gates and processing facilities in 2026 and 2029 that are required to maintain an acceptable LOS. This memorandum summarizes the selected aviation activity forecast to support SJC's Draft EA for the Terminal B South Concourse Improvements and identifies the drivers and timeline associated with that forecast for when additional gates and terminal processing capacity are needed to maintain adequate

LOS. This memorandum also includes a review of current and forecast near-term market drivers that establish the case for SJC's recovery.

Forecast Selection

SJC has adopted the finalized 2020 TAF, published in May 2021, for the purposes of justifying the Proposed Action contained within the Draft EA. The 2020 TAF is included in **Appendix A**. The Airport has identified 2026 and 2029 as the anticipated timeframes for a phased delivery of processing and additional gates at SJC. Given that projects of similar scale and complexity take at least four years to implement in order to properly align financing, design, permitting, procurement, and construction, SJC will need to start these processes within the next 12 months otherwise it risks delaying the delivery of needed gates and processing facilities. **Table 1** provides a summary of projected operations published in the 2020 TAF at each of the anticipated timeframes of gate extension at SJC.

Table 1: Summary of Enplanements and Aircraft Operations in Terminal Area Forecast (TAF)

	2019(a)	2020(e)	2026(f)	2029(f)
Total Enplaned Passengers	**7,510,781**	**3,871,444**	**9,911,429**	**10,910,719**
Air Carrier Operations	146,401	96,255	193,650	212,688
Air Taxi & Commuter Operations	21,586	16,770	21,789	22,501
General Aviation Operations	36,248	27,679	38,799	39,147
Military Operations	268	219	219	219
Total Aircraft Operations	**204,503**	**140,923**	**254,457**	**274,555**

Source: FAA 2020 TAF; (a) Actual Activity, (e) Estimated Activity, (f) Forecast Activity

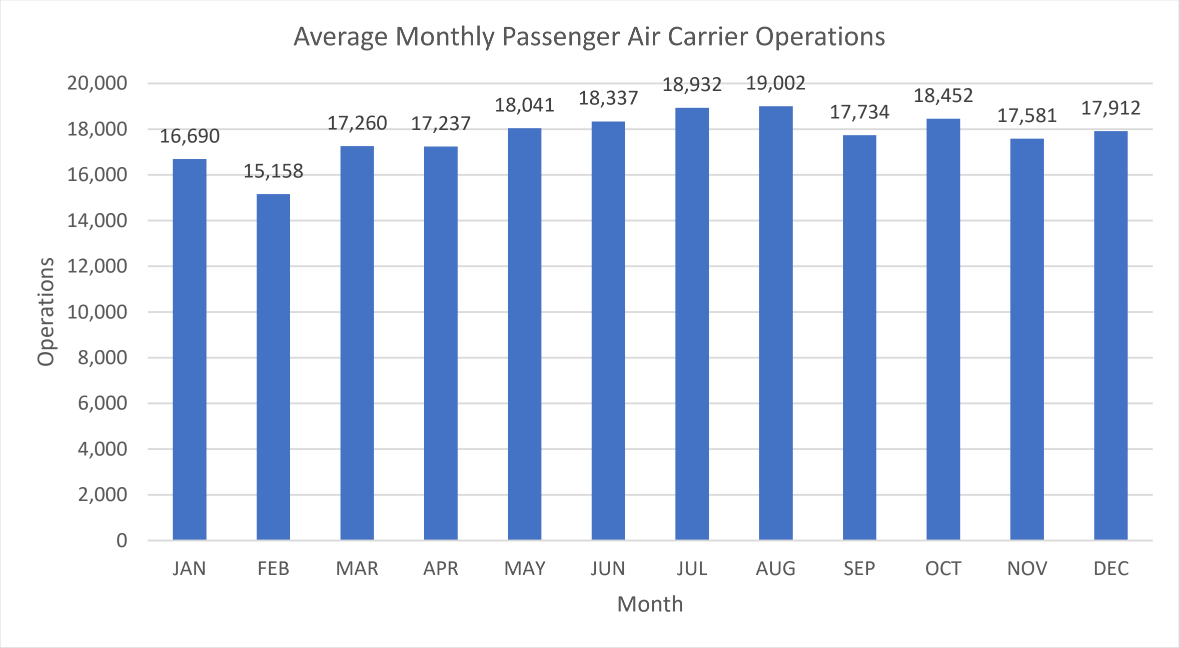
Peak activity profiles were generated based on historical operations that are later utilized to develop design day passenger activity and operations data. **Table 2** and **Figure 2** illustrate the percent of annual passenger air carrier operations by month and subsequent average daily operations utilizing available historical data from 2010 to 2019. Similarly, **Table 3** and **Figure 3** illustrate the percent of annual passengers by month and subsequent average daily number of passengers. These peaking characteristics are later applied to the corresponding projected levels of the TAF in 2026 and 2029 in order to analyze the requirements to maintain optimal levels of service.

Table 2: Average Monthly and Average Daily Passenger Air Carrier Operations (2010 – 2019)

Month	Avg. Monthly Ops	% of Annual Ops	Avg. Daily Ops
JAN	16,690	7.9%	556
FEB	15,158	7.1%	505
MAR	17,260	8.1%	575
APR	17,237	8.1%	575
MAY	18,041	8.5%	601
JUN	18,337	8.6%	611
JUL	18,932	8.9%	631
AUG	19,002	8.9%	633
SEP	17,734	8.4%	591
OCT	18,452	8.7%	615
NOV	17,581	8.3%	586
DEC	17,912	8.4%	597

Source: SJC and FAA data; HNTB Analysis

Figure 2: Average Monthly Number of Passenger Air Carrier Operations (2010 – 2019)



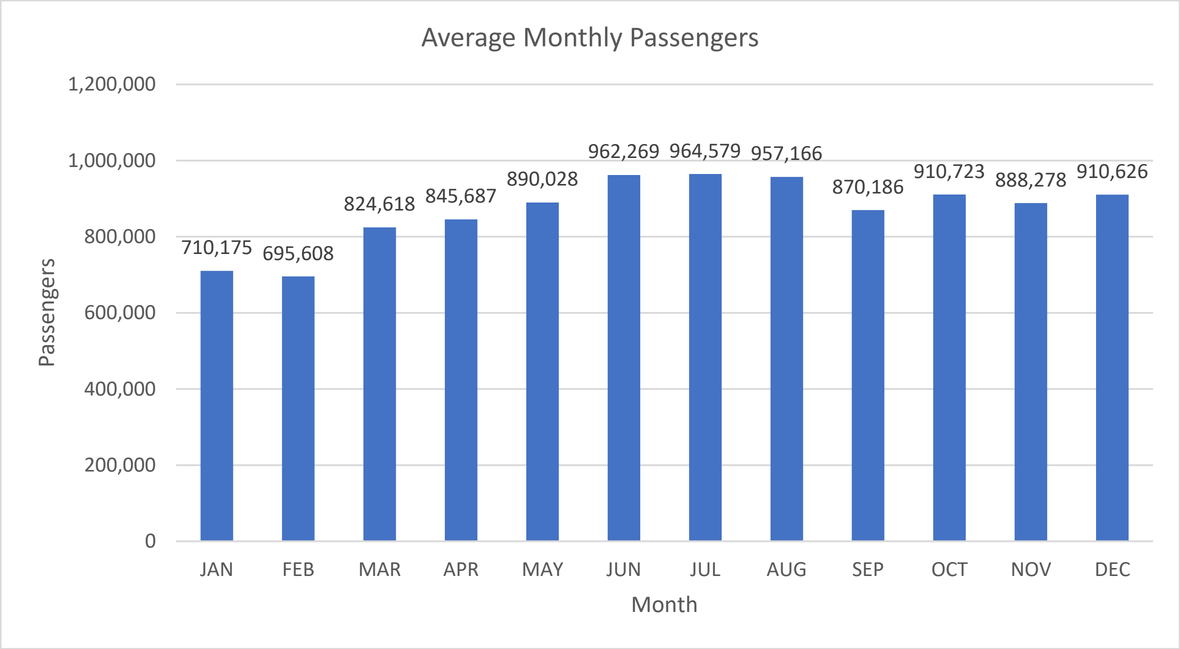
Source: SJC and FAA Data; HNTB Analysis

Table 3: Average Monthly and Average Daily Number of Passengers (2010 – 2019)

Month	Avg. Monthly Passengers	% of Annual Passengers	Avg. Daily Passengers
JAN	710,175	6.8%	23,672
FEB	695,608	6.7%	23,187
MAR	824,618	7.9%	27,487
APR	845,687	8.1%	28,190
MAY	890,028	8.5%	29,668
JUN	962,269	9.2%	32,076
JUL	964,579	9.2%	32,153
AUG	957,166	9.2%	31,906
SEP	870,186	8.3%	29,006
OCT	910,723	8.7%	30,357
NOV	888,278	8.5%	29,609
DEC	910,626	8.7%	30,354

Source: SJC and FAA Data; HNTB Analysis

Figure 3: Average Monthly Number of Passengers (2010 – 2019)



Source: SJC and FAA Data; HNTB Analysis

Airline Traffic Recovery

The outbreak of the COVID-19 pandemic in March 2020 created a pause in SJC's record-breaking growth over the last 5 years. However, the Airport remains well-positioned to resume those trends following the recovery period. Aviation demand at SJC has traditionally been driven by per capita income, employment centers, regional growth, and overall economic activity. A growing U.S. and world economy, combined with strong regional economic growth provides the basis for continued growth of aviation activity at SJC. These factors are expounded upon in subsequent sections of this memorandum. Reference **Appendix B** for a summary of SJC's economic research completed to date that has been presented to the San Francisco ADO.

Further, the impact of vaccinations, easing of mask mandates and travel restrictions, as well as the official re-opening of the state of California on June 15th, 2021 have accelerated passenger traffic at SJC. The New York Times' Vaccination Tracker[1], which aggregates data from the Centers for Disease Control (CDC), shows that people that live within SJC's six county Air Trade Area (Santa Clara, Alameda, Monterey, San Benito, San Mateo, and Santa Cruz Counties) are vaccinated at rates significantly higher than the national average. In Santa Clara County alone, more than 78% of adult residents are fully vaccinated as of July 5th, 2021. The high level of prospective resident passengers that are vaccinated is leading to increased travel confidence, stronger bookings, and rapid recovery. The number of passengers flying through SJC in May 2021 has nearly tripled since the beginning of 2021, where only 25% seasonal variance between May and January is typical. And the number of airline departures continues to increase each month**. Figure 4** illustrates the latest trend in passenger activity and seat capacity as of May 2021. The convergence of SJC Seats and SJC Passengers in the figure indicate higher load factors, which in turn will continue to stimulate additional flights in the coming months.

SJC continues to benefit from a diverse portfolio of airlines. The main air carriers operating at SJC, such as Southwest Airlines, Delta, and Alaska Airlines, have announced an increase in daily departures through the remainder of 2021. Longer-haul domestic service is also returning with JetBlue restoring their

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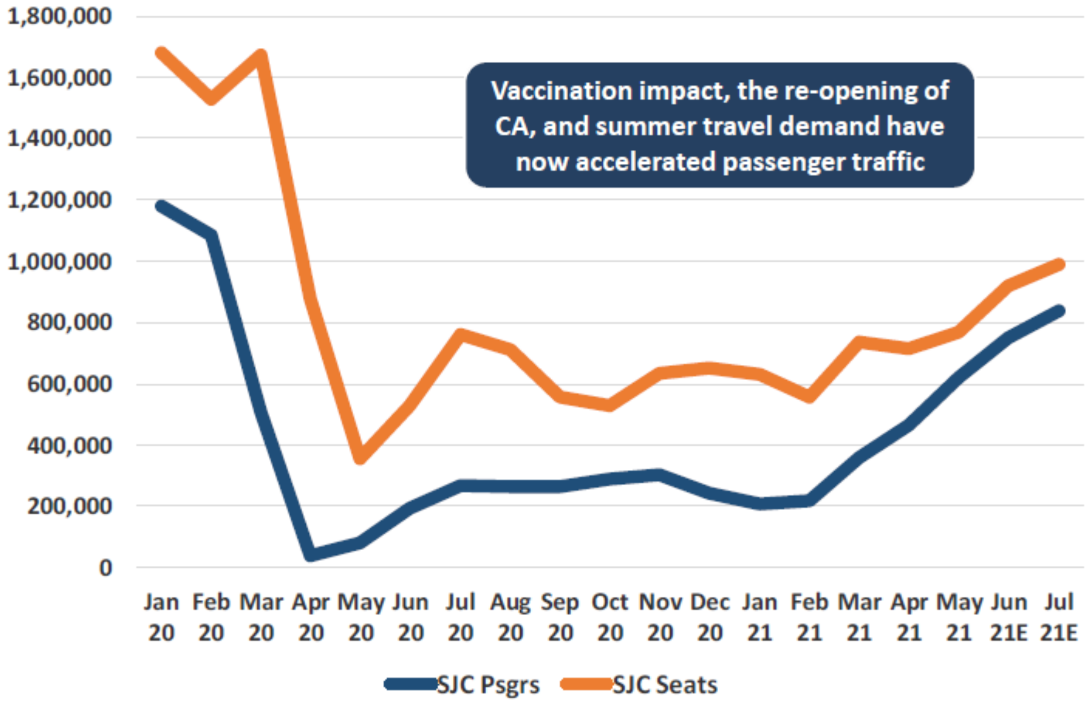
[1] New York Times Vaccination Tracker: https://www.nytimes.com/interactive/2020/us/covid-19-vaccine-doses.html?action=click&module=Top%20Stories&pgtype=Homepage

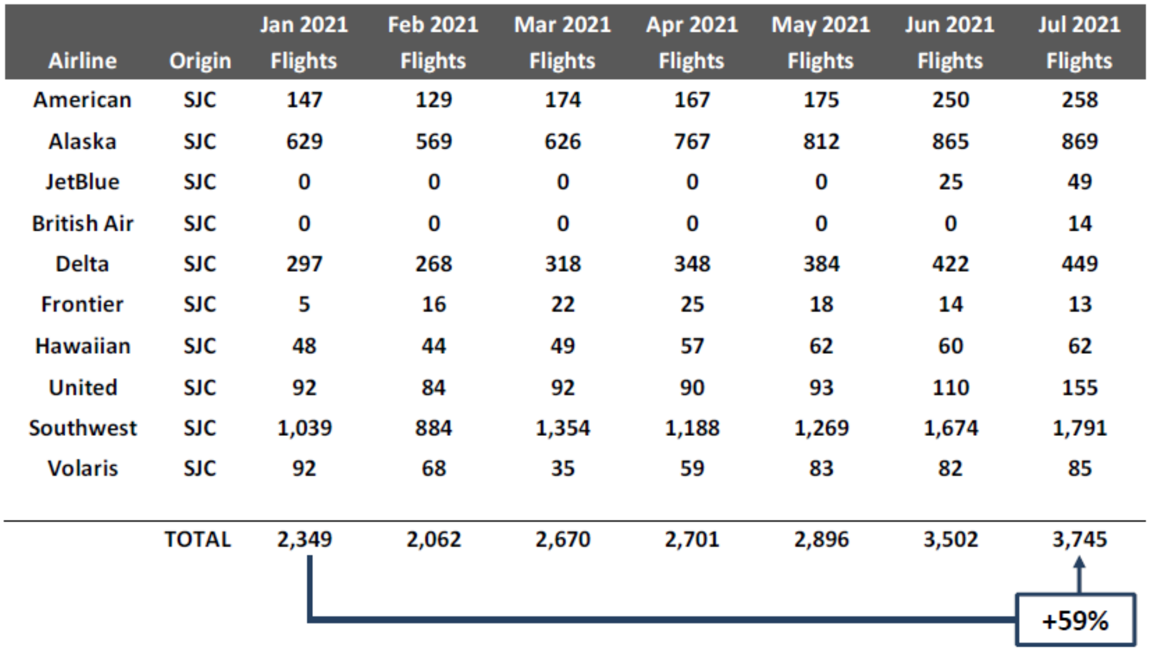
routes linking SJC with Boston and New York-JFK. At a higher level, the total number of scheduled monthly airline departures at SJC is expected to increase by 59 percent between January and July 2021. **Figure 5** illustrates the number of monthly departures by airline between January and July 2021.

Figure 4: Recovery Trend in Passenger Activity and Airline Seat Capacity



Source: SJC Data

Figure 5: SJC Monthly Departures by Airline



Airline	Origin	Jan 2021 Flights	Feb 2021 Flights	Mar 2021 Flights	Apr 2021 Flights	May 2021 Flights	Jun 2021 Flights	Jul 2021 Flights
American	SJC	147	129	174	167	175	250	258
Alaska	SJC	629	569	626	767	812	865	869
JetBlue	SJC	0	0	0	0	0	25	49
British Air	SJC	0	0	0	0	0	0	14
Delta	SJC	297	268	318	348	384	422	449
Frontier	SJC	5	16	22	25	18	14	13
Hawaiian	SJC	48	44	49	57	62	60	62
United	SJC	92	84	92	90	93	110	155
Southwest	SJC	1,039	884	1,354	1,188	1,269	1,674	1,791
Volaris	SJC	92	68	35	59	83	82	85
	TOTAL	2,349	2,062	2,670	2,701	2,896	3,502	3,745

+59%

Source: SJC Data

Looking forward, the number of scheduled operations and seat capacity is expected to increase at an even greater rate within the next 90 days. Published airline schedules obtained from the Official Airline Guide (OAG) identify a near 24 percent increase in the number of air-carrier operations between July and September 2021. More importantly, the increase in seat capacity is expected to increase by 30 percent within the same timeframe (indicating an increase in average aircraft size). The increase in seat capacity can be attributed to the addition of medium and long-haul routes into the schedule that were previously not possible due to low passenger demand during the pandemic. **Table 4** depicts the expected increase in daily airline operations and seat capacity between July and September 2021.

Table 4: Average Daily Scheduled Airline Operations and Seat Capacity Forecast

	JULY 2021	SEPTEMBER 2021	
Inbound Flights	**120**	149	
Outbound Flights	**120**	147	
Total Flights	**240**	**296**	**+ 23.5% increase**
Inbound Seats	**15,720**	20,615	
Outbound Seats	**15,713**	20,340	
Total Seats	**31,432**	**40,955**	**+ 30.3% increase**

Source: SJC Data; HNTB Analysis

International Travel Restrictions and Trends

Just as U.S. economic activity drives domestic demand, foreign economic activity affects international travel demand. As most countries have taken action to curtail the spread of COVID-19, such actions have resulted in economic patterns that are similar to those in the U.S. with sharp declines in 2020, followed by strong recovery forecasts beginning in 2022. Most countries are expected to vaccinate large percentages of their populations and bring the virus under control by 2022, which would allow economic growth rates to settle back to their long-run trends shortly after. Additionally, the high rate of vaccinated residents within SJC's Air Trade Area coupled with a strong business market will result in accelerated growth once destination countries' entry policies allow for international travel.

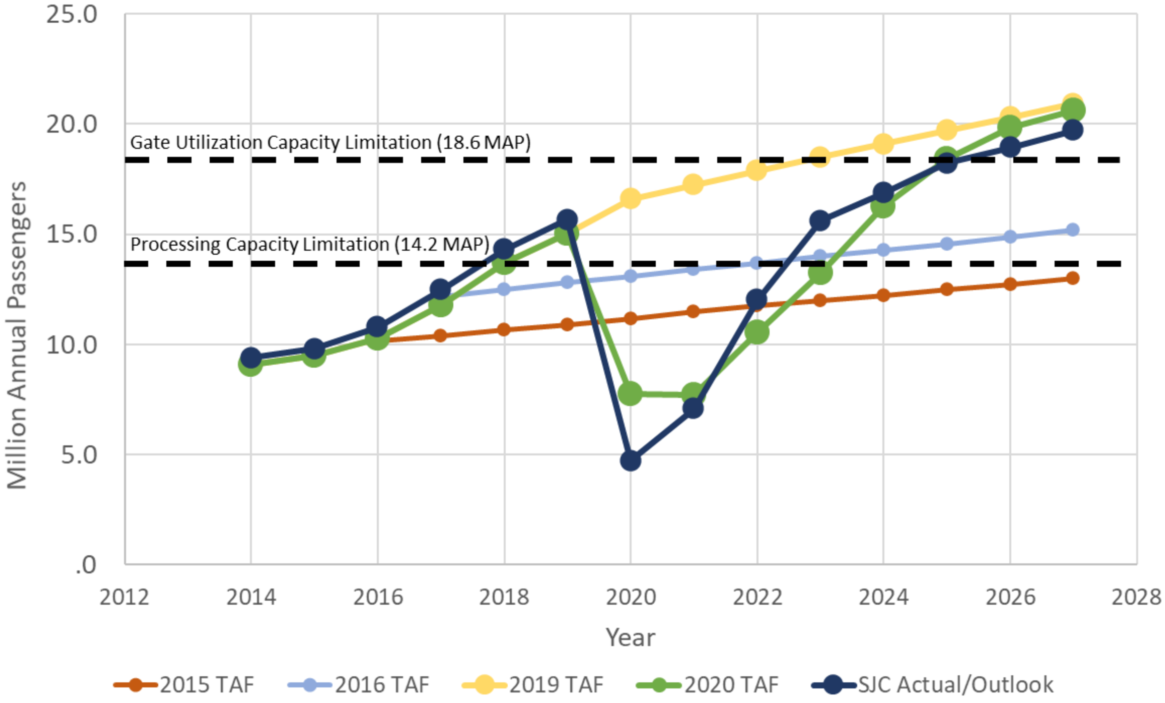
SJC is already experiencing an increase in international operations in 2021. Mexican low-cost carrier Volaris has remained active at SJC throughout the COVID-19 pandemic, while some of the European carriers, such as British Airways, have announced a return to SJC in the Summer of 2021 (The United Kingdom is slated to fully reopen its economy and eliminate pandemic restrictions on July 19th, 2021). In addition, SJC continues to be an attractive market for Mexico and Latin-American air carriers, and several airlines have reported interest to restore or expand international air service to SJC in the near future. In 2019, international passengers represented less than 6 percent of all airport enplanements and will continue to play a limited role in SJC's overall enplanements and operations forecast, however, international activity has significant impact on the facility efficiency and LOS of the FIS.

Aviation Activity Outlook Post-Recovery

The 2020 TAF projects that passenger enplanements and aircraft operations will return to 2019 levels around the year 2024. SJC is expected to keep up with this forecast due to its rapid growth trend prior to the pandemic, and its already positive outlook for increased passenger demand. Historically, SJC has shown a strong dominance within the business community, and the Airport is expected to see increased levels of business passenger demand beginning in the Fall of 2021. The increase in business passenger demand is the result of major corporations nationally and within Silicon Valley projecting to have a large number of their workforce back in the office, at least part time, by September 2021. For the minority of area firms that have gone fully remote, it is expected that employees will be requested to attend occasional meetings and trainings at corporate headquarters in Silicon Valley. Some of the worlds' largest companies have invested and are continuing to invest billions of dollars in employment campuses, such as Google's Google Project – Downtown West in Downtown San Jose.

Additionally, SJC's rapid growth has consistently outperformed TAF projections of passenger enplanements and aircraft operations. **Figure 6** illustrates the 2015 and 2016 TAF projections in comparison to actual historical operations following such forecasts along with both the 2019 and 2020 TAFs. For purposes of this assessment, SJC is expected to recover from the impacts of the COVID-19 pandemic and track on par with FAA's 2020 TAF outlook.

Figure 6: Previous FAA TAF comparison and Forecasts



Source: SJC and FAA Data

Recently, SJC has experienced some changes in airline service that will help the Airport in keeping up with the longer-term TAF projections. While the airport continues to benefit from a diverse portfolio of airlines and attract new air carriers, some of its already existing key players will greatly benefit from recent key strategic decisions. The recent addition of Alaska Airlines to the One World Alliance has the potential to increase connectivity at SJC through its partnership with American Airlines and British Airways, as passengers benefit from an increased global network. Through this partnership, leisure and business travelers will have the ability to connect virtually anywhere in the world with greater ease and potentially increase the regional share of originating passengers that had to previously commence travel at other airports such as at San Francisco International Airport (SFO).

Socio-Economic Drivers

San Jose is the largest city in Northern California and the 10th largest in the United States. The Bay Area, including Silicon Valley was also experiencing an economic boom prior to COVID-19 and the area was reported to be among the world's largest economies in Gross Domestic Product (GDP). Silicon Valley has long been an engine of growth, a nest for entrepreneurship, and the world's leading technology hub. The companies founded and headquartered in Silicon Valley have been transforming the world for over a half century. As 2020 began, Silicon Valley was in the midst of its ninth straight year of economic expansion, driven in large part by a booming innovation economy. Unemployment stood at a 19-year low of just 2.1 percent and the number of available jobs exceeded 4 million for the first time in history. Most of this activity occurs within 20 miles of SJC. While the outbreak of COVID-19 slowed down the region's rapid economic growth, Silicon Valley has the problem-solving capacity and financial support to emerge even stronger from the pandemic.

Although already densely populated, Silicon Valley continues to expand including new business development plans from businesses that will bring additional economic advantages to the area. Companies like Google, Apple, Nvidia, and Samsung continue to aggressively expand office space that will create additional jobs and population. Google Village, one of the largest projects slated for buildout, is expected to establish between 6 and 8 million square feet of office space with 25,000 jobs, in addition to a new hotel, residential buildings, event space, and increased retail and commercial space. These moves could continue to bolster the economy by bringing more jobs and people to Silicon Valley for work and leisure. Additional retail, business, and residential expansion in Santa Clara promises to potentially generate 24,000 additional jobs to the area in addition to mixed-use leisure and commercial space. **Table 5** summarizes the principal ongoing development plans in Silicon Valley, along with an estimation of the potential number of jobs likely to be generated from such developments. In total, the planned and on-going developments forecast that that almost 53 million square feet of space, almost 160,000 additional employees, and tens of thousands of residences will be added in short order within Silicon Valley. An increase in employment opportunities ultimately leads to increased population and a higher rate of consumer spending, which also benefits other businesses who depend on consumer sales to stay open and pay vendors. Overall, this leads to a healthier local economy and allows business and the local population to thrive, leading to increased demand and need for travel.

Table 5: Ongoing Development Plans in South Bay Region

Development Plans	Space Estimate (Mil Sq. Feet)	Potential Employees
Downtown San Jose		
Google Village	6.5	25,000
Platform 16	1.1	4,000
South Almaden Towers	2.1	7,000
200 Park Avenue	0.9	4,000
CityView Plaza	3.8	20,000
Adobe North (4th) Tower	1.3	4,000
Woz Way Offices	1.8	5,000
Market Street Towers	0.6	2,000
Museum Place	0.9	3,700
Sub-Total	**19**	**74,700**
San Jose/Santa Clara		
Coleman Highline (SJC)	2.1	5,000
Bay West Development	2	10,000
Brokaw (Google)	2	5,000
Related Santa Clara	9	20,000
Mission Point	11	10,000
Sub-Total	26.1	50,000
Major Development Totals	**45.1**	**124,700**
Recent/Partially Developed		
Apple Campus 2 (Spaceship)	2.8	13,000
Apple Campus 3 (Command Key)	0.9	4,000
Google Mountain View "Dome"	0.6	3,000
Peery Park (Sunnyvale)	3.5	15,000
Sub-Total	7.8	35,000
ALL DEVELOPMENTS TOTALS	**52.9**	**159,700**

Source: SJC Market Data

Even though some companies are relocating their corporate campuses outside of Silicon Valley, a mass exodus quoted by some media outlets is overstated and inaccurate, especially seeing such large infrastructure investments from major corporations such as Google and Apple. Telstra Ventures, in a CNN article reported that 96.9 percent of startups stayed in the Bay Area after COVID-19, and venture capital investments increased 4 percent from 2019. The Bay Area, especially Silicon Valley, is expected to continue to be the epicenter of the tech industry for years to come.

Employment

Even with COVID-19 causing significant U.S. and global job market losses in 2020, Silicon Valley observed positive job growth within the technology sector of 1.8 percent. Companies like Google have continued to pledge to add a significant number of high-paying new jobs to the area, bolstered by additional retail and residential space for people to live, work, and play.

Although COVID-19 led many companies to shift from in-office work requirements to a flexible work from home policy, an increase in vaccination rates and COVID-19 cases trending downwards, have resulted in companies navigating their return to office plans and timelines. Companies will need to determine the future of their work from home policies, balancing employees' desires to continue flexible work location policies with the billions of dollars they've already invested in large corporate campuses along with employee-centric amenities. Many of these campuses have been built to entice employees with lifestyle benefits such as on-site restaurants, childcare, gyms, and housing. Some companies like Uber are requiring a return to office date in September 2021 but allow a flexible schedule with 3 days a week in office and 2 days to work remotely. These type of policies will still require employees to live in the Silicon Valley area and continue to contribute to the economy in terms of residence, commuting, dining, and shopping. Google on the other hand, will invite employees back to the corporate campus in September or allow eligible employees to continue working remotely. The tech industry may experience extended remote work benefits, however, many of these large corporations have invested so heavily in their campuses, benefits, and amenities, such as free food and on-campus childcare as well as a collaborate in-person cross-functional culture that it may stifle company innovation and teamwork. Nicholas Bloom, an economics professor at Stanford University, believes a hybrid model such as the one Uber is adopting will likely become the norm, instead of a fully remote work from home corporate culture. Bloom stated that "it is hard to come up with new ideas and products working fully remote. Post pandemic will not change as tech employees tend to work well when at least part of the week they are together."

Population

Silicon Valley continues to attract and retain a highly educated workforce and higher income population via surrounding educational institutions such as Stanford University, Santa Clara University, and San Jose State University, and prestigious employers like Apple, Google, and Facebook. Not only do these companies help spur business travel, but also increase demands for leisure travel as a result of the relatively high-income population. Population is expected to increase at modest growth rates, especially as all of aforementioned developments construct additional residential units.

An important project to keep an eye on is the extension of the Bay Area Rapid Transit (BART) to San Jose Phase II, bringing the system into Downtown San Jose. BART is also projecting a ridership rebound with company return to office dates set for summer and fall of 2021 as the COVID 19 pandemic recedes. BART, Santa Clara Valley Transit Authority (VTA), and the City of San Jose are looking to at options for future expansion and connectivity alternatives linking downtown San Jose to SJC.

Design Day Derivation

Translating annualized activity to Design Day activity is essential to validate the timeline for when improvements are needed to sufficiently accommodate forecast demand. The Design Day is defined as the Average Weekday during the Peak Month (AWDPM). At SJC, this typically occurs during a weekday either in July or August. Using an airport's ultimate peak day as a definition for the Design Day is not a standard methodology within the aviation industry as it results in overdesigned facility improvements. Peak hour passenger and aircraft operation forecasts are based on Design Day Flight Schedules (DDFS) for the base year, 2019 (the last complete calendar year for which historical SJC aviation trends could be observed), and the ultimate forecast year 2029 when additional gates are anticipated to come online. The intermediate year 2026 is interpolated to identify the corresponding ratio of operations expected within a specific forecast year. The year 2026 corresponds to when additional processing and air carrier passenger airline gates are anticipated to be commissioned.

Based on consistent historical data trends, the future design day share of annual passengers and aircraft operations is expected to remain unchanged, and therefore, design day activity is projected to grow at the same rate as annual activity as identified in the 2020 TAF. Because of airline scheduling practices, SJC's geographic location, and the physical limitations of the airport, the design hour activity is projected to grow slightly less rapidly than annual or design day activity.

The following assumptions and procedures were used to prepare the design day schedules:

- The Average Weekday Peak Month (AWDPM) typically occurs in July or August. The design day share of annual passenger and aircraft operations was obtained from the analysis of historical data between 2010 and 2019 and is expected to remain unchanged.

- July 2019 OAG schedules were used as the initial source of flight times for the future schedules.

- The number of passenger and aircraft operations in the peak month is divided by 31 days to obtain the number of Average Day Peak Month (ADPM) operations.

- Average Day Peak Month (ADPM) enplanements and deplanements are increased by 6.01 percent to represent an average weekday in the peak month (AWDPM). Based on historical data, weekdays are typically busier than weekends or average days.

- Design Day originations and terminations assume a 4.1 percent historical connecting percentage. Originations are considered when evaluating impacts to outbound passenger processing facilities such as parking, curbside, ticketing, security, and outbound baggage screening and make-up. Terminations are considered when evaluating impacts ground transportation, inbound baggage, baggage claim, and international processing (where applicable).

- Enplaned and deplaned passengers were assigned to each flight based on existing load factors by airline for each market, with an adjustment for the projected increase in average load factor over the forecast period. The split between Origin and Destination (O&D) and connecting passengers for each market are based on each air carrier's average ratio of originating to enplaning passengers.

- Expectation of an up-gauging of average aircraft size leading to an increase in the number of seats available. This can be attributable to the Boeing 737 MAX line and the increase in popularity of the Airbus A321-NEO aircraft in place of A320 Classic aircraft.

Tables 6 and **7** summarize the aggregated results of the DDFS analyses to develop peak passenger and aircraft operations activity forecasts. The peak passenger and aircraft operations forecasts assume that the peak month share of annual passengers will not change. Consequently, the Design Day share of passengers and aircraft operations will remain constant. Finally, peak 60-minute enplanements, deplanements, and operations are projected to slightly decline as a share of the design day due to peak spreading.

Table 6: Peak Passenger Activity Forecast

Activity Category	15.0 MAP 2019[1]	19.8 MAP 2026	21.8 MAP 2029
Annual Enplanements	7,510,781	9,911,429	10,910,719
Peak Month Enplanements	694,610	916,626	1,009,042
ADPM Enplanements	22,407	29,569	32,550
Design Day Enplanements (AWDPM)	23,774	31,372	34,535
Design Day Originations	22,799	30,086	33,120
Peak 60 Minute Enplanements	2,436	3,215	3,539
Peak 60 Minute Originations	2,331	3,076	3,386
Annual Deplanements	7,510,781	9,911,429	10,910,719
Peak Month Deplanements	694,610	916,626	1,009,042
ADPM Deplanements	22,407	29,569	32,550
Design Day Deplanements (AWDPM)	23,774	31,372	34,535
Design Day Terminations	22,799	30,086	33,120
Peak 60 Minute Deplanements	2,462	3,248	3,576
Peak 60 Minute Terminations	2,362	3,117	3,432
Annual Passengers	15,021,562	19,822,858	21,821,438
Peak Month Passengers	1,389,219	1,833,251	2,018,083
ADPM Passengers	44,814	59,137	65,099
Design Day Passengers (AWDPM)	47,547	62,745	69,071
Design Day O&D	45,598	60,173	66,239
Peak 60 Minute Passengers	3,933	5,190	5,714
Peak 60 Minute O&D	3,789	5,000	5,504

Source: FAA 2020 TAF, SJC Historical Data, and HNTB Analysis

Note 1: 2019 enplanement based on the 2020 TAF; Design Day and Peak Hourly Data projected from historical ratios

Table 7: Peak Aircraft Operations Activity Forecast

Activity Category	15.0 MAP 2019[1]	19.8 MAP 2026	21.8 MAP 2029
Passenger			
Annual Operations	165,359	212,068	231,509
Peak Month Operations	14,743	18,908	20,641
ADPM Operations	476	610	666
Design Day Operations (AWDPM)	504	647	706
Peak 60-Minute Arrivals	26	33	37
Peak 60-Minute Departures	25	31	34
Peak 60-Minute Operations	40	52	56
Cargo			
Annual Operations	2,628	3,371	3,680
Peak Month Operations	324	415	453
ADPM Operations	11	14	15
Design Day Operations (AWDPM)	12	15	16
Peak 60-Minute Arrivals	5	6	7
Peak 60-Minute Departures	4	5	5
Peak 60-Minute Operations	6	8	8
General Aviation			
Annual Operations	36,769	38,799	39,147
Peak Month Operations	3,947	4,165	4,202
ADPM Operations	127	134	136
Design Day Operations (AWDPM)	135	143	144
Peak 60-Minute Arrivals	10	10	10
Peak 60-Minute Departures	10	10	10
Peak 60-Minute Operations	18	19	19
Military			
Annual Operations	219	219	219
Peak Month Operations	27	27	27
ADPM Operations	1	1	1
Design Day Operations (AWDPM)	1	1	1
Total			
Annual Operations	204,975	254,457	274,555
Peak Month Operations	19,041	23,515	25,324
ADPM Operations	615	759	817
Design Day Operations (AWDPM)	652	805	867
Peak 60-Minute Arrivals	28	35	38
Peak 60-Minute Departures	29	36	39
Peak 60-Minute Operations	57	70	75

Source: FAA 2020 TAF, SJC Historical Data, and HNTB Analysis

Note 1: 2019 Operations based on the 2020 TAF; Design Day and Peak Hourly Data projected from historical ratios

The July 17, 2019 schedule was selected as a representation of the baseline AWDPM, as the total operations were 461, similar to the total from **Table 7**. Peak operations were also close to those calculated in the ratio derivation. The 2019 schedule was gated using SJC's current gate inventory including the six additional interim gates. These six interim gates were constructed and opened prior to the Summer 2019 AWDPM operation. The gating resulted in 230 departures on 36 gates or an average of 6.4 departures per gate and revealed that the peak demand for aircraft gates is during the first departure bank of the day and the last arrival bank in the evening. Four gates are currently FIS-capable and able to accommodate the international arrivals in the 2019 schedule.

A hypothetical future 2029 design day flight schedule using the following key assumptions:

- AWDPM and peak-hour operations grow at the same rate as total annual operations.
- Airline market share is held constant, so that Southwest and Alaska add the most new flights.
- Up-gauging of the aircraft fleet is considered but not deemed to be a significant factor as the predominant shift to the Boeing 737 MAX from the current Boeing 737 Nextgen fleet (and their Airbus equivalencies A319/20/21 NEO series) have similar seat capacities.
- New entrants are added to provide three new international flights.
- Legacy carrier service (American Airlines, Delta Airlines, and United Airlines) is increased via increased frequency to existing hubs and limited service to new hubs.
- Some new flights are added to the schedule during off-peak times, to conservatively reflect some optimization of the terminal gate capacity.

The 2029 design day flight schedule is gated on 42 gates, reflecting the six new gates considered in the ongoing Draft EA. Two of the new gates are allocated to Alaska Airlines while the other four are allocated to Southwest Airlines. Other airline gate allocations are adjusted to optimize use of the terminal. The gating resulted in 300 departures using 42 gates or an average of 7.1 departures per gate. The representative 2019 baseline AWDPM schedule and hypothetical future 2029 design day flight schedule, along with illustrative ramp charts showing the gating results are provided in **Appendix C**.

The DDFS exercise underscores the need for additional gates beyond the Interim extension in order to serve more than 230 daily departures. In other words, the existing terminal, even with the interim gates, are insufficient to accommodate the 21.8 MAP schedule, anticipated in 2029, and six additional gates are required, as proposed in the Terminal B South Concourse Improvements.

Terminal Passenger Processing Capacity Considerations

SJC completed the *Near-Term Terminal Capacity Analysis* study (Landrum & Brown, 2017) (see **Appendix D**) which evaluated the processing and gate capacity for Terminal A, Terminal B, the U.S. Customs and Border Protection (CBP) facility, and the landside functions for these facilities at three demand levels (2017, 14.2 MAP, and High demand [14.2 MAP with additional operations due to lower load factors]). As noted previously in this memorandum, SJC has already exceeded the 14.2 MAP projection in 2018 and 2019 and has experienced many of the capacity shortfalls that are described in the report. A summary of the key findings from the Executive Summary of that report follows.

In the context of capacity, the report reviews the performance of the various terminal components in terms of LOS as defined by the International Air Transportation Association (IATA). In its latest version of the Airport Reference Design Manual (ADRM), 10th Edition, IATA defines LOS as presented in **Figure 7** below, where Suboptimum LOS indicates unstable passenger flows and unacceptable customer wait times.

Figure 7: IATA Level of Service Definition

Passenger Terminal Processor			
ADRM 9th Edition **ADRM 10th edition**	A B Over Design	C Optimum	D E Suboptimum

Source: L&B and IATA ADRM, 10th Edition

Terminal A Capacity Conclusions:

- Departures processing capacity was determined to be Optimum for 14 MAP, assuming ticket counter allocation utilizing the lease agreements. At the High demand levels, the departures processing capacity was found to be marginally SubOptimum.

- The hold-room area was determined to be SubOptimum at 2017, 14 MAP and 14 High demand levels using an unlikely but conservative assumption of all gates occupied by the maximum gauge aircraft.

- Baggage make-up, as well as bag claim areas, were determined to be marginally SubOptimum at 14 MAP and substantially SubOptimum at High demand levels.

Terminal B Capacity Conclusions:

- The departures processing and bag claim frontage were marginally SubOptimum at 2017 demand levels.

- At 14 MAP demand levels, the departures processing, baggage makeup, and bag claim area were marginally SubOptimum, and bag claim frontage was determined to be substantially SubOptimum.

- At High demand levels, departures processing, baggage makeup, security checkpoint lanes, bag claim frontage and bag claim area were found to be substantially SubOptimum.

U.S. CBP Capacity Conclusions

- Most components of the CBP facilities were found to be SubOptimum for 2017 and 14 MAP demand levels.

- Passport Check queue areas were determined to be significantly undersized, baggage claim devices and Exit control area were found to be undersized.

- The Arrivals Hall was found to be undersized for 14 MAP demand levels.

Landside Capacity Conclusions:

- Terminal B inner curbsides are anticipated to fail during the departures as well as arrivals peak hours for all future demand level scenarios.

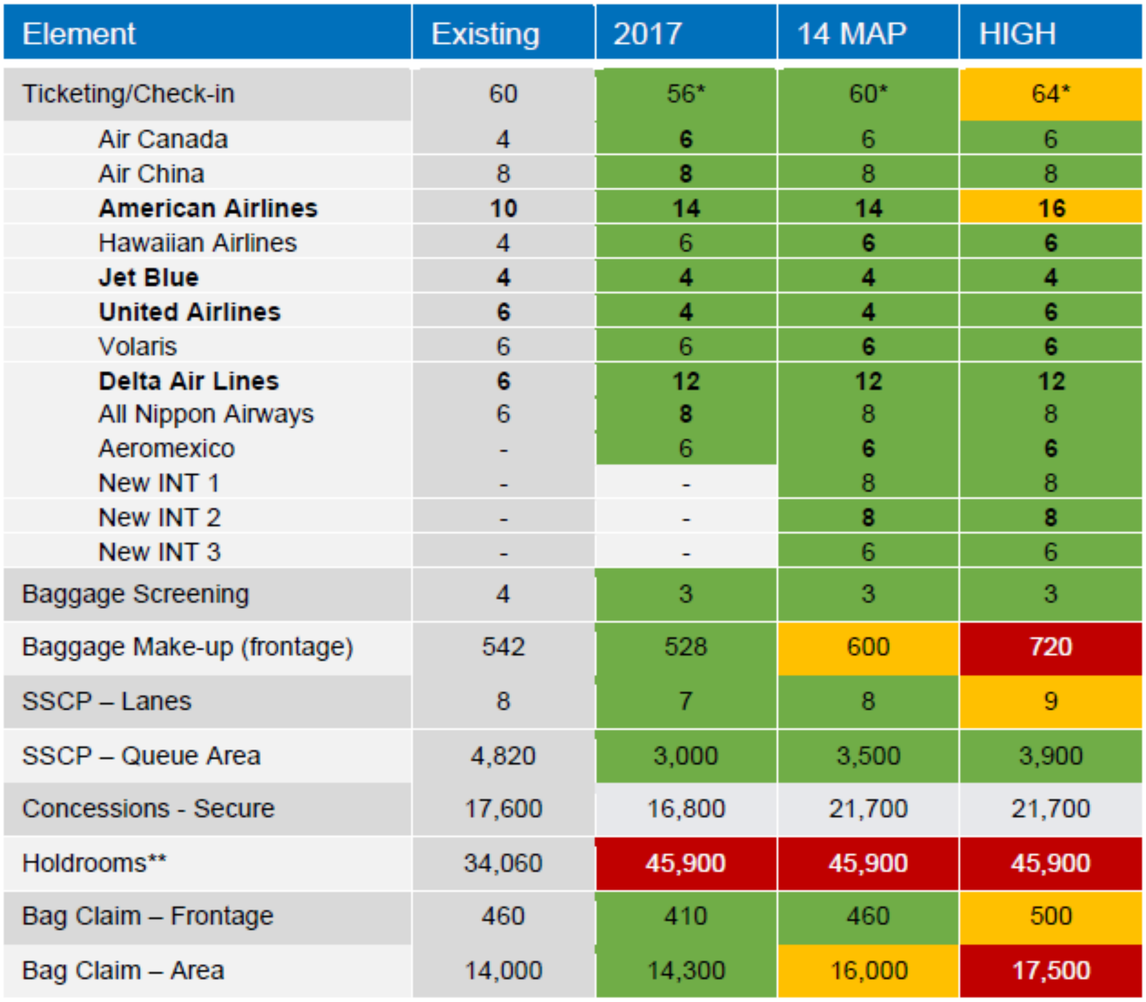
- Terminal A departure curbsides are likely to be moderately congested during the peak hours at 14 MAP baseline as well as 14 MAP high demand levels.

- All other curbsides are expected to operate at an acceptable Level of Service (LOS) with periods of minor congestion during the peak hours at all demand level scenarios.

- Terminal B inner curbside roadway will be congested at 14 MAP as well as High demand levels. However, this is a direct result of the curbside congestion and will mitigate itself once the curbsides are mitigated.

Depictions of the LOS analysis from the capacity report are included in **Figure 8** and **9** below for Terminal A and Terminal B, respectively.

Figure 8: Terminal A Capacity Analysis Summary



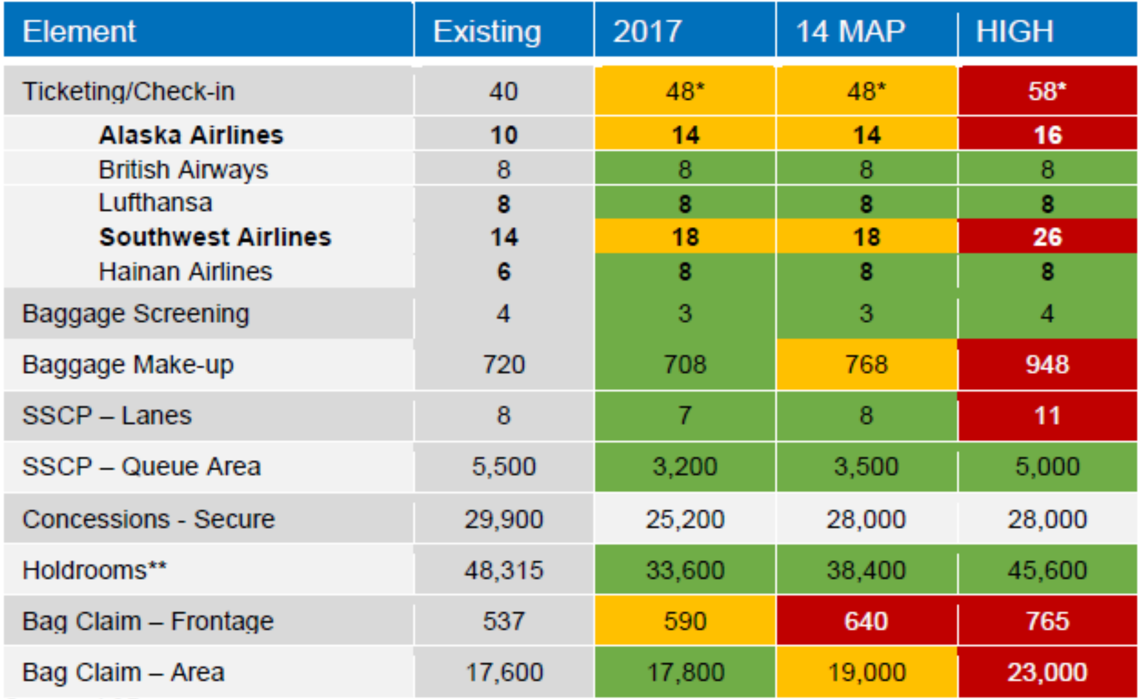
Element	Existing	2017	14 MAP	HIGH
Ticketing/Check-in	60	56*	60*	64*
Air Canada	4	**6**	6	6
Air China	8	**8**	8	8
American Airlines	**10**	**14**	**14**	**16**
Hawaiian Airlines	4	6	**6**	**6**
Jet Blue	**4**	**4**	**4**	**4**
United Airlines	**6**	**4**	**4**	**6**
Volaris	6	6	**6**	**6**
Delta Air Lines	**6**	**12**	**12**	**12**
All Nippon Airways	6	**8**	8	8
Aeromexico	-	6	**6**	**6**
New INT 1	-	-	8	8
New INT 2	-	-	**8**	**8**
New INT 3	-	-	6	6
Baggage Screening	4	3	3	3
Baggage Make-up (frontage)	542	528	600	720
SSCP – Lanes	8	7	8	9
SSCP – Queue Area	4,820	3,000	3,500	3,900
Concessions - Secure	17,600	16,800	21,700	21,700
Holdrooms**	34,060	45,900	45,900	45,900
Bag Claim – Frontage	460	410	460	500
Bag Claim – Area	14,000	14,300	16,000	17,500

Source: L&B

*Table Notes: * Numbers shown bold are included in the peak ticket counter position requirements due to the timing of the flights.*

*** Includes remote bus gate holdrooms*

Figure 9: Terminal B Capacity Analysis Summary



Element	Existing	2017	14 MAP	HIGH
Ticketing/Check-in	40	48*	48*	58*
Alaska Airlines	**10**	**14**	**14**	**16**
British Airways	8	8	8	8
Lufthansa	**8**	**8**	**8**	**8**
Southwest Airlines	**14**	**18**	**18**	**26**
Hainan Airlines	**6**	**8**	**8**	**8**
Baggage Screening	4	3	3	4
Baggage Make-up	720	708	768	948
SSCP – Lanes	8	7	8	11
SSCP – Queue Area	5,500	3,200	3,500	5,000
Concessions - Secure	29,900	25,200	28,000	28,000
Holdrooms**	48,315	33,600	38,400	45,600
Bag Claim – Frontage	537	590	640	765
Bag Claim – Area	17,600	17,800	19,000	23,000

Source: L&B

*Table Notes: * Numbers shown bold are included in the peak ticket counter position requirements due to the timing of the flights. ** Includes holdroom area designated for Gates 29 and 30*

SJC does not collect specific analytics to validate the actual performance of these terminal functions against their anticipated performance from the 2017 report. However, reports from SJC Terminal Operations staff identified that there have been 435 reported disruptions of terminal operations in the last five years resulting from capacity challenges. This validates the significant capacity shortfalls with multiple passenger processing functions such as the domestic baggage claim frontage and circulation, outbound baggage, security checkpoints, and FIS processing. These shortfalls resulted in substantial congestion, lengthy queues, and long customer wait times that exceed industry-accepted standards for level of service. While the 2017 study only evaluated demand up to 14.2 MAP, the forecast recovery in the 2020 TAF projects that SJC will return to this activity level between 2023 and 2024. By 2026, additional LOS degradation will be experienced by those aforementioned processing components and will also put further pressure on the functions only found to be marginally sub-optimal in the analysis. The passenger processing improvements planned to open in 2026 are needed to meet the forecast demand by 2024.

Terminal Contact Gates

Gate requirements are estimated based on actual airline schedules from a representative 2019 Design Day and a projection of airlines schedules in the 2029 DDFS. The requirements for intermediate year 2026 are interpolated. Assumptions include the following:

- Current preferential/common use lease arrangement(s) continue.
- Remain Overnight (RON) flight are towed to and from hardstands when they do not need to load or unload passengers and the gate is required by another aircraft.
- International gates are used by domestic carriers when not needed for international flights.

- A 15-minute buffer time between a departing aircraft and the next arriving aircraft at the same gate for domestic flights is assumed. That buffer time is increased to 30 minutes for overseas international flights.

- Average gate utilization can be increased slightly if airlines are able to add capacity during off-peak times.

Table 8 below summarizes the future gate requirements needs at SJC based on the Design Day data derived from the 2020 TAF. It identifies that there is a deficiency of six (6) contact gates by 2026 and that increases to ten (10) gates by 2029. The planned additional gate capacity is needed to support the forecast of gate requirements. Even with the planned capacity, there will still be additional demand for gates that will require operational and scheduling improvements to further increase the efficiency of SJC's facilities.

Table 8: Gate Requirements Summary

	2019 [1]	**2026**	**2029**
Design Day Passenger Aircraft Operations	476	610	666
Design Day Passenger Aircraft Departures	238	305	333
Recommended Contact Gates	36	42	46
Existing Gates	36	36	36
Average Gate Utilization Rate	6.6	7.3	7.2
Surplus / (Deficiency) with Existing Gates	**+1**	**(6)**	**(10)**
Surplus / (Deficiency) with South Concourse Extension	**+1**	**(5)**	**(4)**

Source: FAA 2020 TAF, SJC Historical Data, and HNTB Analysis

Summary

SJC's early signs of recovery coupled with its continued positive employment, income, and population trends will result in robust near- and medium-term growth. The adoption of the 2020 TAF as the Forecast for this Draft EA provides the necessary justification to support the Proposed Action. The translation of the TAF's annual activity to Design Day passenger and operational activity validates that additional passenger processing facilities and contact gates are needed to meet the forecast demand.

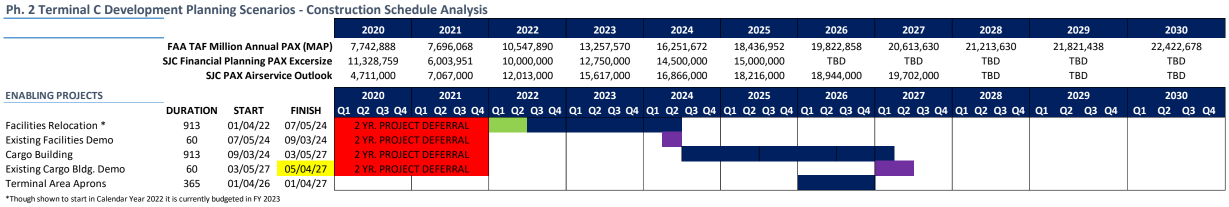
Project's Next Steps

Enabling Projects

Prior to constructing Aircraft Gates 38-42, SJC must construct new Facilities and Maintenance Building(s) on the southwest quadrant of the Airport adjacent to the new Aircraft Rescue and Firefighting (ARFF) building, then subsequently demolish the existing Facilities Maintenance Building currently located south of Terminal B to be able to construct a new Cargo Building in its place.

Upon completion of the new Cargo Building, SJC would subsequently demolish the existing Cargo Building which would then facilitate construction of Gates 38-42 (constrained physically until New Cargo Building is complete). The anticipated schedule of the Enabling projects is identified in **Figure 10** below:

Figure 10: Enabling Projects Schedule



Ph. 2 Terminal C Development Planning Scenarios - Construction Schedule Analysis

	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
FAA TAF Million Annual PAX (MAP)	7,742,888	7,696,068	10,547,890	13,257,570	16,251,672	18,436,952	19,822,858	20,613,630	21,213,630	21,821,438	22,422,678
SJC Financial Planning PAX Excersize	11,328,759	6,003,951	10,000,000	12,750,000	14,500,000	15,000,000	TBD	TBD	TBD	TBD	TBD
SJC PAX Airservice Outlook	4,711,000	7,067,000	12,013,000	15,617,000	16,866,000	18,216,000	18,944,000	19,702,000	TBD	TBD	TBD

ENABLING PROJECTS	DURATION	START	FINISH	2020–2021
Facilities Relocation *	913	01/04/22	07/05/24	2 YR. PROJECT DEFERRAL
Existing Facilities Demo	60	07/05/24	09/03/24	2 YR. PROJECT DEFERRAL
Cargo Building	913	09/03/24	03/05/27	2 YR. PROJECT DEFERRAL
Existing Cargo Bldg. Demo	60	03/05/27	05/04/27	2 YR. PROJECT DEFERRAL
Terminal Area Aprons	365	01/04/26	01/04/27	

*Though shown to start in Calendar Year 2022 it is currently budgeted in FY 2023

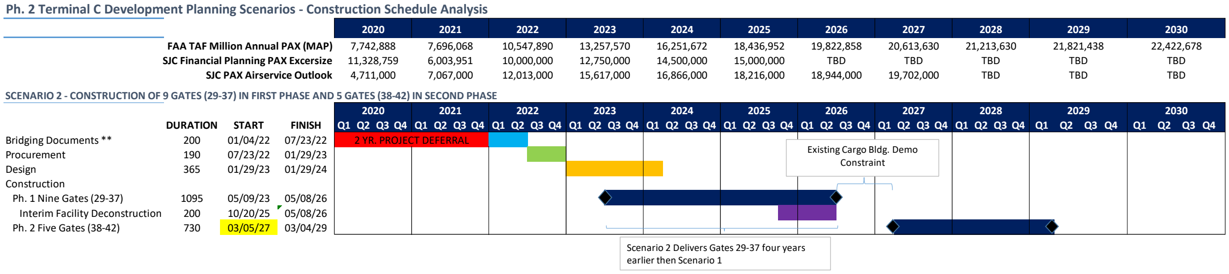
Source: SJC Data

The Enabling Projects will take multiple years to complete as identified in the schedule above. The Terminal B South Concourse itself will take four years at a minimum to design, procure, construct, test, and commission.

Terminal B South Concourse Extension

As currently envisioned, SJC will construct Gates 29-37 in an initial phase in one construction contract with an "Add Alternate" to deliver Gates 38-42 after completion of the New Cargo Building and demolition of the existing Cargo Building which is currently located physically within the footprint of future Gates 38-42. This schedule is depicted in **Figure 11** below. This strategy was determined to be feasible and most probable, as it allows construction of Gates 29-37 prior to completing demolition of the existing Cargo Building, providing the needed processing capacity to support the forecast volume of passengers.

Figure 11: Terminal B South Concourse Extension Schedule



Ph. 2 Terminal C Development Planning Scenarios - Construction Schedule Analysis

	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
FAA TAF Million Annual PAX (MAP)	7,742,888	7,696,068	10,547,890	13,257,570	16,251,672	18,436,952	19,822,858	20,613,630	21,213,630	21,821,438	22,422,678
SJC Financial Planning PAX Excersize	11,328,759	6,003,951	10,000,000	12,750,000	14,500,000	15,000,000	TBD	TBD	TBD	TBD	TBD
SJC PAX Airservice Outlook	4,711,000	7,067,000	12,013,000	15,617,000	16,866,000	18,216,000	18,944,000	19,702,000	TBD	TBD	TBD

SCENARIO 2 - CONSTRUCTION OF 9 GATES (29-37) IN FIRST PHASE AND 5 GATES (38-42) IN SECOND PHASE

	DURATION	START	FINISH	2020–2021
Bridging Documents **	200	01/04/22	07/23/22	2 YR. PROJECT DEFERRAL
Procurement	190	07/23/22	01/29/23	
Design	365	01/29/23	01/29/24	
Construction				
Ph. 1 Nine Gates (29-37)	1095	05/09/23	05/08/26	
Interim Facility Deconstruction	200	10/20/25	05/08/26	
Ph. 2 Five Gates (38-42)	730	03/05/27	03/04/29	

Existing Cargo Bldg. Demo Constraint

Scenario 2 Delivers Gates 29-37 four years earlier then Scenario 1

Source: SJC Data

SJC's internal planning data shows (contingent upon actual passenger growth numbers) that they must begin the entire programmatic process no later than Q1 of 2022 to deliver Gates 29-37 by Q2 2026. Relatedly, FAA's approval of the EA is required no later than Q1 2022 otherwise the City would be proceeding at risk to procure Design-Build services without federal environmental approval. If the EA is approved beyond Q1 2022 there will be a day-for-day delay to delivering the Terminal B South Concourse Improvements in its entirety.

Appendix A: 2020 Terminal Area Forecast

APO TERMINAL AREA FORECAST DETAIL REPORT

Forecast Issued May 2021

SJC

REGION:AWP **STATE:**CA **LOCID:**SJC

CITY:SAN JOSE **AIRPORT:**Norman Y Mineta San Jose International

				AIRCRAFT OPERATIONS										
	Enplanements			Itinerant Operations					Local Operations					
Fiscal Year	**Air Carrier**	**Commuter**	**Total**	**Air Carrier**	**Air Taxi & Commuter**	**GA**	**Military**	**Total**	**Civil**	**Military**	**Total**	**Total Ops**	**Total Tracon Ops**	**Based Aircraft**
1990	3,166,035	178,636	3,344,671	95,949	50,985	114,714	631	262,279	56,234	38	56,272	318,551	0	680
1991	3,239,706	216,072	3,455,778	101,040	54,868	115,098	606	271,612	65,292	24	65,316	336,928	0	680
1992	3,266,672	244,842	3,511,514	95,874	55,792	122,382	1,023	275,071	67,823	24	67,847	342,918	0	680
1993	3,073,481	230,823	3,304,304	88,984	46,116	110,504	1,027	246,631	65,774	0	65,774	312,405	0	680
1994	3,925,910	59,802	3,985,712	105,314	17,405	104,157	844	227,720	70,500	0	70,500	298,220	0	680
1995	4,265,347	70,559	4,335,906	103,373	20,135	85,805	729	210,042	60,477	0	60,477	270,519	0	680
1996	4,720,710	56,309	4,777,019	115,785	9,125	85,503	431	210,844	68,097	0	68,097	278,941	0	680
1997	5,009,705	57,371	5,067,076	126,790	7,225	91,035	266	225,316	77,667	531	78,198	303,514	0	680
1998	4,933,367	106,053	5,039,420	130,517	9,084	81,454	467	221,522	66,450	6	66,456	287,978	0	680
1999	5,444,470	57,695	5,502,165	145,321	6,475	89,495	407	241,698	62,662	4	62,666	304,364	0	417
2000	5,964,533	60,302	6,024,835	144,070	12,550	89,099	197	245,916	53,305	16	53,321	299,237	0	417
2001	6,260,031	57,585	6,317,616	155,755	20,665	71,633	252	248,305	38,017	7	38,024	286,329	0	417
2002	5,004,072	218,942	5,223,014	130,330	28,318	54,508	152	213,308	15,113	26	15,139	228,447	0	417
2003	4,769,318	366,391	5,135,709	121,539	35,371	50,636	143	207,689	11,894	0	11,894	219,583	0	417
2004	4,711,465	510,098	5,221,563	123,944	33,455	46,069	126	203,594	14,395	0	14,395	217,989	0	417
2005	4,731,842	562,543	5,294,385	125,916	29,908	45,618	77	201,519	18,660	0	18,660	220,179	0	417
2006	4,745,633	552,278	5,297,911	125,441	27,188	42,016	111	194,756	19,936	58	19,994	214,750	0	185
2007	4,769,778	516,674	5,286,452	123,447	28,441	40,207	89	192,184	15,250	18	15,268	207,452	0	176
2008	4,470,130	488,341	4,958,471	117,753	26,749	36,901	58	181,461	15,889	72	15,961	197,422	0	166
2009	3,731,156	425,953	4,157,109	94,214	27,351	30,049	375	151,989	16,976	16	16,992	168,981	0	161
2010	3,653,789	375,496	4,029,285	85,113	23,167	26,099	285	134,664	4,353	3	4,356	139,020	0	161
2011	3,734,255	390,048	4,124,303	84,294	23,035	25,320	245	132,894	4,918	2	4,920	137,814	0	138
2012	3,677,059	379,448	4,056,507	81,198	22,287	25,817	234	129,536	5,813	230	6,043	135,579	0	123
2013	3,820,929	407,892	4,228,821	84,388	20,883	26,674	232	132,177	4,210	64	4,274	136,451	0	133
2014	4,067,245	478,800	4,546,045	87,880	23,102	25,753	197	136,932	4,214	46	4,260	141,192	0	133
2015	4,215,615	537,950	4,753,565	89,714	23,507	29,241	220	142,682	4,634	54	4,688	147,370	0	133
2016	4,606,411	539,934	5,146,345	98,908	23,450	29,594	252	152,204	4,237	20	4,257	156,461	0	133
2017	5,198,612	701,005	5,899,617	115,361	23,289	29,550	240	168,440	4,630	8	4,638	173,078	0	133
2018	5,932,283	925,028	6,857,311	133,497	23,048	32,317	250	189,112	3,845	4	3,849	192,961	0	133
2019	6,532,864	977,917	7,510,781	146,401	21,586	32,885	212	201,084	3,363	56	3,419	204,503	0	126
2020*	3,422,638	448,806	3,871,444	96,255	16,770	23,795	174	136,994	3,884	45	3,929	140,923	0	126
2021*	3,379,959	468,075	3,848,034	85,311	17,529	21,986	174	125,000	3,884	45	3,929	128,929	0	126
2022*	4,635,134	638,811	5,273,945	104,980	18,476	25,450	174	149,080	3,884	45	3,929	153,009	0	126
2023*	5,825,083	803,702	6,628,785	137,093	19,487	29,596	174	186,350	3,884	45	3,929	190,279	0	126
2024*	7,142,922	982,914	8,125,836	160,209	20,493	34,685	174	215,561	3,884	45	3,929	219,490	0	126
2025*	8,107,326	1,111,150	9,218,476	180,246	21,536	34,800	174	236,756	3,884	45	3,929	240,685	0	126
2026*	8,719,065	1,192,364	9,911,429	193,650	21,789	34,915	174	250,528	3,884	45	3,929	254,457	0	126
2027*	9,067,969	1,238,846	10,306,815	201,127	22,027	35,031	174	258,359	3,884	45	3,929	262,288	0	126
2028*	9,331,684	1,275,230	10,606,914	206,873	22,263	35,147	174	264,457	3,884	45	3,929	268,386	0	126
2029*	9,598,739	1,311,980	10,910,719	212,688	22,501	35,263	174	270,626	3,884	45	3,929	274,555	0	126
2030*	9,862,975	1,348,364	11,211,339	218,409	22,741	35,380	174	276,704	3,884	45	3,929	280,633	0	126
2031*	10,135,095	1,385,834	11,520,929	224,301	22,984	35,497	174	282,956	3,884	45	3,929	286,885	0	126
2032*	10,426,808	1,425,932	11,852,740	230,618	23,230	35,614	174	289,636	3,884	45	3,929	293,565	0	126
2033*	10,721,854	1,466,467	12,188,321	237,002	23,478	35,732	174	296,386	3,884	45	3,929	300,315	0	126
2034*	11,011,043	1,506,201	12,517,244	243,252	23,728	35,850	174	303,004	3,884	45	3,929	306,933	0	126
2035*	11,295,691	1,545,319	12,841,010	249,397	23,980	35,969	174	309,520	3,884	45	3,929	313,449	0	126
2036*	11,584,427	1,584,990	13,169,417	255,626	24,235	36,088	174	316,123	3,884	45	3,929	320,052	0	126
2037*	11,874,251	1,624,800	13,499,051	261,874	24,492	36,208	174	322,748	3,884	45	3,929	326,677	0	126
2038*	12,159,231	1,663,946	13,823,177	268,010	24,751	36,328	174	329,263	3,884	45	3,929	333,192	0	126
2039*	12,442,960	1,702,921	14,145,881	274,114	25,012	36,448	174	335,748	3,884	45	3,929	339,677	0	126
2040*	12,731,717	1,742,589	14,474,306	280,325	25,276	36,568	174	342,343	3,884	45	3,929	346,272	0	126
2041*	13,030,686	1,783,637	14,814,323	286,754	25,543	36,690	174	349,161	3,884	45	3,929	353,090	0	126
2042*	13,331,830	1,824,976	15,156,806	293,226	25,812	36,811	174	356,023	3,884	45	3,929	359,952	0	126
2043*	13,635,709	1,866,686	15,502,395	299,753	26,084	36,933	174	362,944	3,884	45	3,929	366,873	0	126
2044*	13,948,030	1,909,523	15,857,553	306,458	26,359	37,055	174	370,046	3,884	45	3,929	373,975	0	126
2045*	14,267,239	1,953,303	16,220,542	313,309	26,637	37,178	174	377,298	3,884	45	3,929	381,227	0	126

Appendix B: SJC Current Conditions and Outlook

SJC Current Conditions and Outlook

Where Does SJC Stand Regarding Terminal Expansion Planning?

Despite the COVID-driven pause in SJC’s record breaking growth, the airport remains well-positioned to resume those trends.

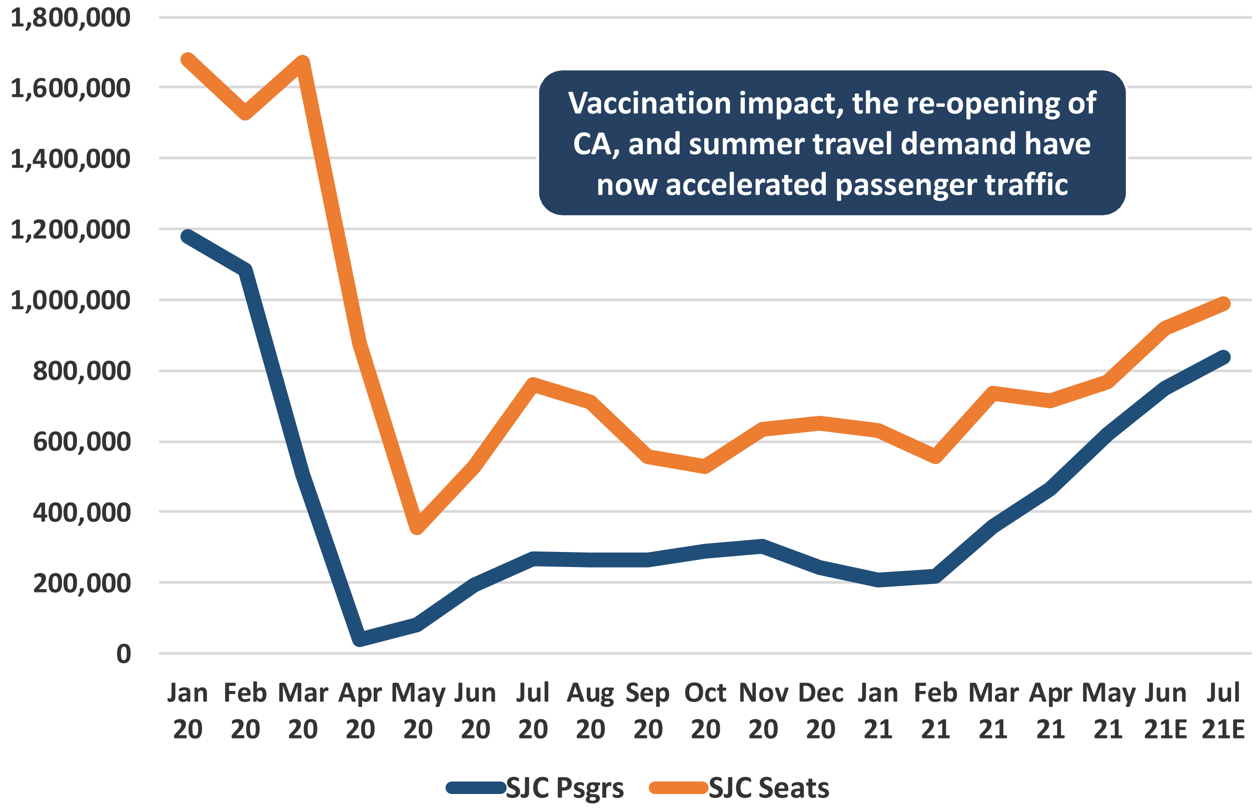
- ✓ Airline traffic and capacity recovery is accelerating
- ✓ Current and future fleet mix expected to center on new-generation narrow body aircraft with wide bodies and regionals in smaller numbers
- ✓ SJC continues to benefit from a diverse portfolio of airlines

Already approaching LOS (level of service) challenges prior to COVID, projections indicate that terminal expansion remains a priority.

- ✓ SJC’s own record-level throughput confirmed pressure points
- ✓ Silicon Valley dynamics point to a return of record air travel demand
- ✓ FAA’s TAFs and SJC’s outlook imply urgency for terminal expansion planning and related enabling projects

SJC Current Conditions

Monthly Passenger and Capacity Trends



SJC Passenger and Seat Capacity Recovery Trends

Vaccination impact, the re-opening of CA, and summer travel demand have now accelerated passenger traffic

SJC Changes in Airline Service

Monthly Departing Flights by Airline

SJC Monthly Departures by Airline

Airline	Origin	Jan 2021 Flights	Feb 2021 Flights	Mar 2021 Flights	Apr 2021 Flights	May 2021 Flights	Jun 2021 Flights	Jul 2021 Flights
American	SJC	147	129	174	167	175	250	258
Alaska	SJC	629	569	626	767	812	865	869
JetBlue	SJC	0	0	0	0	0	25	49
British Air	SJC	0	0	0	0	0	0	14
Delta	SJC	297	268	318	348	384	422	449
Frontier	SJC	5	16	22	25	18	14	13
Hawaiian	SJC	48	44	49	57	62	60	62
United	SJC	92	84	92	90	93	110	155
Southwest	SJC	1,039	884	1,354	1,188	1,269	1,674	1,791
Volaris	SJC	92	68	35	59	83	82	85
	TOTAL	2,349	2,062	2,670	2,701	2,896	3,502	3,745

+59%

SJC Changes in Airline Service

Monthly Seat Capacity Trends

SJC Monthly Departing Seat Capacity by Airline

Airline	Jan 2020 Dept Seats	Feb 2020 Dept Seats	Mar 2020 Dept Seats	Apr 2020 Dept Seats	May 2020 Dept Seats	Jun 2020 Dept Seats	Jul 2020 Dept Seats	Aug 2020 Dept Seats	Sep 2020 Dept Seats	Oct 2020 Dept Seats	Nov 2020 Dept Seats	Dec 2020 Dept Seats	Jan 2021 Dept Seats	Feb 2021 Dept Seats	Mar 2021 Dept Seats	Apr 2021 Dept Seats	May 2021 Dept Seats	Jun 2021 Dept Seats
American	115,802	111,564	115,932	39,666	22,252	26,048	52,406	45,494	41,476	36,380	36,736	37,436	46,129	39,858	56,800	51,859	56,733	59,930
Air Canada	12,920	13,072	9,500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Aeromexico	4,464	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Alaska	264,427	237,399	276,610	62,446	42,813	65,652	85,792	112,599	105,508	93,746	111,352	129,810	129,653	123,007	135,176	156,687	167,268	184,607
JetBlue	27,012	27,528	32,736	4,464	0	0	0	0	0	0	0	0	0	0	0	0	0	8,284
British Air	12,528	9,504	10,368	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Delta	164,852	151,529	165,719	43,509	36,544	36,420	58,074	49,118	47,400	50,406	49,328	49,159	44,772	40,712	48,246	53,154	60,213	66,940
Frontier	18,216	11,708	15,196	4,616	0	0	2,976	0	5,580	9,260	8,516	5,296	1,860	5,952	8,184	9,300	6,672	5,124
Hawaiian	23,436	21,924	21,924	0	0	0	0	0	0	0	11,151	17,388	18,511	16,632	18,522	21,546	23,436	22,680
Hainan	9,826	2,314	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ANA	11,240	10,042	7,774	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
United	52,640	44,548	46,622	19,990	16,144	12,096	9,240	11,480	11,760	19,144	16,480	16,668	16,422	14,896	15,526	15,960	16,492	18,312
Southwest	936,056	863,696	945,468	680,369	236,387	378,773	540,908	475,858	327,349	303,450	376,197	359,680	339,266	290,200	440,157	386,360	408,118	495,474
Volaris	26,394	23,874	24,576	22,544	2,148	8,592	12,586	17,240	18,616	14,678	25,592	34,664	32,978	24,512	12,180	20,532	28,884	28,536
TOTAL	1,679,813	1,528,702	1,672,425	877,604	356,288	527,581	761,982	711,789	557,689	527,064	635,352	650,101	629,591	555,769	734,791	715,398	767,816	889,887

This chart depicts the entire period impacted by COVID

SJC Aircraft Requirements

2019 Fleet Mix by Aircraft Type and Monthly Departures

	Equipment	Aircraft	Jan 2019 Deptrs	Feb 2019 Deptrs	Mar 2019 Deptrs	Apr 2019 Deptrs	May 2019 Deptrs	Jun 2019 Deptrs	Jul 2019 Deptrs	Aug 2019 Deptrs	Sep 2019 Deptrs	Oct 2019 Deptrs	Nov 2019 Deptrs	Dec 2019 Deptrs	CY2019 Deptrs	Future
Wide	332	A330-200				2	12	10	4						28	A350-900 777-200LR 777-300ER
	787	B787	13	11	12	5							1		42	
	788	B787-8	31	28	31	30	31	17	31	31	30	31	23	31	345	
	789	B787-9	30	21	33	41	49	65	48	49	48	47	45	40	516	
Narrow	221	A220-100					27	123	160	158	101	165	113	122	969	A220-300 A321LR 737-9MAX
	223	A220-300													0	
	319	A319	191	174	279	238	293	227	165	89	63	121	157	130	2,127	
	320	A320	293	239	305	347	309	419	451	418	393	413	361	389	4,337	
	321	A321	71	56	62	58	64	59	74	78	92	98	104	76	892	
	32A	A321	6		5	8	2	19	14	5	20	16	30	20	145	
	32B	A321											2	1	3	
	32N	A321neo											8	14	22	
	32S	A321							30	126	143	120	116	121	656	
	717	B717	37	16	61	59	58	2			21				254	
	737	B737-700	7												7	
	738	B737-800	428	322	286	312	397	451	490	606	554	576	503	488	5,413	
	739	B737-900	158	161	217	246	301	296	295	293	297	315	198	216	2,993	
	73G	B737-700		5	25	4	4	3	12	1	19	10			83	
	73H	B737-800W	671	649	658	660	711	744	766	597	658	668	679	688	8,149	
	73J	B737-900W	276	267	202	254	175	140	186	167	142	134	130	141	2,214	
	73W	B737-700W	2,154	1,957	2,303	2,431	2,546	2,451	2,561	2,622	2,477	2,539	2,169	2,336	28,546	
	7M8	737-8MAX	88	84	113	26									311	
	757	B757-200	3							1	30	54	47	46	181	
	75W	B757-300	3	1											4	
< 100	CR7	CRJ-700	20	20	22	26	26	48	51	81	48	52	43	25	462	
	CR9	CRJ-900	85	80	88	86	93	85	93	93	86	84	60	78	1,011	
	CRJ	CRJ-200	2	2						2	4				10	
	E75	E175	1,293	1,183	1,244	1,212	1,222	1,135	1,136	1,168	1,119	1,106	1,059	1,089	13,966	
	E7W	E175	26	12	1	1	1	84	90	87	37	1	21	66	427	
	ERJ	E145	10	28											38	
	TOTAL		5,896	5,316	5,947	6,046	6,321	6,378	6,657	6,672	6,382	6,550	5,869	6,117	74,151	
	Wides		74	60	76	78	92	92	83	80	78	78	69	71	931	
			1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	
	Narrows		4,386	3,931	4,516	4,643	4,887	4,934	5,204	5,161	5,010	5,229	4,617	4,788	57,306	
			74%	74%	76%	77%	77%	77%	78%	77%	79%	80%	79%	78%	77%	
	<100 Seats		1,436	1,325	1,355	1,325	1,342	1,352	1,370	1,431	1,294	1,243	1,183	1,258	15,914	
			24%	25%	23%	22%	21%	21%	21%	21%	20%	19%	20%	21%	21%	

SJC Gate Utilization By Terminal

Mix of Carriers Produces Different Throughput Results

SJC Annual Gate Utilization (000s)

Year	Gates	T-A Annual Passengers per Gate	Annual Passengers	Gates	T-B Annual Passengers per Gate	Annual Passengers	Total Gates	Total Passengers
2017	16	279	4,463	12	668	8,017	28	12,480
2018	16	303	4,850	14	676	9,469	30	14,319
2019	16	295	4,720	20	547	10,930	36	15,650
Outlook	**16**	**315**	**5,040**	**20**	**680**	**13,600**	**36**	**18,640**

Based upon actual gate throughput, the current SJC terminal configuration can accommodate approximately 18.6 MAP

This does not consider over-stressed TSA security checkpoints, baggage claim or makeup space, ticket counters, curbside, etc.

SJC Forecasts vs. Terminal Constraints

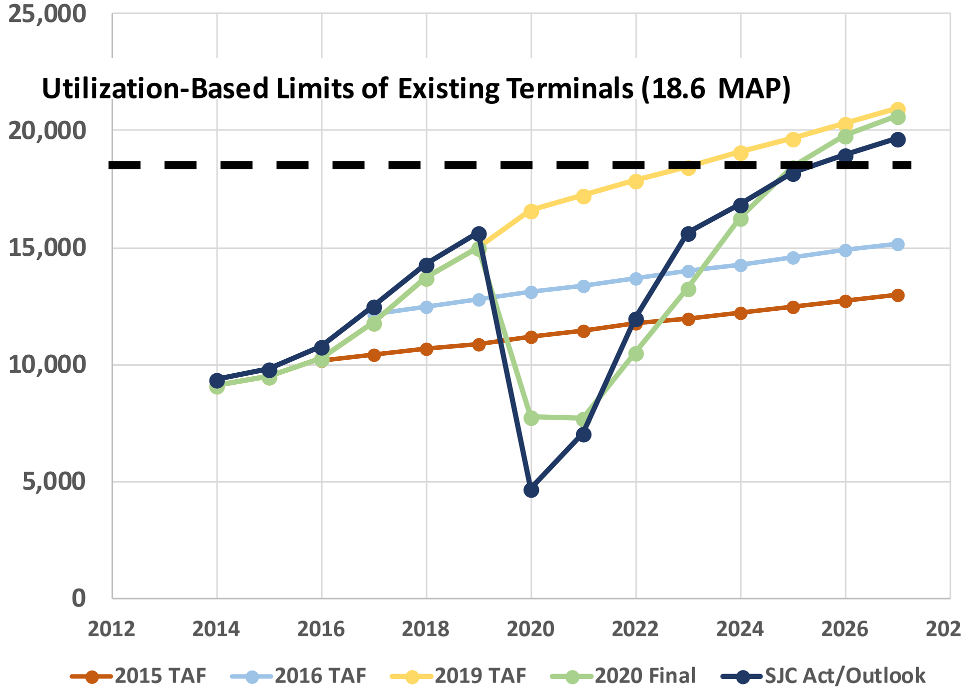
Terminal Expansion Remains A Priority

SJC Forecasts (000s)

Year End	2015 TAF	2016 TAF	2019 TAF	2020 Final	SJC Act/Outloo
2014			9,092	9,092	9,386
2015			9,507	9,507	9,799
2016	10,143		10,293	10,293	10,797
2017	10,405	12,148	11,799	11,799	12,480
2018	10,656	12,487	13,715	13,715	14,319
2019	10,905	12,795	15,011	15,022	15,650
2020	11,185	13,084	16,611	7,743	4,711
2021	11,479	13,389	17,243	7,696	7,067
2022	11,745	13,694	17,873	10,548	12,013
2023	11,992	13,989	18,491	13,258	15,617
2024	12,235	14,278	19,100	16,252	16,866
2025	12,476	14,569	19,707	18,437	18,216
2026	12,726	14,875	20,318	19,823	18,944
2027	12,982	15,186	20,935	20,614	19,702

Both sets of projections indicate the need for terminal expansion within the next several years.

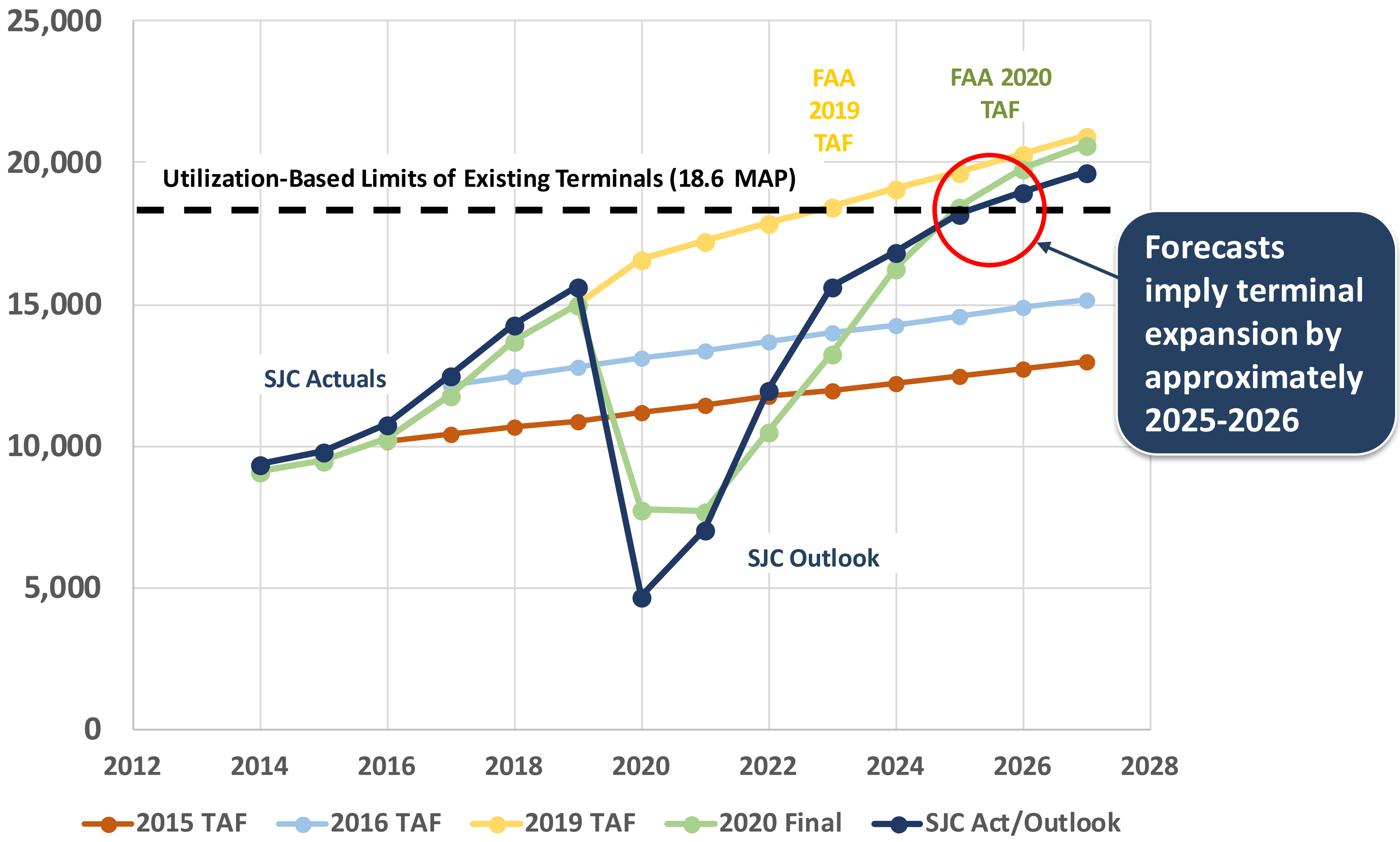
SJC Total Passenger Trends and Forecasts (000s)



SJC Forecasts vs. Terminal Constraints

Terminal Expansion Remains A Priority

SJC Total Passenger Trends and Forecasts (000s)



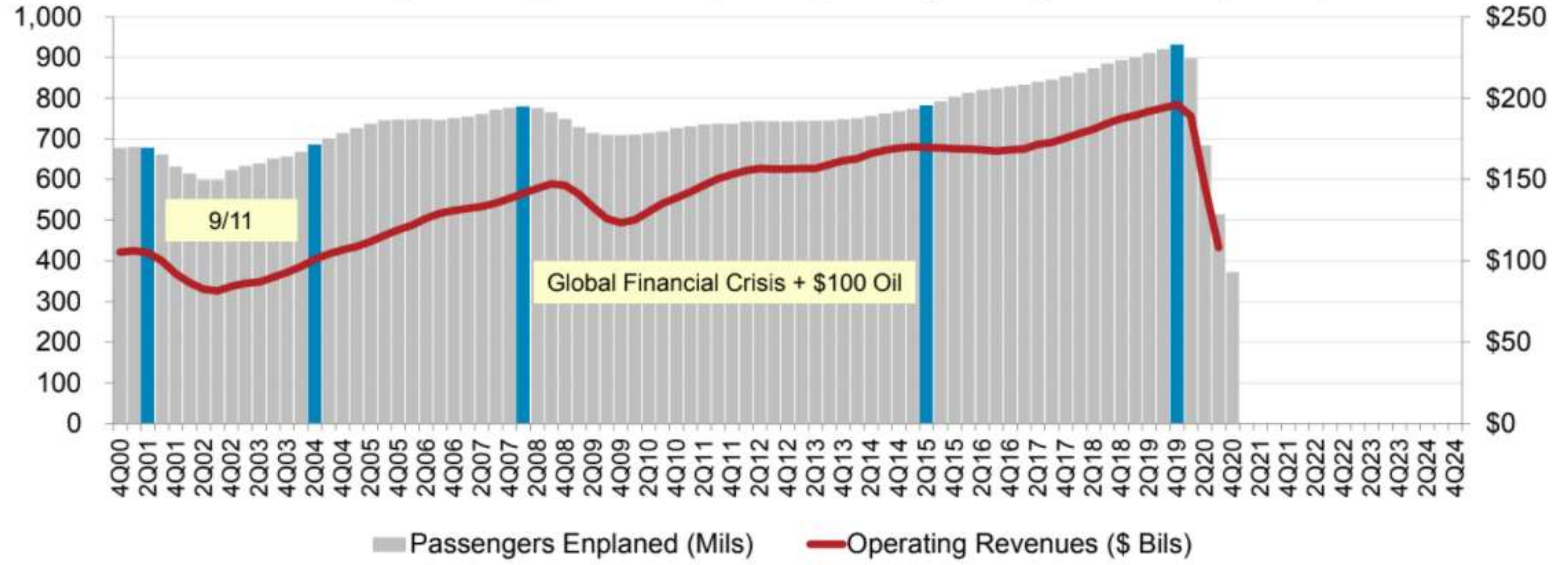
Forecasts imply terminal expansion by approximately 2025-2026

National Recovery Trends

COVID Impact Has Been Unique

US Airline and Passenger Trends

Four-Quarter Rolling Passenger Volume (Millions) **and Operating Revenues** (Billions)



Source: A4A Passenger Airline Cost Index, BTS (Form 41 Schedule T1) and Bernstein Research

* Passengers enplaned systemwide on U.S. airlines in scheduled and nonscheduled services

airlines.org

Consistent with FAA TAF for SJC, recovery to pre-COVID levels is expected to be more like 9/11 than the long, drawn out period following the “great recession” and simultaneous oil shock.

Drivers of Current and Future SJC Demand

What Has (and Will) Fuel SJC's Continued Growth?

SJC already experienced record levels of passenger growth from 2016 through the beginning of the COVID pandemic.

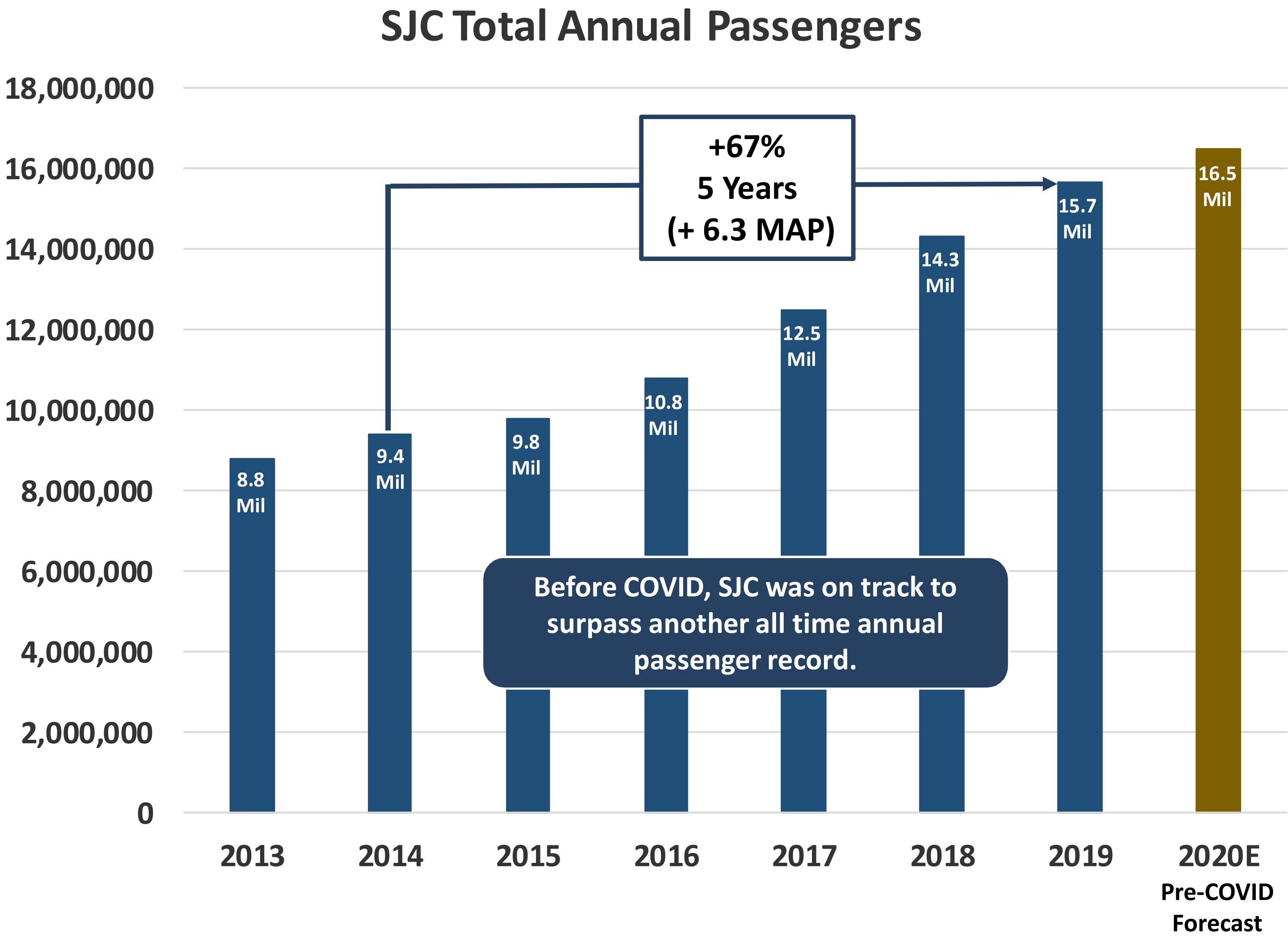
- ✓ Proximity to high-impact corporate centers
- ✓ Tech talent, strong educations, high incomes
- ✓ Continued investment and tech job growth

Despite the short-term impact of COVID, SJC stands well positioned to see a return of strong growth and travel demand.

- ✓ Major players like Google and Apple are investing heavily and driving growth even closer to SJC airport
- ✓ Downtown San Jose itself is being described as coming into a transformational phase of expansion
- ✓ The medium- and longer-term outlook remains very positive relative to other North American cities

SJC: Continued Strong Passenger Demand

The ONLY Major Airport in U.S. Top 5 Rankings Last Several Years



SJC Total Annual Passengers

+67%
5 Years
(+ 6.3 MAP)

Before COVID, SJC was on track to surpass another all time annual passenger record.

SJC Proximity to Major Developments

High-Profile Facilities Already Help Define SJC Advantages

Google Headquarters

Moffett Field/ NASA

49ers Levi's Stadium

Samsung USA

Apple Campus 3

Nvidia

SJC

Apple Spaceship

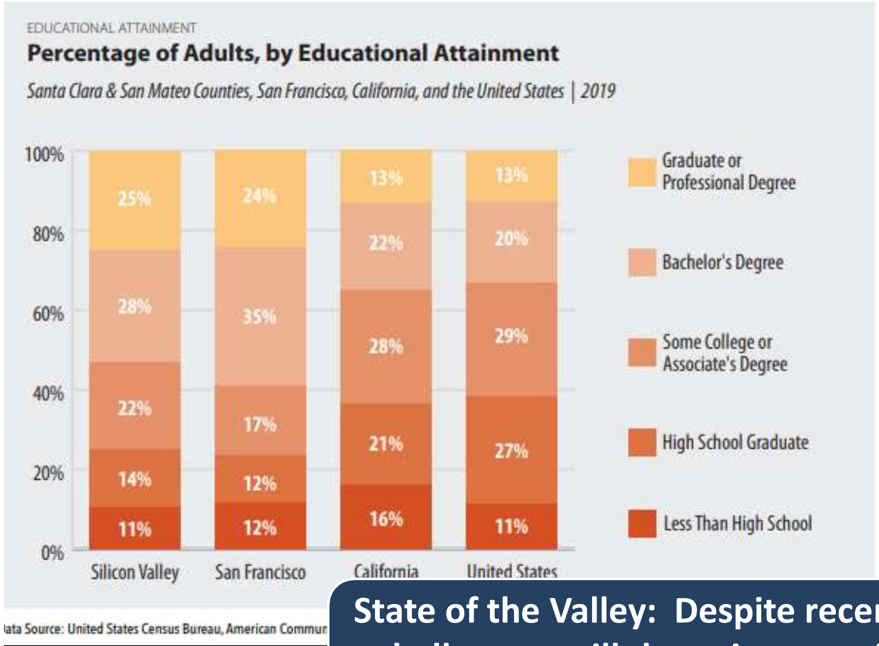
Downtown SJ, Future Google Village, Others

2.5 mi

4.6 mi

2.0 mi

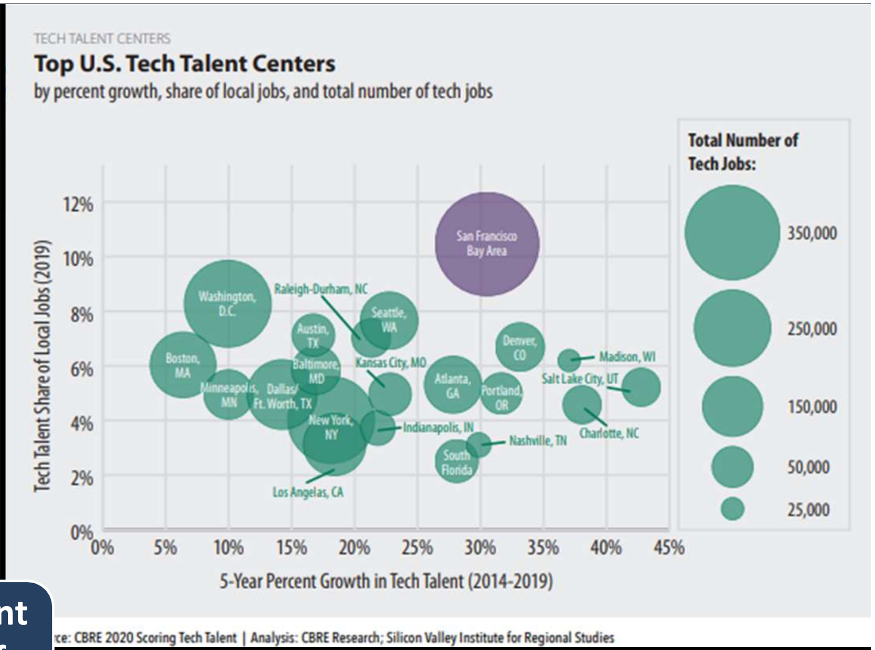
State of the Valley: Despite recent challenges, still the epicenter of innovation and talent


EDUCATIONAL ATTAINMENT

Percentage of Adults, by Educational Attainment

Santa Clara & San Mateo Counties, San Francisco, California, and the United States | 2019

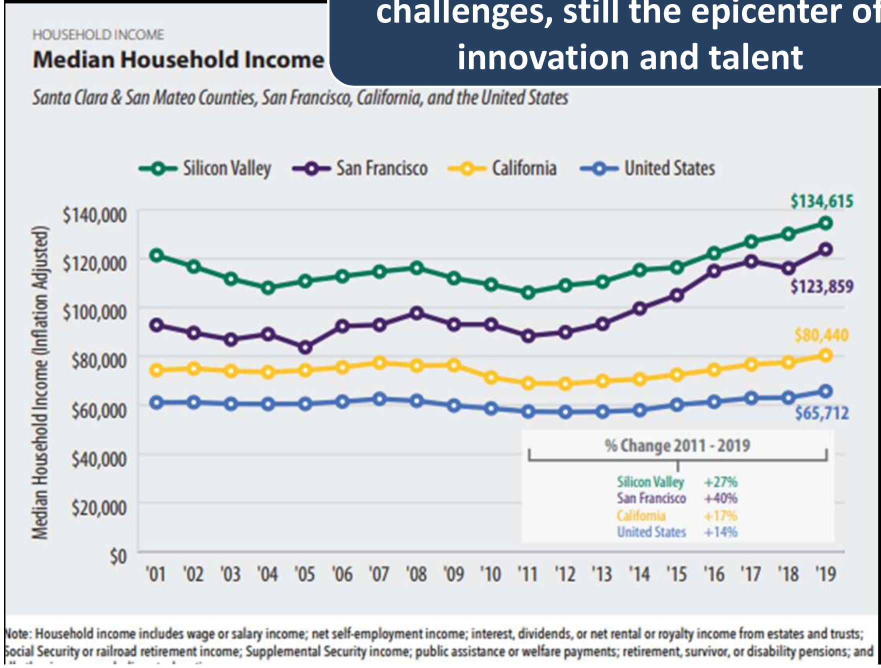
ata Source: United States Census Bureau, American Commun


TECH TALENT CENTERS

Top U.S. Tech Talent Centers

by percent growth, share of local jobs, and total number of tech jobs

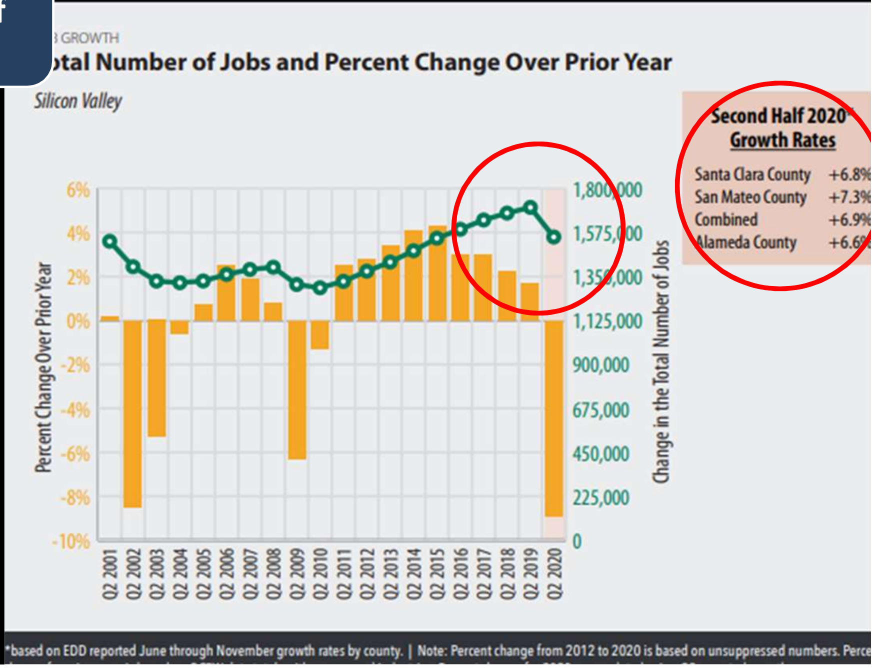
ce: CBRE 2020 Scoring Tech Talent | Analysis: CBRE Research; Silicon Valley Institute for Regional Studies


HOUSEHOLD INCOME

Median Household Income

Santa Clara & San Mateo Counties, San Francisco, California, and the United States

Note: Household income includes wage or salary income; net self-employment income; interest, dividends, or net rental or royalty income from estates and trusts; Social Security or railroad retirement income; Supplemental Security income; public assistance or welfare payments; retirement, survivor, or disability pensions; and

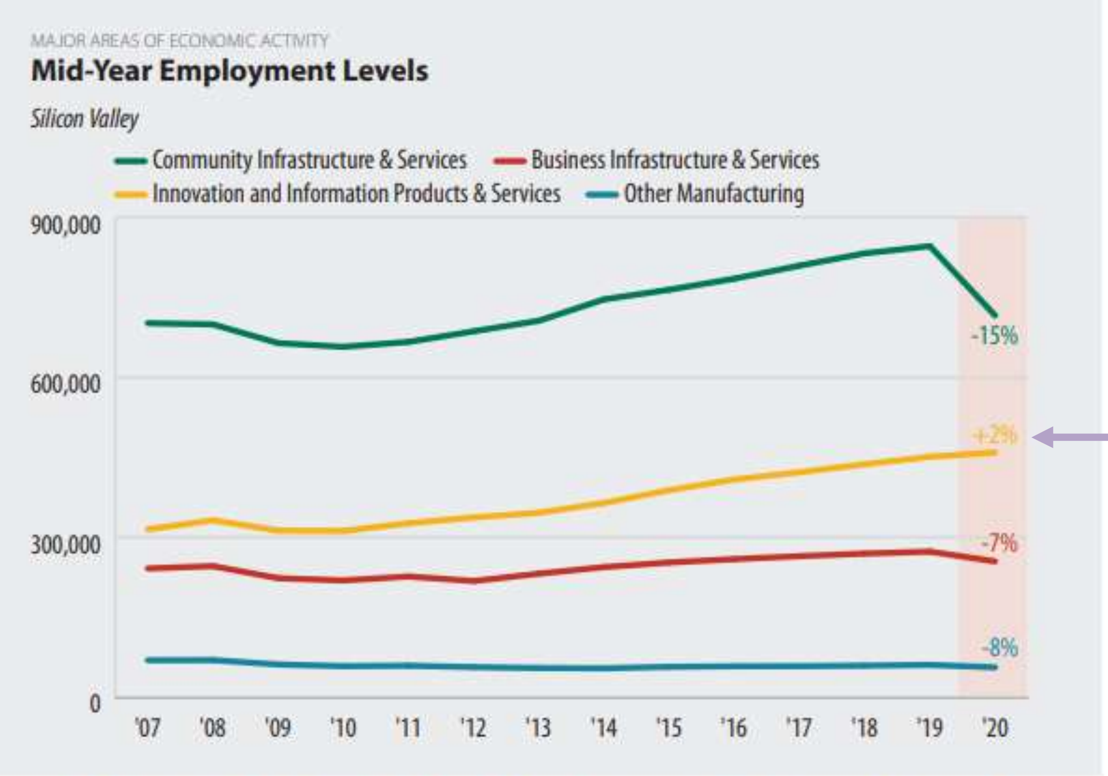

GROWTH

tal Number of Jobs and Percent Change Over Prior Year

Silicon Valley

Second Half 2020* Growth Rates	
Santa Clara County	+6.8%
San Mateo County	+7.3%
Combined	+6.9%
Alameda County	+6.6%

*based on EDD reported June through November growth rates by county. | Note: Percent change from 2012 to 2020 is based on unsuppressed numbers. Perce



MAJOR AREAS OF ECONOMIC ACTIVITY

Mid-Year Employment Levels

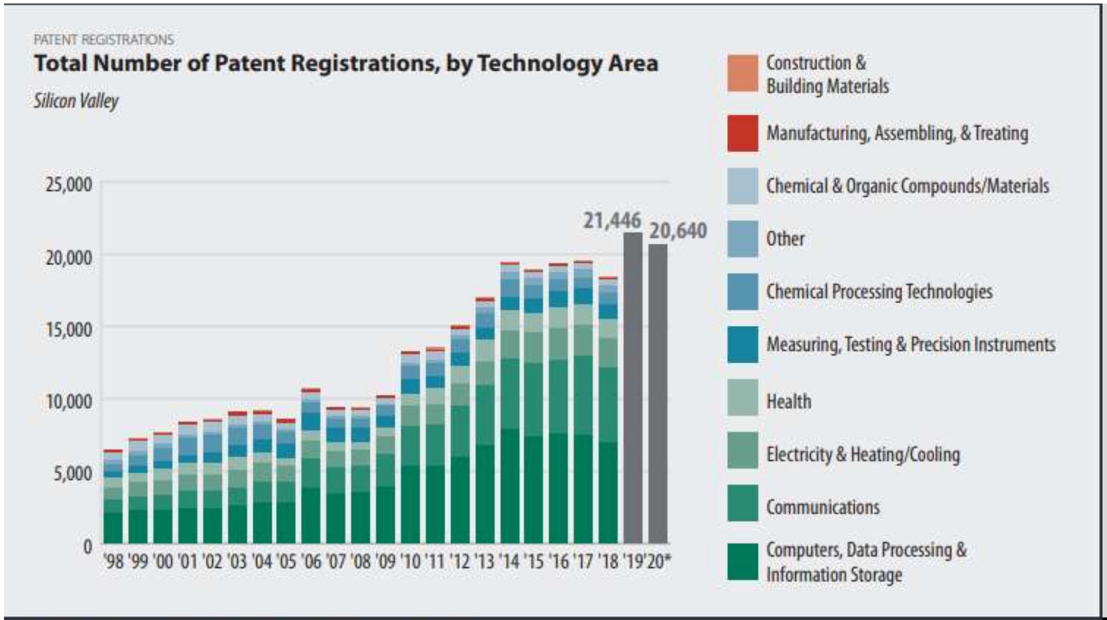
Silicon Valley

Note: Definitions of the major areas of economic activity are included in Appendix A. | Data Sources: BW Research; U.S. Bureau of Labor Statistics Quarterly Census of Employment and Wages; EMSI; Silicon Valley Business Journal; LinkedIn | Analysis: BW Research; Silicon Valley Institute for Regional Studies

A net of nearly 8,000 new jobs were added in Innovation and Information Products & Services between Q2 2019 and Q2 2020.

Silicon Valley's tech sector proved to be resilient during the 2020 COVID period.

In contrast to overall pandemic-related employment level declines between mid-2019 and mid-2020 (-8.9% in Silicon Valley) and a loss of -15.4% in Community Infrastructure & Services, job growth was positive (+1.8%) for the tech industry (Innovation and Information Products & Services).


PATENT REGISTRATIONS

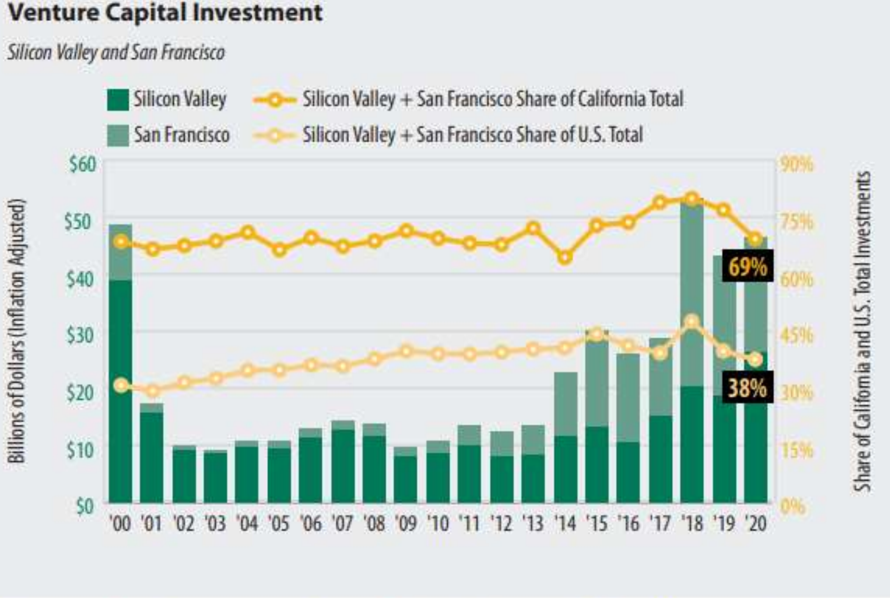
Total Number of Patent Registrations, by Technology Area

Silicon Valley

* through December 12 | Note: 2019 and 2020 data not available by technology area.
Data Sources: United States Patent and Trademark Office; California Department of Finance | Analysis: Silicon Valley Institute for Regional Studies

Patent activity remained very high during 2020. San Jose ranked #1 in California and the US

2020 was a another strong year for venture capital; Silicon Valley reached a level of $26.4 B


Venture Capital Investment

Silicon Valley and San Francisco

Data Sources: PricewaterhouseCoopers/National Venture Capital Association MoneyTree™ Report (2000-2016); Thomson ONE (2017-2020)
Analysis: Silicon Valley Institute for Regional Studies

The South Bay Region Will Continue to Transform

Even with COVID Delays, Market Remains Optimistic

Development Plans Downtown San Jose	Space Estim. (Mil Sq. Feet)	Potential Employees
Google Village	6.5	25,000
Platform 16	1.1	4,000
South Almaden Towers	2.1	7,000
200 Park Avenue	0.9	4,000
CityView Plaza	3.8	20,000
Adobe North (4th) Tower	1.3	4,000
Woz Way Offices	1.8	5,000
Market Street Towers	0.6	2,000
Museum Place	0.9	3,700
Sub-Total	**19.0**	**74,700**
San Jose/Santa Clara		
Coleman Highline (SJC)	2.1	5,000
Bay West Development	2.0	10,000
Brokaw (Google)	2.0	5,000
Related Santa Clara	9.0	20,000
Mission Point	11.0	10,000
Sub-Total	**26.1**	**50,000**
Major Development Totals	**45.1**	**124,700**
Recent/Partially Developed		
Apple Campus 2 (Spaceship)	2.8	13,000
Apple Campus 3 (Command Key)	0.9	4,000
Google Mountain View "Dome"	0.6	3,000
Peery Park (Sunnyvale)	3.5	15,000
Sub-Total	**7.8**	**35,000**
TOTALS	**52.9**	**159,700**

Sobrato/Arquitectonica

Google Village Downtown San Jose Campus Plans

Potential 6-8 M SF, Jobs Could Reach 25,000+ Within 2 Miles of SJC

GOOGLE'S AREAS OF INTEREST

Map shows properties whose purchases will be negotiated between the city and Google, and properties that have been bought by surrogates of Google for a proposed tech campus for the search giant.

- 🟥 Properties bought between mid-December 2016 and June 25, 2017
- 🟥 Government properties whose sales are being negotiated
- 🟦 Most recent property sales

Source: Santa Clara County property records

BAY AREA NEWS GROUP

THE START OF THE DEVELOPMENT SURGE:
Google submits formal proposal including 6-8 MSF office space, up to 300 hotel rooms and 5,000 residential units, 300-500,000 SF of commercial space and dedicated event space, all with access to Caltrain, Amtrak, light rail, and BART.

Google Village “Downtown West”

Additional Details Regarding Community Engagement (April 2021)

Google promises $200M worth of community benefits under Downtown West plan for San Jose

By Matthew Niksa – Commercial real estate reporter, Silicon Valley Business Journal
Apr 6, 2021 **Updated** Apr 7, 2021, 10:33am PDT

This community partnership approach has been co-designed with stakeholder groups to address affordable housing, community programs, and job/learning opportunities.

Artist conceptual rendering, subject to change

Google LLC plans to devote $200 million to homeless services and job opportunities for local ensure its Downtown West project in San Jose, rendered, will benefit the community at large.

Google LLC plans to devote $200 million to homeless services, job opportunities for local residents and other items as part of an effort to ensure its proposed San Jose project benefits the community at large.

The technology giant detailed its community benefits plan in a draft of its 30-year development agreement with the City of San Jose. The city posted the draft contract for the project, dubbed Downtown West, on its website Tuesday.

“I’m proud that together with the City of San José, community, and local organizations, we developed a project agreement with community benefits that focus on social equity and will help San José come back stronger from the pandemic’s impacts," Alexa Arena, Google’s San Jose development director, said in a prepared statement. "Downtown West is a great example of a new way to approach development, where community is placed front and center.”

Continued Progress For Development

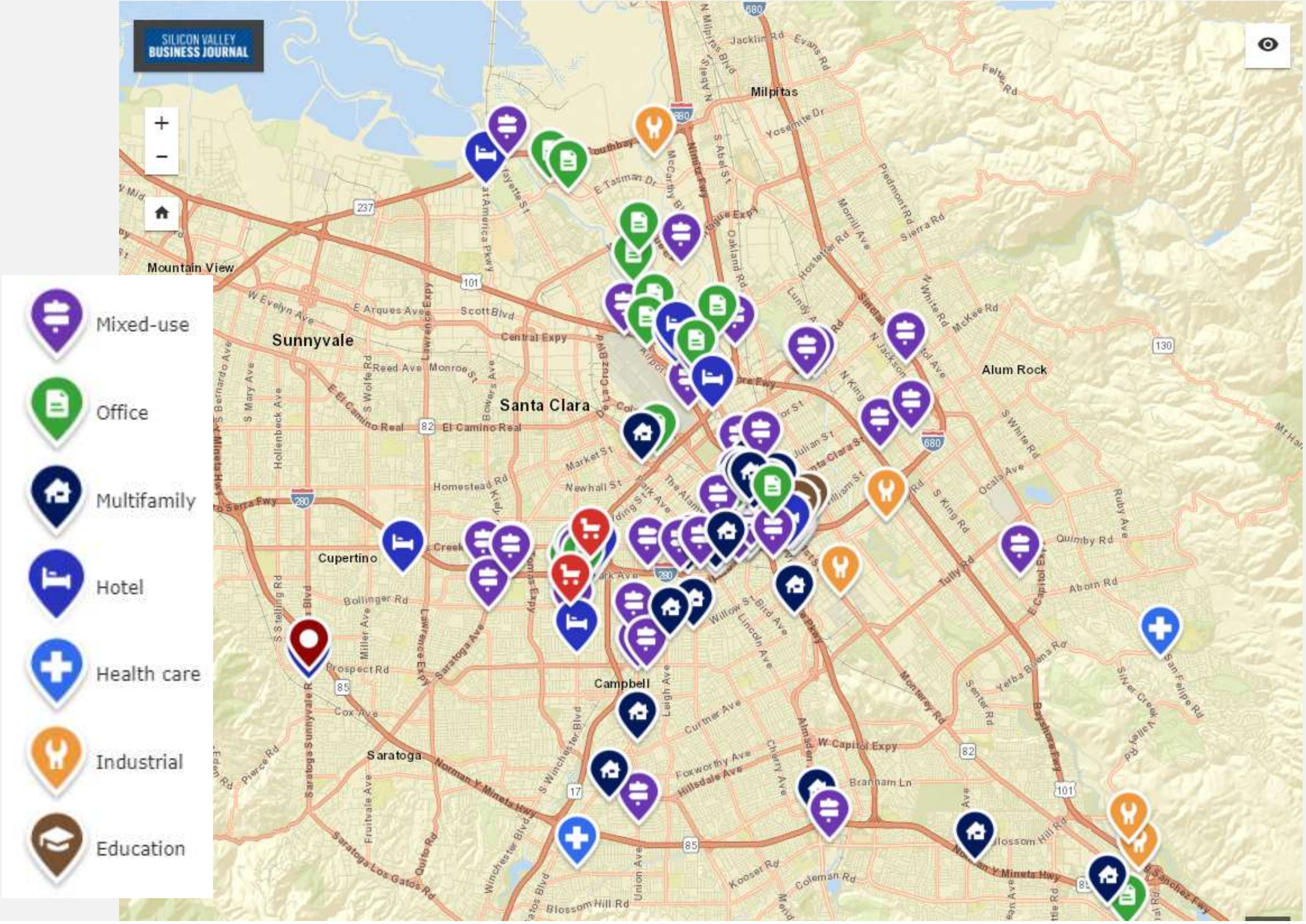
Google's "Downtown West" Latest Council Approval May 25, 2021

San Jose City Council approves updated Diridon Station Area Plan

This look of the Diridon Station Area Plan shows how the area might look after it's fully built out with Google's Downtown West

Continued Silicon Valley Project Development

Strong Concentration of Office, Mixed Used, Residential



$6.5 Billion "Related Santa Clara" Prepares to Begin

Phase I Office, Retail, and Hotel to Break Ground 2021

Related
Santa Clara

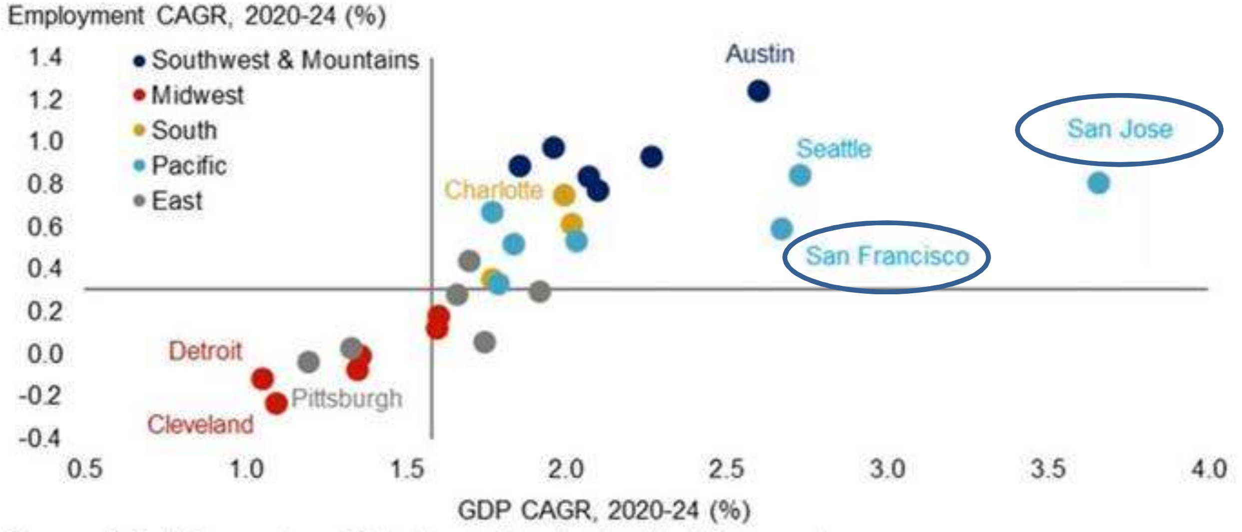
- 9.2 million sf of mix-use development
- Office, retail, entertainment, and residential spaces
- 700 hotel rooms, up to 1,680 residential units, 31-acre park
- Up to 24,000 jobs 3 mi from SJC

Outlook: Silicon Valley Dynamics Remain Strong

San Jose Distinguishes Itself Among Other Major Cities

Tech centers and professional services hubs will continue to lead US metro growth over the medium term

Medium term metro outlook



Source: Oxford Economics *Axis intersection denotes the US aggregate.

June 2020

Questions: Use the question panel on the right

Silicon Valley Future Also Recognized for Growth

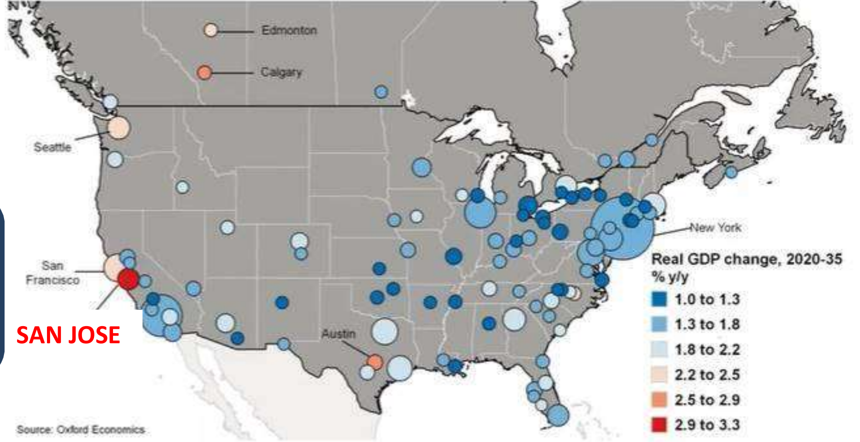
San Jose Stands Out Again in Oxford's 2020 Long Term Outlook

North American cities

- Existing well-established patterns likely to persist: Pacific strong, Midwest weak.

San Jose: The ONLY North American city with highest growth projections

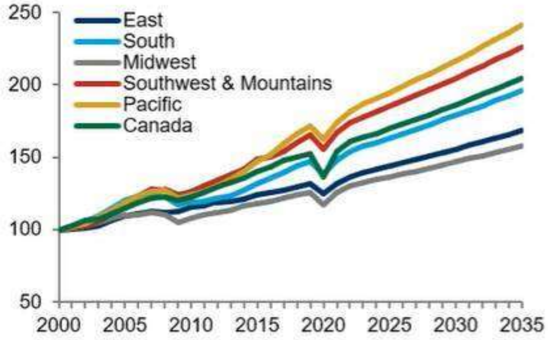
GDP growth, 2020-35, % y/y



Source: Oxford Economics

GDP in North American metros, 2000-35

2000 = 100



Source: Oxford Economics

- Growth comes particularly from tech and from mineral extraction: the 'U-shaped' economy.
- Industry contributes less than ½ million jobs net—which implies a lot of job losses. Some cities may be squeezed.

June 2020

Questions: Use the question panel on the right

OXFORD ECONOMICS

Appendix C: Design Day Flight Schedules

July 17, 2019 schedule used to represent AWDPM

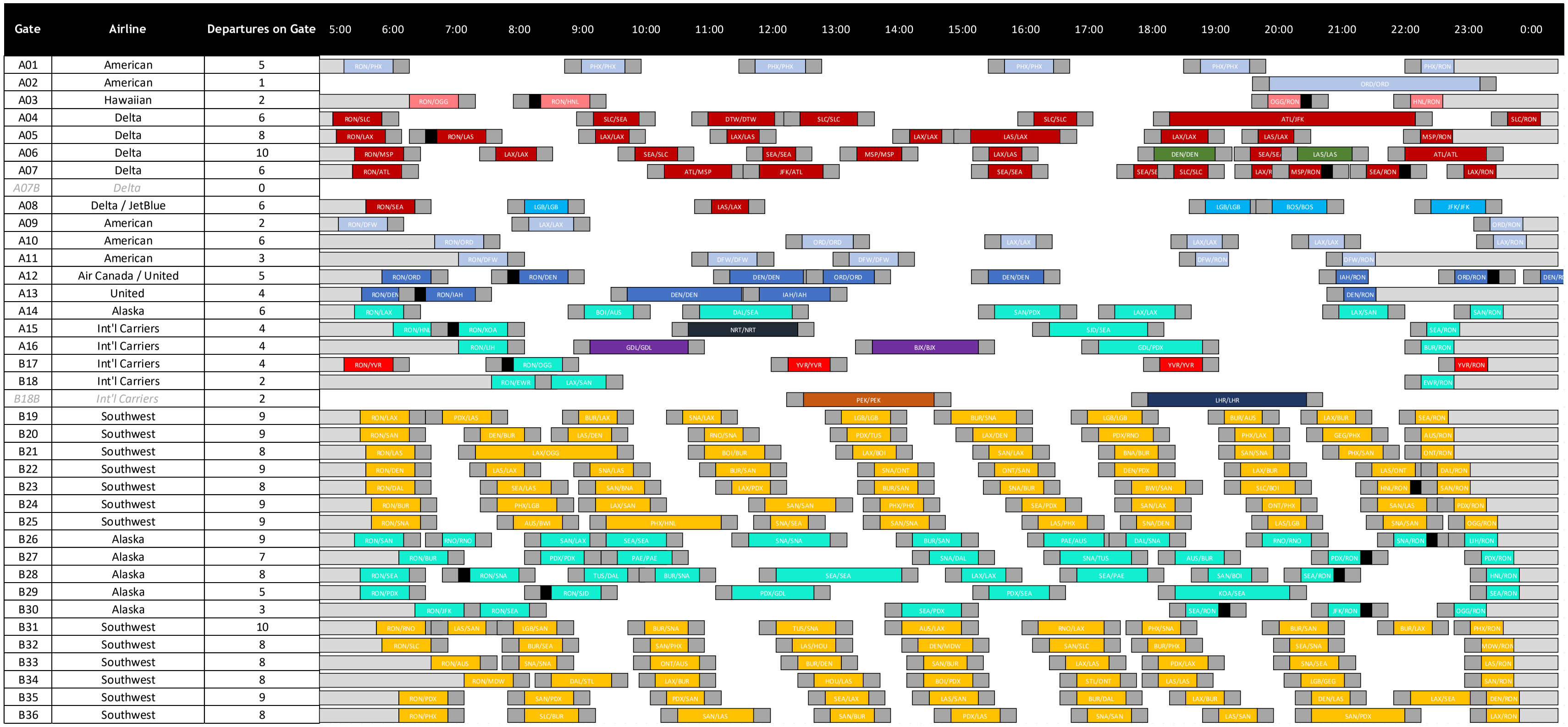
Carrier Code	Aircraft Type	Arr From	Arr Time	Dep Dest	Dep Time
DL	221	RON		SLC	6:05
DL	E75	RON		LAX	6:08
AA	738	RON		DFW	6:10
AA	738	RON		PHX	6:15
AC	CR9	RON		YVR	6:15
DL	739	RON		ATL	6:23
AS	320	RON		LAX	6:25
AS	319	RON		SAN	6:25
DL	319	RON		MSP	6:25
WN	73W	RON		LAX	6:30
WN	73W	RON		SAN	6:30
AS	73H	RON		PDX	6:30
AS	73J	RON		SEA	6:30
UA	739	RON		DEN	6:31
WN	73W	RON		LAS	6:35
DL	E75	RON		SEA	6:35
WN	73W	RON		DEN	6:35
WN	73H	RON		DAL	6:35
WN	73W	RON		BUR	6:40
WN	73W	RON		SNA	6:40
WN	738	RON		RNO	6:45
WN	738	RON		SLC	6:50
UA	738	RON		ORD	6:50
WN	73W	PDX	7:00	LAS	7:45
AS	E75	RNO	7:00	RNO	7:30
AS	73J	RON		HNL	7:00
WN	73W	LAS	7:05	SAN	7:40
AS	E75	RON		BUR	7:05
WN	73H	RON		PDX	7:05
WN	73W	RON		PHX	7:05
AA	E75	RON		LAX	7:15
HA	321	RON		OGG	7:15
AS	73H	RON		JFK	7:20
WN	738	LAX	7:30	OGG	9:40
UA	739	RON		IAH	7:30
WN	73W	DEN	7:35	BUR	8:15
WN	73W	RON		AUS	7:35
AA	738	RON		ORD	7:38
WN	73W	LAS	7:40	LAX	8:15
DL	E75	RON		LAS	7:40
DL	E75	LAX	7:49	LAX	8:26
WN	73W	SEA	7:50	LAS	8:40
WN	73W	PHX	7:50	LGB	8:45
AS	73J	RON		KOA	8:00
AS	73H	RON		LIH	8:00
AA	738	RON		DFW	8:00
WN	73H	AUS	8:05	BWI	8:50
WN	73W	LGB	8:05	SAN	8:45
WN	73H	RON		MDW	8:05
WN	73W	SNA	8:10	SNA	8:45
WN	73W	BUR	8:10	SEA	8:50
AS	E75	RON		SNA	8:10
WN	73W	SAN	8:15	PDX	9:00
B6	320	LGB	8:15	LGB	8:55
WN	73H	SLC	8:15	BUR	9:05
AA	E75	LAX	8:19	LAX	9:00
AS	739	RON		SEA	8:20
AS	E75	PDX	8:30	PDX	9:10
AS	319	SAN	8:30	LAX	9:30
AS	73H	RON		EWR	8:30
WN	73H	DAL	8:40	STL	9:35
AS	320	LAX	8:40	SAN	9:30
AS	73H	RON		OGG	8:50
WN	73W	LAS	8:55	DEN	9:35
UA	CR7	RON		DEN	8:55
WN	73W	BUR	9:05	LAX	9:40
AA	319	PHX	9:07	PHX	9:47
AS	E75	TUS	9:10	DAL	9:50
AS	E75	BOI	9:10	AUS	9:55
Y4	320	GDL	9:15	GDL	10:45
WN	73W	SNA	9:15	LAS	9:55
HA	321	RON		HNL	9:15
DL	221	SLC	9:18	SEA	10:00
WN	73H	SAN	9:20	BNA	10:05
DL	E75	LAX	9:20	LAX	9:51
WN	73W	LAX	9:20	SAN	10:10
AS	E75	AUS	9:25	BUR	10:10
AS	739	RON		SJD	9:25
AS	320	SEA	9:30	SEA	10:25
WN	738	PHX	9:30	HNL	11:15
AS	E75	PAE	9:40	PAE	10:30
UA	CR7	DEN	9:49	DEN	11:34
DL	221	SEA	9:56	SLC	10:35
WN	73W	BUR	10:05	SNA	10:45
WN	73W	SAN	10:10	PHX	10:45
WN	73H	ONT	10:10	AUS	10:55
AS	E75	BUR	10:15	SNA	10:55
WN	73W	LAX	10:15	BUR	10:55
DL	739	ATL	10:23	MSP	11:25
WN	73W	PDX	10:25	SAN	11:00
WN	73H	SAN	10:35	LAS	11:45
WN	73W	SNA	10:40	LAX	11:15
NH	788	NRT	10:45	NRT	12:25
AS	E75	DAL	10:55	SEA	12:20
WN	73W	RNO	11:00	SNA	11:35
WN	73W	BOI	11:00	BUR	11:55
DL	739	DTW	11:03	DTW	12:04
AA	738	DFW	11:03	DFW	11:48
DL	E75	LAS	11:06	LAX	11:40
WN	73W	BUR	11:10	SAN	12:00
DL	E7W	LAX	11:20	LAS	11:50
UA	320	DEN	11:23	DEN	12:30
AS	73H	PDX	11:25	GDL	12:40
WN	73W	LAX	11:25	PDX	12:00
AS	E75	SNA	11:40	SNA	12:55
AA	738	PHX	11:46	PHX	12:32
DL	739	JFK	11:50	ATL	12:48
UA	739	IAH	11:50	IAH	12:55
DL	E7W	SEA	11:53	SEA	12:23
WN	73H	SAN	11:55	SAN	13:00
WN	73W	SNA	12:00	SEA	12:35
AS	73J	SEA	12:05	SEA	14:00
WN	73W	TUS	12:05	SNA	13:00
AC	CR9	YVR	12:16	YVR	12:55
WN	73W	LAS	12:20	HOU	13:00
WN	73W	BUR	12:25	DEN	13:05
DL	738	SLC	12:27	SLC	13:20
AA	738	ORD	12:29	ORD	13:16
HU	789	PEK	12:30	PEK	14:30
WN	73W	HOU	12:40	LAS	13:25
UA	73G	ORD	12:48	ORD	13:35
WN	73W	SEA	12:50	LAX	13:30
WN	73W	SAN	12:55	BUR	13:35
WN	73W	LGB	13:05	LGB	13:50
WN	73W	PDX	13:10	TUS	13:50
AA	738	DFW	13:12	DFW	13:57
WN	73W	LAX	13:15	BOI	13:55
DL	319	MSP	13:19	MSP	14:00
Y4	320	BJX	13:33	BJX	15:10
WN	73W	SNA	13:35	ONT	14:15
WN	73W	BUR	13:35	SAN	14:15
WN	73W	PHX	13:40	PHX	14:20
WN	73W	SAN	13:40	SNA	14:25
AS	73J	SEA	14:00	PDX	14:55
WN	73W	AUS	14:00	LAX	14:55
DL	E75	LAX	14:07	LAX	14:37
AS	E75	BUR	14:10	SAN	14:55
WN	73H	DEN	14:15	MDW	15:05
WN	73W	SAN	14:20	BUR	15:00
WN	73W	BOI	14:20	PDX	15:05
WN	73W	LAS	14:25	SAN	15:10
AS	E75	SNA	14:25	DAL	15:10
WN	73W	PDX	14:45	LAS	15:30
WN	73W	BUR	14:45	SNA	15:45
AS	E75	LAX	14:55	LAX	15:35
DL	E7W	LAS	15:03	LAX	16:25
WN	73W	LAX	15:05	DEN	15:45
DL	221	SEA	15:19	SEA	15:59

UA	738	DEN	15:19	DEN	16:10
AS	73H	PDX	15:20	SEA	16:15
WN	73W	SAN	15:20	LAX	16:00
DL	E75	LAX	15:20	LAS	15:50
AS	32A	SAN	15:25	PDX	16:25
WN	73W	ONT	15:25	SAN	16:05
WN	73W	SNA	15:30	BUR	16:10
AA	E75	LAX	15:31	LAX	16:03
AA	320	PHX	15:34	PHX	16:19
WN	73W	SEA	15:50	PDX	16:30
DL	221	SLC	16:01	SLC	16:40
WN	73W	LAS	16:05	PHX	16:50
WN	73H	RNO	16:05	LAX	17:05
AS	E75	PAE	16:10	AUS	17:05
AS	739	SJD	16:15	SEA	17:45
WN	73W	SAN	16:15	SLC	17:05
AS	E75	SNA	16:25	TUS	17:30
WN	73W	LAX	16:30	LAS	17:10
AS	E75	SEA	16:40	PAE	17:45
WN	73W	STL	16:40	ONT	17:20
WN	73W	BUR	16:40	DAL	17:25
WN	73W	SNA	16:50	SAN	17:30
WN	73W	LGB	16:50	LGB	17:40
WN	73H	PDX	17:00	RNO	17:50
AS	73H	GDL	17:00	PDX	18:35
WN	73W	BNA	17:15	BUR	17:55
WN	73W	DEN	17:15	PDX	17:55
AS	320	LAX	17:15	LAX	18:10
AS	E75	DAL	17:25	SNA	18:05
WN	73H	BWI	17:30	SAN	18:20
WN	73W	SAN	17:30	LAX	18:10
DL	E75	SEA	17:32	SEA	18:02
WN	73W	SNA	17:35	DEN	18:10
WN	73W	PHX	17:40	SNA	18:15
BA	789	LHR	17:45	LHR	20:10
WN	73W	BUR	17:45	PHX	18:20
F9	321	DEN	17:51	DEN	18:47
WN	73H	PDX	17:55	LAX	18:40
WN	73W	LAS	17:55	LAS	18:30
AC	CR9	YVR	17:56	YVR	18:35
DL	E75	LAX	17:57	LAX	18:40
DL	739	ATL	18:05	JFK	21:50
DL	E7W	SLC	18:09	SLC	18:40
AS	73H	KOA	18:10	SEA	19:55
AS	E75	AUS	18:10	BUR	18:55
AS	73H	SEA	18:20	RON	
WN	73W	LAX	18:20	BUR	18:55
AA	E75	LAX	18:21	LAX	18:53
AA	738	DFW	18:29	RON	
AA	320	PHX	18:33	PHX	19:18
B6	320	LGB	18:38	LGB	19:19
AS	E75	SAN	18:40	BOI	19:20
WN	73W	LAS	18:50	SAN	19:25
WN	73W	BUR	18:55	AUS	19:30
WN	73W	PHX	19:05	LAX	19:40
WN	73W	SAN	19:05	SNA	19:40
WN	73W	LAX	19:10	BUR	19:55
WN	73W	SLC	19:10	BOI	20:00
DL	E75	SEA	19:19	SEA	19:56
DL	E75	LAX	19:20	RON	
DL	E75	LAS	19:26	LAX	19:59
WN	73W	ONT	19:30	PHX	20:05
AS	E75	RNO	19:30	RNO	20:15
HA	321	OGG	19:35	RON	
WN	73W	LAS	19:35	LGB	20:10
AA	738	ORD	19:36	ORD	22:49
B6	320	BOS	19:39	BOS	20:29
WN	73W	BUR	19:45	SAN	20:30
DL	319	MSP	19:54	RON	
WN	73W	SEA	19:55	SNA	20:30
WN	73W	SNA	19:55	SEA	20:40
F9	320	LAS	20:02	LAS	20:52
AS	73J	SEA	20:05	RON	
WN	73W	LGB	20:05	GEG	20:45
AA	E75	LAX	20:12	LAX	20:45
WN	73W	DEN	20:15	LAS	20:50
WN	73H	SAN	20:15	PDX	21:40
WN	73W	LAX	20:20	BUR	20:55
WN	73W	GEG	20:25	PHX	21:10
AS	73H	JFK	20:30	RON	
AS	73H	PDX	20:30	RON	
UA	739	IAH	20:37	RON	
WN	73W	PHX	20:40	SAN	21:20
AS	319	LAX	20:40	SAN	21:25
AA	738	DFW	20:43	RON	
UA	320	DEN	20:44	RON	
DL	E75	SEA	21:05	RON	
WN	73W	LAS	21:10	ONT	21:50
WN	738	HNL	21:15	RON	
WN	73W	SAN	21:15	LAS	22:00
WN	73W	SNA	21:20	SAN	22:00
AS	E75	SNA	21:30	RON	
WN	73W	BUR	21:30	LAX	22:05
DL	739	ATL	21:40	ATL	22:55
HA	321	HNL	21:45	RON	
WN	73H	LAX	21:45	SEA	22:45
WN	73W	SEA	21:50	RON	
DL	739	MSP	21:54	RON	
AS	73H	EWR	21:55	RON	
AA	738	PHX	21:55	RON	
WN	73H	AUS	21:55	RON	
AS	E75	BUR	21:55	RON	
WN	73W	ONT	21:55	RON	
AS	739	SEA	22:00	RON	
B6	320	JFK	22:04	JFK	22:54
WN	73W	DAL	22:10	RON	
WN	73W	SAN	22:10	RON	
AS	73H	OGG	22:25	RON	
WN	73W	PDX	22:25	RON	
UA	738	ORD	22:26	RON	
AC	CR9	YVR	22:26	RON	
DL	E75	LAX	22:34	RON	
AS	73H	LIH	22:35	RON	
WN	738	OGG	22:35	RON	
WN	73W	PHX	22:40	RON	
AS	319	SAN	22:40	RON	
WN	73H	MDW	22:50	RON	
AS	320	PDX	22:50	RON	
WN	73W	LAS	22:50	RON	
WN	73H	SAN	22:50	RON	
AS	73J	HNL	22:55	RON	
AS	73J	SEA	22:55	RON	
WN	73W	DEN	22:55	RON	
WN	73W	LAX	22:55	RON	
AA	738	ORD	22:58	RON	
AA	E75	LAX	23:01	RON	
DL	221	SLC	23:14	RON	
UA	CR7	DEN	23:44	RON	

Additional flights added for the hypothetical 2029 schedule

Carrier Code	Aircraft Type	Arr From	Arr Time	Dep Dest	Dep Time
AA	E75	LAX	11:00	LAX	11:50
AA	738	RON		ORD	6:30
AA	738	ORD	21:20	RON	
AA	738	CLT	19:20	CLT	21:05
AA	738	ORD	9:40	ORD	10:30
AA	738	DFW	15:50	DFW	16:45
AC	CR9	YVR	9:05	YVR	10:10
AS	320	XXX	9:30	XXX	10:25
AS	E75	XXX	11:40	XXX	12:55
AS	73J	XXX	14:00	XXX	14:55
AS	E75	XXX	14:10	XXX	14:55
AS	E75	XXX	16:10	XXX	17:05
AS	319	RON		XXX	6:25
AS	E75	XXX	7:00	XXX	7:30
AS	319	XXX	8:30	XXX	9:30
AS	320	XXX	9:30	XXX	10:25
AS	E75	XXX	11:40	XXX	12:55
AS	E75	XXX	14:10	XXX	14:55
AS	E75	XXX	16:10	XXX	17:05
AS	E75	XXX	19:30	XXX	20:15
AS	E75	XXX	21:30	RON	
AS	73H	XXX	22:35	RON	
XX	789	FRA	16:45	FRA	19:10
XX	789	MEX	15:30	MEX	16:50
XX	789	LIM	10:00	LIM	11:30
F9	321	MCO	12:30	MCO	13:00
HA	321	KOA	14:00	KOA	15:30
DL	E7W	SEA	13:20	SEA	13:55
DL	739	DTW	13:50	DTW	14:40
DL	739	MSP	14:25	MSP	15:00
DL	E7W	SLC	7:00	SLC	7:50
DL	739	ATL	13:40	ATL	14:25
DL	739	ATL	8:05	ATL	9:00
DL	739	BOS	18:20	BOS	19:05
DL	739	BOS	8:05	BOS	9:00
DL	739	MSP	15:50	MSP	16:30
UA	738	EWR	9:40	EWR	10:50
UA	738	DEN	17:00	DEN	18:00
UA	738	ORD	17:00	ORD	18:00
Y4	320	SJD	19:10	SJD	20:00
WN	73H	RON		XXX	7:05
WN	73W	RON		XXX	7:05
WN	73W	RON		XXX	7:35
WN	73H	RON		XXX	8:05
WN	73W	XXX	8:10	XXX	8:45
WN	73W	XXX	8:15	XXX	9:00
WN	73H	XXX	8:15	XXX	9:05
WN	73H	XXX	8:40	XXX	9:35
WN	73H	XXX	10:10	XXX	10:55
WN	73W	XXX	10:15	XXX	10:55
WN	73W	XXX	10:25	XXX	11:00
WN	73H	XXX	10:35	XXX	11:45
WN	73W	XXX	12:25	XXX	13:05
WN	73W	XXX	12:40	XXX	13:25
WN	73W	XXX	12:50	XXX	13:30
WN	73W	XXX	12:55	XXX	13:35
WN	73W	XXX	14:20	XXX	15:00
WN	73W	XXX	14:20	XXX	15:05
WN	73W	XXX	14:25	XXX	15:10
WN	73W	XXX	14:45	XXX	15:30
WN	73W	XXX	16:30	XXX	17:10
WN	73W	XXX	16:40	XXX	17:20
WN	73W	XXX	16:40	XXX	17:25
WN	73W	XXX	16:50	XXX	17:30
WN	73H	XXX	17:55	XXX	18:40
WN	73W	XXX	17:55	XXX	18:30
WN	73W	XXX	18:20	XXX	18:55
WN	73W	XXX	18:50	XXX	19:25
WN	73W	XXX	19:55	XXX	20:40
WN	73W	XXX	20:05	XXX	20:45
WN	73W	XXX	20:15	XXX	20:50
WN	73H	XXX	20:15	XXX	21:40
WN	73H	XXX	21:45	XXX	22:45
WN	73W	XXX	22:50	RON	

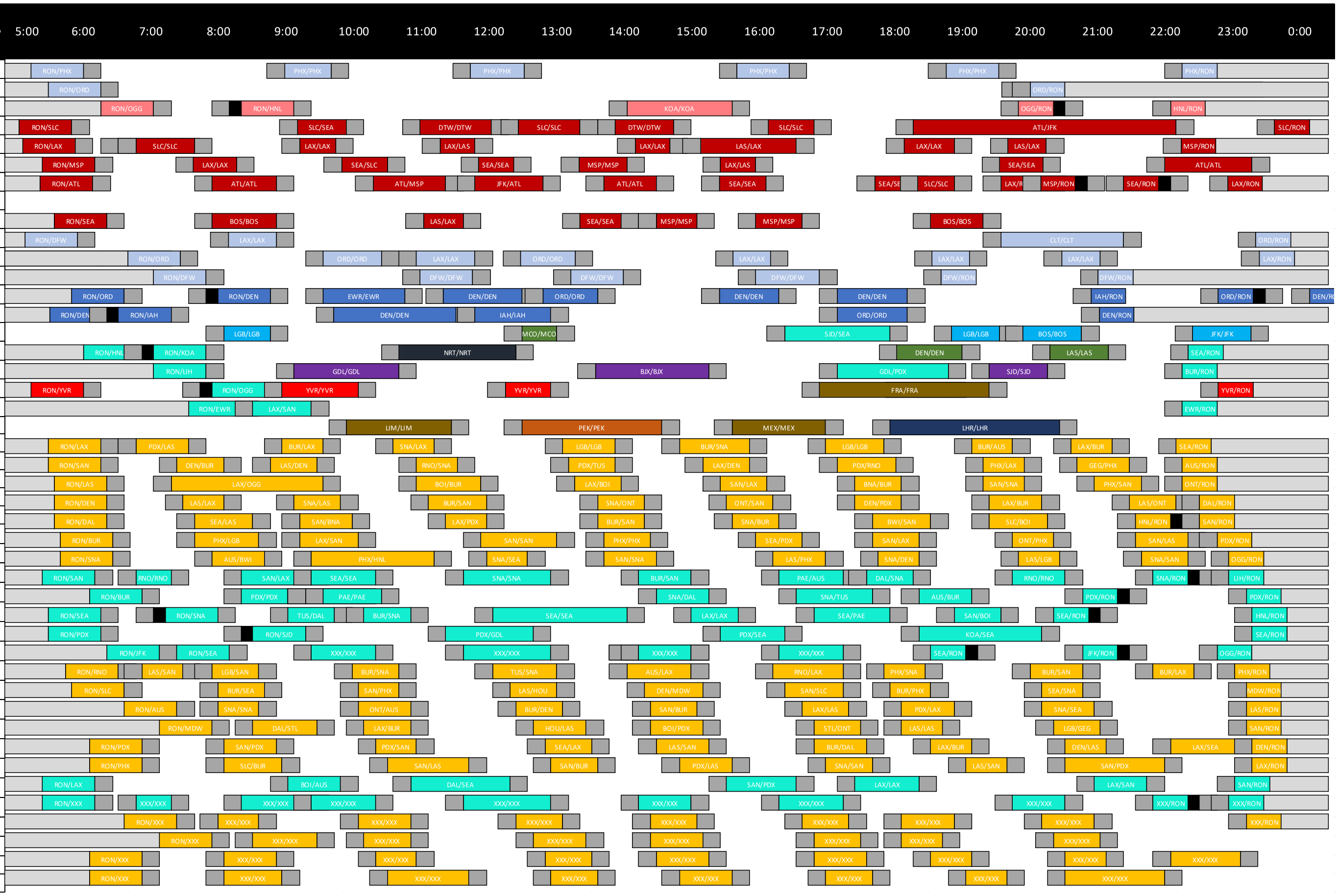
Illustrative Ramp Chart for July 17, 2019 Representative AWDPM Schedule



Gate	Airline	Departures on Gate	
A01	American	5	RON/PHX PHX/PHX PHX/PHX PHX/PHX PHX/PHX PHX/RON
A02	American	1	ORD/ORD
A03	Hawaiian	2	RON/OGG RON/HNL OGG/RON HNL/RON
A04	Delta	6	RON/SLC SLC/SEA DTW/DTW SLC/SLC SLC/SLC ATL/JFK SLC/RON
A05	Delta	8	RON/LAX RON/LAS LAX/LAX LAX/LAS LAX/LAX LAS/LAX LAX/LAX LAS/LAX MSP/RON
A06	Delta	10	RON/MSP LAX/LAX SEA/SLC SEA/SEA MSP/MSP LAX/LAS DEN/DEN SEA/SE LAS/LAS ATL/ATL
A07	Delta	6	RON/ATL ATL/MSP JFK/ATL SEA/SEA SEA/SE SLC/SLC LAX/R MSP/RON SEA/RON LAX/RON
A07B	*Delta*	0	
A08	Delta / JetBlue	6	RON/SEA LGB/LGB LAS/LAX LGB/LGB BOS/BOS JFK/JFK
A09	American	2	RON/DFW LAX/LAX ORD/RON
A10	American	6	RON/ORD ORD/ORD LAX/LAX LAX/LAX LAX/LAX LAX/RON
A11	American	3	RON/DFW DFW/DFW DFW/DFW DFW/RON DFW/RON
A12	Air Canada / United	5	RON/ORD RON/DEN DEN/DEN ORD/ORD DEN/DEN IAH/RON ORD/RON DEN/R
A13	United	4	RON/DEN RON/IAH DEN/DEN IAH/IAH DEN/RON
A14	Alaska	6	RON/LAX BOI/AUS DAL/SEA SAN/PDX LAX/LAX LAX/SAN SAN/RON
A15	Int'l Carriers	4	RON/HNL RON/KOA NRT/NRT SJD/SEA SEA/RON
A16	Int'l Carriers	4	RON/LIH GDL/GDL BJX/BJX GDL/PDX BUR/RON
B17	Int'l Carriers	4	RON/YVR RON/OGG YVR/YVR YVR/YVR YVR/RON
B18	Int'l Carriers	2	RON/EWR LAX/SAN EWR/RON
B18B	*Int'l Carriers*	2	PEK/PEK LHR/LHR
B19	Southwest	9	RON/LAX PDX/LAS BUR/LAX SNA/LAX LGB/LGB BUR/SNA LGB/LGB BUR/AUS LAX/BUR SEA/RON
B20	Southwest	9	RON/SAN DEN/BUR LAS/DEN RNO/SNA PDX/TUS LAX/DEN PDX/RNO PHX/LAX GEG/PHX AUS/RON
B21	Southwest	8	RON/LAS LAX/OGG BOI/BUR LAX/BOI SAN/LAX BNA/BUR SAN/SNA PHX/SAN ONT/RON
B22	Southwest	9	RON/DEN LAS/LAX SNA/LAS BUR/SAN SNA/ONT ONT/SAN DEN/PDX LAX/BUR LAS/ONT DAL/RON
B23	Southwest	8	RON/DAL SEA/LAS SAN/BNA LAX/PDX BUR/SAN SNA/BUR BWI/SAN SLC/BOI HNL/RON SAN/RON
B24	Southwest	9	RON/BUR PHX/LGB LAX/SAN SAN/SAN PHX/PHX SEA/PDX SAN/LAX ONT/PHX SAN/LAS PDX/RON
B25	Southwest	9	RON/SNA AUS/BWI PHX/HNL SNA/SEA SAN/SNA LAS/PHX SNA/DEN LAS/LGB SNA/SAN OGG/RON
B26	Alaska	9	RON/SAN RNO/RNO SAN/LAX SEA/SEA SNA/SNA BUR/SAN PAE/AUS DAL/SNA RNO/RNO SNA/RON LIH/RON
B27	Alaska	7	RON/BUR PDX/PDX PAE/PAE SNA/DAL SNA/TUS AUS/BUR PDX/RON PDX/RON
B28	Alaska	8	RON/SEA RON/SNA TUS/DAL BUR/SNA SEA/SEA LAX/LAX SEA/PAE SAN/BOI SEA/RON HNL/RON
B29	Alaska	5	RON/PDX RON/SJD PDX/GDL PDX/SEA KOA/SEA SEA/RON
B30	Alaska	3	RON/JFK RON/SEA SEA/PDX SEA/RON JFK/RON OGG/RON
B31	Southwest	10	RON/RNO LAS/SAN LGB/SAN BUR/SNA TUS/SNA AUS/LAX RNO/LAX PHX/SNA BUR/SAN BUR/LAX PHX/RON
B32	Southwest	8	RON/SLC BUR/SEA SAN/PHX LAS/HOU DEN/MDW SAN/SLC BUR/PHX SEA/SNA MDW/RON
B33	Southwest	8	RON/AUS SNA/SNA ONT/AUS BUR/DEN SAN/BUR LAX/LAS PDX/LAX SNA/SEA LAS/RON
B34	Southwest	8	RON/MDW DAL/STL LAX/BUR HOU/LAS BOI/PDX STL/ONT LAS/LAS LGB/GEG SAN/RON
B35	Southwest	9	RON/PDX SAN/PDX PDX/SAN SEA/LAX LAS/SAN BUR/DAL LAX/BUR DEN/LAS LAX/SEA DEN/RON
B36	Southwest	8	RON/PHX SLC/BUR SAN/LAS SAN/BUR PDX/LAS SNA/SAN LAS/SAN SAN/PDX LAX/RON

Illustrative Ramp Chart for 2029 AWDPM Schedule

Gate	Airline	Departures on Gate
A01	American	5
A02	American	2
A03	Hawaiian	3
A04	Delta	7
A05	Delta	9
A06	Delta	8
A07	Delta	8
A07B	*Delta*	0
A08	Delta	7
A09	American	3
A10	American	8
A11	American	4
A12	Air Canada / United	7
A13	United	5
A14	Frontier/Jetblue	6
A15	Int'l Carriers	5
A16	Int'l Carriers	5
B17	Int'l Carriers	6
B18	Int'l Carriers	2
B18B	*Int'l Carriers*	4
B19	Southwest	9
B20	Southwest	9
B21	Southwest	8
B22	Southwest	9
B23	Southwest	8
B24	Southwest	9
B25	Southwest	9
B26	Alaska	9
B27	Alaska	7
B28	Alaska	8
B29	Alaska	5
B30	Alaska	8
B31	Southwest	10
B32	Southwest	8
B33	Southwest	8
B34	Southwest	8
B35	Southwest	9
B36	Southwest	8
B37	Alaska	6
B38	Alaska	8
B39	Southwest	8
B40	Southwest	8
B41	Southwest	9
B42	Southwest	8



Appendix D: Near Term Terminal Capacity Analysis Report

NORMAN Y. MINETA
SAN JOSE
INTERNATIONAL
AIRPORT

SAN JOSÉ INTERNATIONAL AIRPORT

NEAR-TERM TERMINAL CAPACITY ANALYSIS

FINAL REPORT

L&B

September 20, 2017

CONTENTS

Executive Summary

L&B performed a Terminal Capacity GAP analysis for Norman Y. Mineta San Jose International Airport (SJC or the Airport) to determine if the existing facilities will optimally serve the demand as a result of the near term growth forecast to 14 Million Annual Passenger (MAP) demand levels, up from 10.8 MAP in 2016. The GAP analysis was conducted for Gate Requirements, Aircraft Parking, Terminal, and Landside facilities. Several capacity enhancement options are presented herein to address the capacity shortfalls determined as a part of the analysis.

Forecast: The Airport is forecast to handle 14.2 MAP by 2021 (hereafter referred to as 14 MAP). In order to provide a range of potential impacts to gating requirements at the Airport, a High case scenario for aircraft operations was developed. The result was that passenger aircraft operations would increase from 131,340 in the 14 MAP scenario to 137,529 in the High scenario. Design day flight schedules were developed under both scenarios. Under the 14 MAP scenario, 42 domestic and 6 international flights were added to the 2017 design day flight schedule. An additional 18 domestic flights were included in the design day flight schedule for the High scenario.

Gate Requirements and Aircraft Parking: Gate requirements were developed for three demand levels – 2017, 14 MAP, and High. Multiple airline-to-gate allocation scenarios were considered for each demand level with each scenario gated numerous times by varying the scheduled times to determine an 85th percentile gate allocation scenario for robust planning solution. The analysis concluded the following:

- Three (3) additional Remain Over-Night (RON) positions – for a total of 15 positions – are required for 2017.
- The 14 MAP demand level requires a total of 20 RON positions.
- The High demand level requires a total of 30 RON positions.
- At 14 MAP, the reconfigured North Cargo apron with 5 RON positions, South Cargo Apron with 12 RON positions and approximately a third of the Surface Parking Lot 6 located adjacent to Terminal B converted to aircraft parking, will provide sufficient capacity.
- At High demand levels, the RON positions available after converting all of available Surface Car Park to aircraft parking together with the south and north cargo aprons is estimated to be deficient by 4 positions.

Terminal Capacity and Enhancements: The terminal capacity GAP analysis was conducted for Terminal A, Terminal B, and the U.S. CBP facilities. Analysis was conducted for 2017, 14 MAP as well as High demand levels.

The GAP analysis of Terminal A concluded the following:

- Departures processing capacity was determined to be Optimum for 14 MAP, assuming ticket counter allocation utilizing the lease agreements. At the High demand levels, the departures processing capacity was found to be marginally SubOptimum.
- The hold-room area was determined to be SubOptimum at 2017, 14 MAP and 14 High demand levels using an unlikely but conservative assumption of all gates occupied by the maximum gauge aircraft.
- Baggage make-up, as well as bag claim areas, were determined to be marginally SubOptimum at 14 MAP and substantially SubOptimum at High demand levels.

The GAP analysis of Terminal B concluded the following:

- The departures processing and bag claim frontage were marginally SubOptimum at 2017 demand levels.
- At 14 MAP demand levels, the departures processing, baggage makeup, and bag claim area were marginally SubOptimum, and bag claim frontage was determined to be substantially SubOptimum.
- At High demand levels, departures processing, baggage makeup, security checkpoint lanes, bag claim frontage and bag claim area were found to be substantially SubOptimum.

Most components of the CBP facilities were found to be SubOptimum for 2017 and 14 MAP demand levels. Passport Check queue areas were determined to be significantly undersized, baggage claim devices and Exit control area were found to be undersized. The Arrivals Hall was found to be undersized for 14 MAP demand levels.

For CBP capacity enhancements, four (4) options are provided, including:

1. Enhancing the APC by displacing parts of the airport administration offices
2. Relocating the Passport Check to Level 3 of the FIS Building
3. Relocating the CBP to Level 1 in Terminal B, and
4. Relocating CBP to a new Terminal B Phase II building.

Options 1 and 2 are considered interim solutions and may not address long term needs.

For remote bus gate holdrooms, three (3) potential capacity enhancement options are proposed, including:

1. Terminal A north section on Level 1
2. Terminal B near Gates 22 and 23 on Level 1; and
3. Conversion of the CBP facilities into remote bus gate holdrooms.

A combination of options will be needed to meet the requirements for 14 MAP demand level. If the CBP is relocated, those facilities can be configured to meet both 14 MAP and High demand levels. If not, the High demand levels can be met by combining the options.

Landside Capacity Analysis and Enhancement: The landside capacity GAP analysis was conducted for Terminal A and Terminal B curbsides as well as key on airport roadway links during the terminal specific peak arrival and departure hours for year 2017, 14 MAP demand levels as well a High demand levels. The analysis concluded the following:

- Terminal B inner curbsides are anticipated to fail during the departures as well as arrivals peak hours for all future demand level scenarios.
- Terminal A departure curbsides are likely to be moderately congested during the peak hours at 14 MAP baseline as well as 14 MAP high demand levels.
- All other curbsides are expected to operate at an acceptable Level of Service (LOS) with periods of minor congestion during the peak hours at all demand level scenarios.
- Terminal B inner curbside roadway will be congested at 14 MAP as well as High demand levels. However, this is a direct result of the curbside congestion and will mitigate itself once the curbsides are mitigated.
- Moderate congestion is expected during the peak periods at the Airport Blvd Exit after Terminal B.
- All other roadways operate at an acceptable LOS during all hours at all demand level scenarios.

For mitigating the Terminal B curbside capacity constraints, four (4) options are proposed:

1. Relocate Transportation Network Company (TNC- Uber, Lyft etc.) drop offs to the outer curbsides at Terminal B.
2. Build a canopy on the north side of Terminal B inner curbsides essentially increasing the curbside linear frontage by 130 feet to encourage drop-off in a less desirable areas.
3. Combination of (1) and (2); and
4. Swap all modes on the inner curbsides with the modes on outer curbsides at Terminal B.

Pros and cons of each of the options is discussed later in this document. Option 1 is most likely to provide an acceptable LOS, and is also the least disruptive while being the most cost effective.

In addition, to the above, it is recommended that on the arrivals side of the Terminal B inner curbsides, a canopy be built to extend the linear footage of the arrivals curbsides. This will limit sporadic congestion by encouraging the passenger pickups to spread over a longer area. The overall length of these arrivals curbsides are expected to be sufficient at all demand levels, however, with passengers desiring to be picked up right outside of the arrival baggage claim doors may result in severe congestion if a large proportion of the passengers congregate near the doors.

Chapter 1: Forecast

This chapter presents the forecast of aviation activity at the Airport. The aviation activity forecast includes annual projections for passengers at the Airport and the number of aircraft operations required to handle those passengers.

Historical Trends

After virtually no growth from 2009 to 2012, domestic Origin and Destination (O&D) passengers have increased at an average annual growth rate (AAGR) of 6.2 percent over the past four years. A significant portion of this growth occurred in 2016 when domestic O&D passengers increase 8.0 percent. This growth in domestic O&D passengers coincided with a 10.1 percent increase in scheduled domestic seats. In 2016, there were 9.9 million domestic O&D passengers.

In 2012, there were three international markets served at SJC and were limited to Mexico. In 2013, All Nippon Airways began service to Narita International Airport (NRT), marking the beginning of overseas international service from SJC. Since then, the number of international markets has increased to eight in 2016 including service to Asia-Pacific (Japan and China), Mexico, Canada, and Europe. In 2016, scheduled international seats increased 72.6 percent mostly due to the new service to Canada and Europe.

Domestic O&D Passenger Forecast

In 2017, there is a 12.9 percent increase in scheduled domestic seats. This increase in scheduled seats is estimated to equate to a 10.3 percent increase in domestic O&D passengers in 2017. For beyond 2017, a regression analysis of the historical domestic O&D enplanements within the Bay Area, which includes Oakland International Airport (OAK), San Francisco International Airport (SFO), and SJC was conducted. This analysis concluded that the domestic O&D passenger demand within the Bay Area can be forecasted using the area’s employment and a dummy variable. It was assumed that over the forecast period, SJC’s share of the domestic O&D market within the Bay Area would increase from 20.5 percent in 2017 to 22.2 percent by 2021. Based on this analysis, SJC is forecast to handle 12.7 million domestic O&D passenger by 2021.

International O&D Passenger Forecast

In 2017, there is a 33.9 percent increase in scheduled international seats, which is estimated to equate to a 31.9 percent increase in international O&D passengers. Beyond 2017, it was assumed that four new international markets would be added by 2021. These flights were added to the schedule based on empirical knowledge of the markets served and current demand as indicated by the marketing information data tapes (MIDT). It is expected that these flights will include two markets in North America, one in Asia-Pacific, and an additional long-haul flight. By 2021, SJC is forecast to handle 1.2 million international O&D passengers.

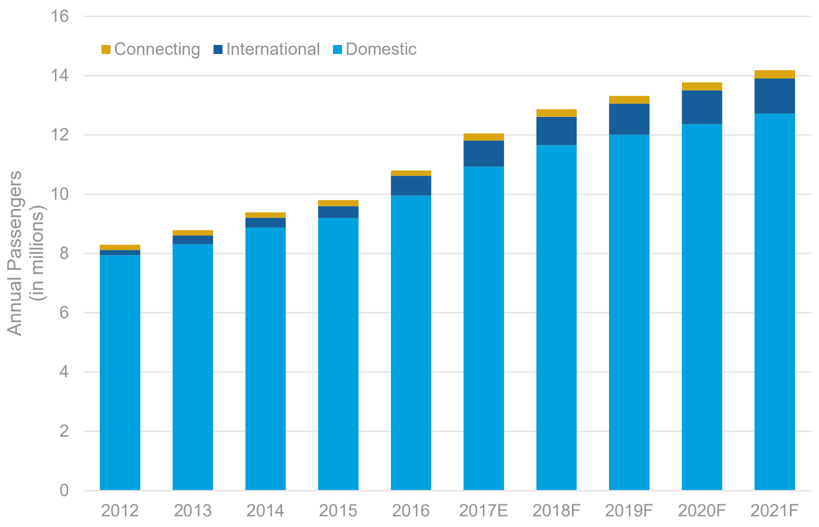
Connecting Passenger Forecast

Connecting passengers have on average accounted for 2.0 percent of total passengers at SJC over the past five years. It is assumed that connecting passengers will continue to account for 2.0 percent of the total passengers at SJC through the forecast period. By 2021, SJC is forecast to handle 281,000 connecting passengers.

Total Passenger Forecast

The total passenger forecast is the aggregation of the domestic O&D passenger forecast, the international O&D passenger forecast, and the connecting passenger forecast. Total passengers at SJC are forecast to reach 14.2 by 2021, representing an AAGR of 5.7 percent. **Figure 1-1** provides a graphical representation of the annual passengers at SJC through 2021.

Figure 1-1: Annual Passenger Forecast



Aircraft Operations Forecast

The number of passenger aircraft operations at an airport depends on three factors: (1) total passengers, (2) average aircraft size, and (3) average load factor (percent of seats occupied).

Currently, the domestic fleet utilized at SJC is dominated by narrow-body aircraft with a majority of flights utilizing a variant of the Boeing 737. Overseas international service is operated by wide-body aircraft while the remaining international flights use a combination of narrow-body and commuter aircraft.

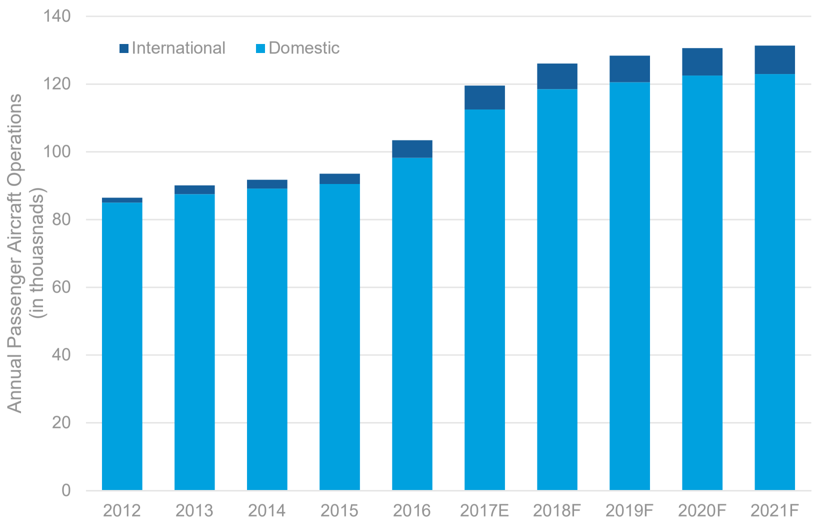
It was assumed that domestic mainline carriers will continue to primarily utilize the Boeing 737 aircraft but will replace the existing fleet with the MAX variants when appropriate. Hawaiian Airlines will replace the Boeing 767-300 aircraft with a combination of the Airbus A321neo and the Airbus A330-800neo when available. Nearly all of the small regional jets will be replaced by large regional jets within the next five years. Overseas international service will continue to utilize wide-body jets due to range constraints while other international service to Canada, Mexico, and Latin America will utilize narrow-body and large regional jets.

Based on the changes to the aircraft fleet, it is forecast that the average number of seats for domestic aircraft will increase from 132.0 in 2017 to 133.8 in 2021. The additional long-haul international service will result in an increase in the average number of seats for international aircraft from 168.6 in 2017 to 176.3 in 2021.

Domestic load factors are estimated to increase from an estimated 75.2 percent in 2017 to 79 percent in 2021. Meanwhile, international load factors are estimated to increase from an estimated 74.3 percent in 2017 to 80.0 percent in 2021.

The result of the assumptions regarding aircraft size and load factors is a forecast for total passenger aircraft operations to reach 131,340 by 2021. **Figure 1-2** provides a graphical representation of the annual passenger aircraft operations at SJC through 2021.

Figure 1-2: Annual Passenger Aircraft Operations Forecast



High Case Scenario

In order to provide a range of potential impacts to gating requirements at the Airport, a High scenario was developed. The scenario assumed that domestic load factors would remain at the estimated value for 2017, 75.2 percent, through 2021. This change results in a higher number of annual domestic passenger aircraft operations. International aircraft operations were not assumed to change in the High scenarios as the operations are based on a bottom-up approach.

The result of the High scenario is that total passenger aircraft operations would increase to 137,529 compared to 131,340 for 14 MAP.

Design Day Flight Schedules

To determine the passenger levels and the resulting impacts on the airside, terminal and landside capacity in the future, three future schedules were developed.

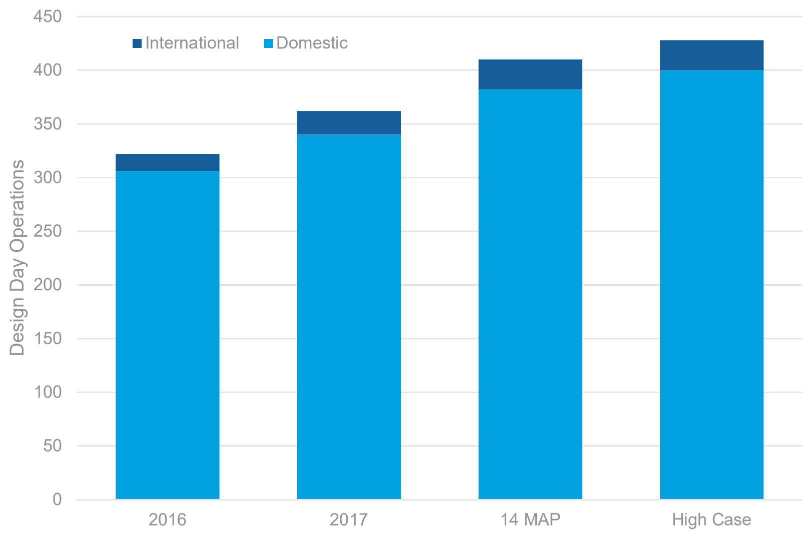
In order to develop the 2017 design day flight schedule, a peak month average day (PMAD) was selected as the design day. Friday, July 28, 2017, was selected as the design day because it most closely represented an average day in the peak month of July. Additionally, Saturday July 29, 2017, was also analyzed because it is the peak day for international operations during the peak month. The passenger flight schedule for the design day was obtained from the Official Airline Guide (OAG).

The 14 MAP design day flight schedule was developed by adding 42 domestic aircraft operations and 6 international aircraft operations to the 2017 flight schedules. These flights and destinations were added based on inferred demand from MIDT data and available destinations on current airlines. Where appropriate, aircraft were substituted based on current airline orders. Additionally, Air China's existing flight from Pudong International Airport (PVG) was rescheduled to arrive and depart 2 hours earlier based on conversations with the Airport.

A High scenario design day flight schedule was developed by adding 18 domestic aircraft operations to the 14 MAP flight schedule. It was assumed that most of the additional service was to East Coast markets and as such, nearly all of the flights were assumed to remain overnight.

Figure 1-3 shows the increase in design day operations for each of the planning levels.

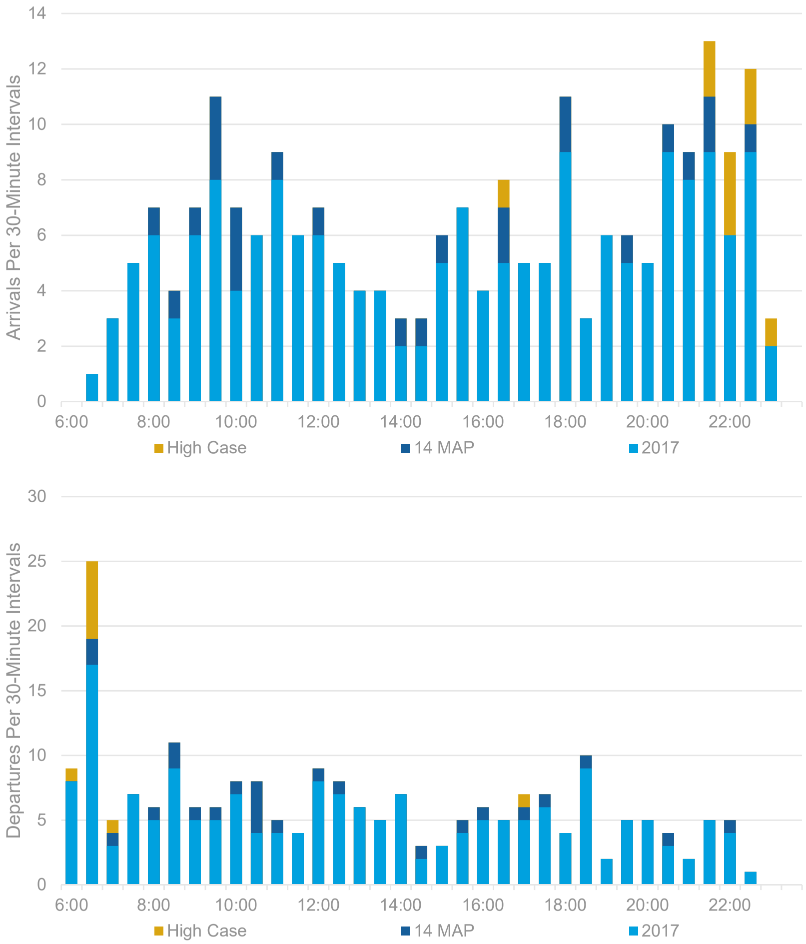
Figure 1-3: Design Day Operations



Passenger Aircraft Operations - 14 MAP vs High Case

Under the 14 MAP scenario, operations were added throughout the day in order to increase frequency to popular markets and to introduce service to new markets. The high case scenario includes all of the flights added in the base case but an additional 18 domestic flights. Many of the additional domestic flights in the schedule are to East Coast markets. These aircraft operations are arriving near the end of the day and departing early the next day. **Figure 1-4** provides a graphical representation of the flights added to the 2017 design day flight schedule under the14 MAP and High case across the day.

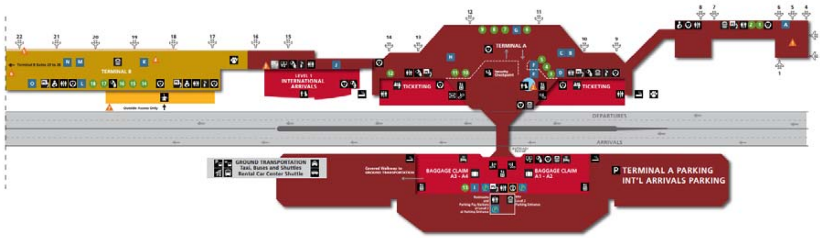
Figure 1-4: Passenger Operations Profile



Terminal Assignments

In order to determine the impact of the additional flights to specific areas of the Airport, flights in the design day flight schedules were provided terminal assignments. All international arrivals, except pre-cleared locations, were assigned to Terminal A. Domestic and international departures were given a terminal based on current airline assignments. All new international airlines were assigned to Terminal A. A map of the terminal areas is provided in **Figure 1-5**.

Figure 1-5: Terminal Map



Peak Hour Domestic Passengers

In the design day flight schedules, departing domestic passengers peak in the morning while arriving domestic passengers peak in the evening. Terminal B has a higher increase in domestic passenger peaks (14 MAP vs High Case) due to additional Alaska and Southwest operations. **Figure 1-6** (next page) shows the profile of domestic passengers throughout the design day. The peak number of domestic passengers for each of the terminals is provided in **Table 1-1.**

Table 1-1: *Peak Hour International Passenger by Terminal*

Terminal	Scenario	Arriving	Departing
Terminal A	14 MAP	1,361	1,604
	High Case	1,458	1,808
Terminal B	14 MAP	1,450	1,637
	High Case	1,718	2,247

Source: L&B

Peak Hour International Passengers

In the design day flight schedules, international passenger peak in the morning. **Figure 1-7** shows the profile of domestic passengers throughout the design day. The peak number of international passengers for each of the terminals in **Table 1-2**.

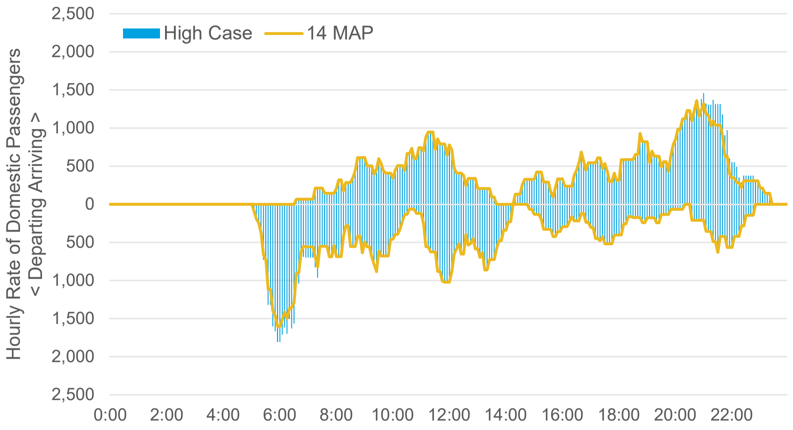
Table 1-2: Peak Hour International Passenger by Terminal

Terminal	Scenario	Arriving	Departing
Terminal A	14 MAP	491	491
	High Case	491	491
Terminal B	14 MAP	0	423
	High Case	0	423

Source: L&B

Figure 1-6: Domestic Passengers

Terminal A: Peak Month Average Weekday - Friday



Terminal B: Peak Month Average Weekday - Friday

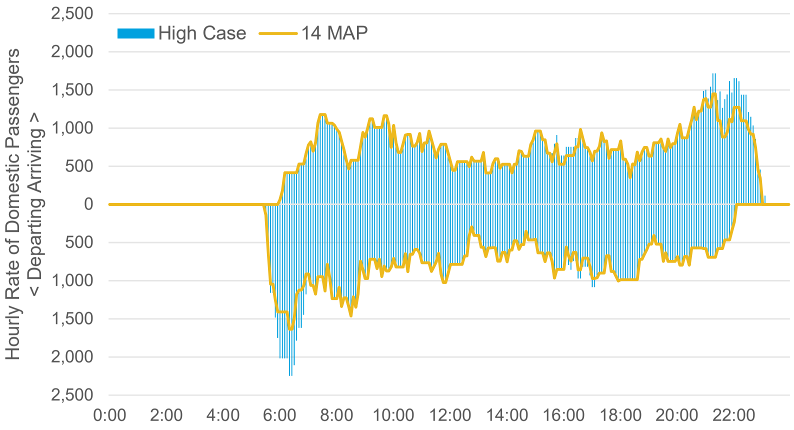
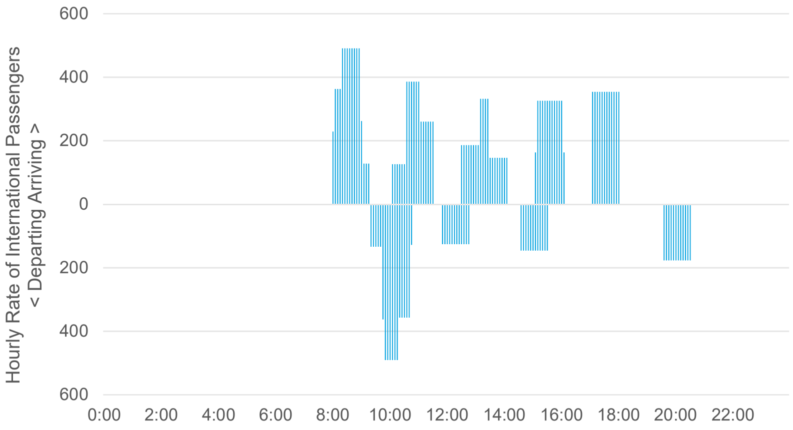
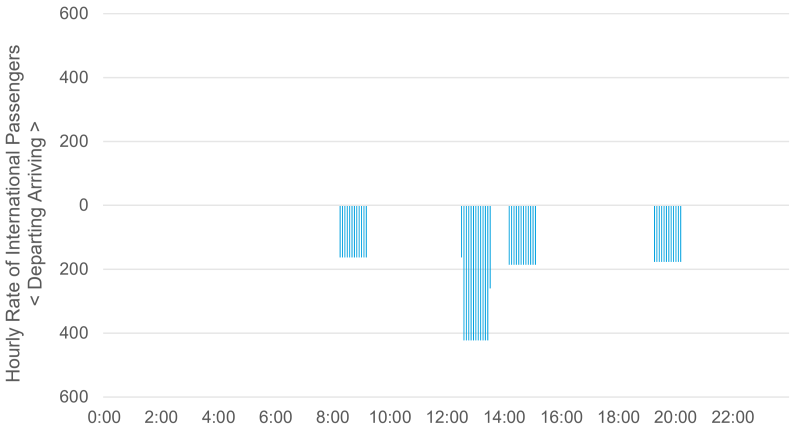


Figure 1-7: International Passengers

Terminal A: Peak Month Average Weekday - Friday



Terminal B: Peak Month Average Weekday - Friday



Chapter 2: Gate Requirements

Introduction

There are a fixed number of contact gates at the Airport. Any flights that cannot be accommodated on these contact gates, may need to be parked at a remote position. Additionally, departure flights at remote gates may need space in the terminal to hold departing passengers before they proceed to the remote gate. The gate requirement analysis evaluated the future flight schedules to determine the number of flights that may not be accommodated on the contact gates, and the maximum number of remote positions and hold rooms that would be required simultaneously. Remote position and hold room requirements were developed for three demand levels – 2017, 14MAP, and High – using the Design Day Flight Schedules (DDFS). **Figure 2-1** shows the comparison of aircraft operations at different levels.

Gate Layout

Figure 2-2 presents the Airport gate layout. There are 30 contact gates at the Airport. At the time of this study, Gates 29 and 30 were under reconstruction and were not considered available when analyzing the 2017 scenario, but were considered as available for the 14MAP and High scenarios. In addition to the contact gates, it was assumed that 12 remote positions are available at the Airport for towing inactive aircraft or for active operations in the future.

The following assumptions were made regarding the usability of the gates:

- Each gate has a maximum aircraft size that it can accommodate
- The majority of gates can accommodate ADG-III aircraft such as the Airbus 320 and the Boeing 737
- Gate 3 can accommodate up to a Boeing 767-300
- Gates 4, 9, 10, 13, 14, 20-27 can accommodate up to a Boeing 757
- Gates 15-18 are FIS-capable
- Gates 15-16 can accommodate up to a Boeing 777 aircraft
- Gate 18 can accommodate up to a Boeing 757 aircraft independently, or can accommodate up to a Boeing 747 but will block Gate 17
- Gate 30 will be able to accommodate up to an Airbus 330-800

Figure 2-1: Comparison of Aircraft Operations at Different Demand Levels

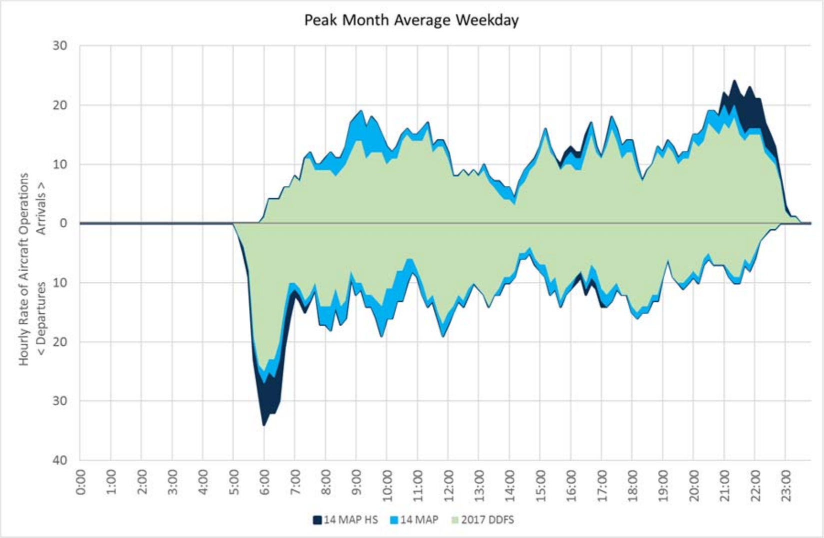
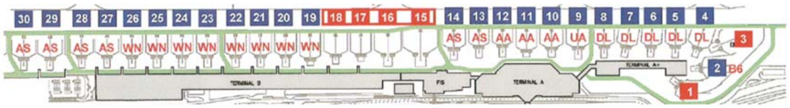


Figure 2-2: Airport Gate Layout (Source: San Jose Airport)



Airlines

Of the airlines that operate at the Airport, the following airlines have preferred gates, and are referred to as preferred-use carriers. **Figure 2-2** (previous page) indicates the preferred gates assigned to each of these airlines at the time of this study.

- Alaska (AS)
- American (AA)
- Delta (DL)
- JetBlue (B6)
- Southwest (WN)
- United (UA)

In addition to these preferred-use carriers, several airlines share common-use gates at the Airport, and are referred to as common-use carriers. These airlines are:

- Air Canada (AC)
- Air China (CA)
- ANA
- British (BA)
- Hainan (HU)
- Hawaiian (HA)
- Lufthansa (LH)
- Volaris (Y4)

Of these airlines, Air Canada only operates ADG-III aircraft on routes with US Pre-clearance. Therefore, Air Canada flights do not need FIS-capable gates, and were always assigned to Gate 1 in this analysis.

Operational Assumptions

In order to maximize the number of flights that are served at contact gates, aircraft with long turnaround times (time on ground between arrival and departure), are towed off the contact gate to a remote position, and subsequently towed back to the contact gate before departure. This allows flights that arrive later to use the contact gate and provide a better level of service to passengers. **Table 2-1** presents the parameters that were used to determine aircraft that could be towed off contact stands. The table presents separate parameters for narrowbody and widebody aircraft, because widebody aircraft require longer stays at the gate after arrival and before departure.

Table 2-1: Operational Assumptions for Towing Aircraft

Parameter	Narrowbody	Widebody
Min. ground time for towing	180 minutes	240 minutes
Min. time after arrival	30 minutes	60 minutes
Min. time before departure	45 minutes	75 minutes
Min. time at remote position	85 minutes	85 minutes
Tow travel time	10 minutes	10 minutes

Source: L&B

Scenarios

To understand if the gates that each airline is assigned to would impact the gate requirement, several scenarios were evaluated at each demand level. **Table 2-2** presents these scenarios.

- Scenarios 1 and 2 evaluated the Summer 2017 demand, Scenarios 3-6 evaluated the 14MAP demand, and Scenarios 7-10 evaluated the High demand.
- Scenario 1 is the baseline scenario for Summer 2017. Since Gates 29 and 30 are expected to be available later in the year, Scenario 2 evaluates the Summer 2017 scenario with 30 gates instead of the current 28 gates.
- Currently, Alaska Airlines is assigned 4 gates in Terminal B, and 2 gates in Terminal A, but the airline check-in facilities are located in Terminal B. In addition to this baseline gate allocation (Scenarios 3, 6, 7, and 10), other airline allocations were considered from further splitting Alaska's operations with 3 gates in each terminal (Scenarios 4 and 8), to moving Alaska Airlines completely to Terminal A (Scenarios 5 and 9). To accommodate Alaska Airline completely in Terminal A, American Airlines would make way and switch to Terminal B.
- The demand forecasts show that Hawaiian Airlines will operate an Airbus A330-800 in the future. Scenarios 3-5 and 7-9 consider this possibility. Currently, Hawaiian Airlines operates the Boeing 767-300, and typically parks on Gate 3, but the Airbus A330-800 cannot be accommodated on Gate 3. Scenarios 3 and 7 assume that Hawaiian Airlines will use one of the common-use gates (15-18). Scenarios 4, 5, 8, and 9 evaluate the benefit of assigning the Hawaiian Airlines A330-800 to the new Gate 30, which can accommodate the A330-800, but is currently assigned to Alaska Airlines. Scenarios 6 and 10 consider the possibility

that Hawaiian Airlines might use an Airbus A321-neo instead of the Airbus A330-800, which could continue be served from Gate 3.

Table 2-2: List of Scenarios and Parameters

Scenario	#1	#2	#3	#4	#5	#6	#7	#8	#9	#10
Demand Level	2017	2017	14MAP	14MAP	14MAP	14MAP	High	High	High	High
# Contact Gates	28	30	30	30	30	30	30	30	30	30
# RON positions	12	12	12	12	12	12	12	12	12	12
AS Gates*	2A + 2B	2A + 4B	2A + 4B	3A + 3B	6A	2A + 4B	2A + 4B	3A + 3B	6A	2A + 4B
AA Gates*	3A	3A	3A	3A	3B	3A	3A	3A	3B	3A
HA aircraft type	B767-3	B767-3	A330-8	A330-8	A330-8	A321neo	A330-8	A330-8	A330-8	A321neo
HA Primary Gate	3	3	15-18	30	30	3	15-18	30	30	3

Source: L&B

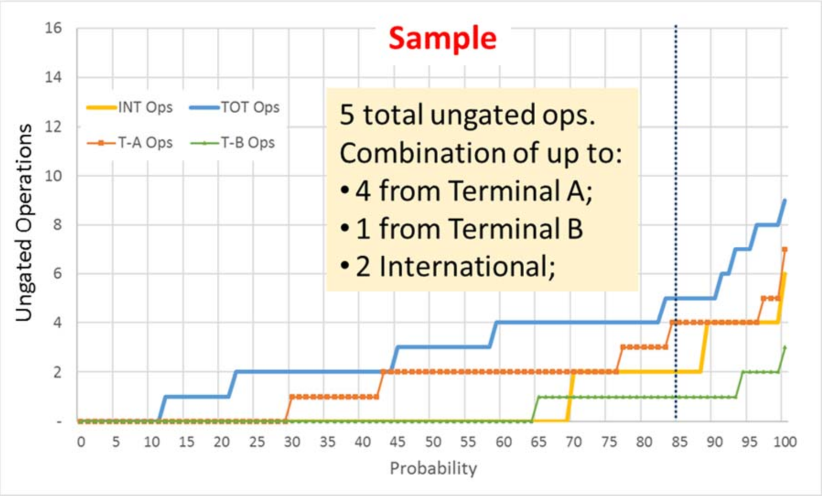
**Indicates the number of gates in Terminal A and Terminal B*

Methodology

The scheduled time of flights in the future schedule has a significant impact on the gate requirement. Moreover, operational circumstances and delays impact the time at which an aircraft arrives or departs from the gate. To account for these factors, a 100 iterations of the DDFS using a schedule time variation of +/- 20 minutes were evaluated for each scenario. A reasonable minimum ground turnaround time was maintained for all flights to ensure the schedule time variation did not result in very short ground times. For each iteration, the study identified the number of ungated operations and the number of RON positions required. The number of ungated operations does not equal the number of additional remote bussing gates required because all ungated operations may not occur simultaneously. Therefore, this study determined the number of additional remote bussing gates required. At the Airport, the peak day for total operations does not occur on the same day as the peak for international operations. Therefore, each scenario was evaluated for both the peak day and the peak international day.

The 85th percentile is a standard planning parameter that provides a high level of robustness to accommodate future operations and at the same time avoids the low probability outliers. This study determined the 85th percentile value across all 100 iterations for each scenario. **Figure 2-3** presents an example of the methodology to determine ungated operations. As shown in Figure 2-3, the number of ungated operations could be further broken down into Terminal A, Terminal B, and International Operations.

Figure 2-3: Example of Study Methodology to Identify Number of Ungated Operations



Results

Analysis indicated that there were only minor variations in the results amongst the different scenarios for each demand level. Therefore, a consolidated requirement of the number of additional bussing gates and RON positions (as shown in **Table 2-3**) was determined for each demand level rather than for each scenario.

Table 2-3: Bussing Gates and RON Positions Required for Each Demand Level

		2017	14MAP	High
	North	2NB	2NB	2NB
	South	-	2NB	4NB + 2RJ
RON Requirement		1WB + 11NB + 3RJ	1WB + 15NB + 4RJ	1WB + 25NB + 4RJ

Source: L&B
** WB = Widebody; NB = Narrowbody; RJ = Regional Jet*

The remote bussing gates only have 1-3 operations per day, where operations could refer to either arrivals or departures. Based on this requirement analysis, the maximum number of parking positions (remote and RON) that could be provided at the Airport was determined.

North Field Aircraft Parking Analysis

North Apron RON Parking

As shown in **Figure 2-4.1** the North Field Remote Parking apron can accommodate one (1) A330-800 NEO position and two (2) B737-MAX 9 parking positions. The two B737-MAX 9 positions would operate as fully functioning remote gates. Passengers would be bused from a remote holding area at Terminal A to the remote gates. All ground service equipment (GSE) functions to service the aircraft would occur on-site. The A330-800 NEO parking position would serve solely as a RON position to accommodate wide body aircraft that need to be towed from a contact gate at Terminal A. It is not anticipated that this position would be used as a remote gating operation for wide body aircraft.

Figure 2-4.2 depicts an alternative configuration for the North Apron Remote Parking ramp area. In this configuration, the A330-800 NEO position would be converted to a remote gating operation capable of accommodating one (1) B737 MAX 9 aircraft and one (1) E175-EWT aircraft. This configuration provides the Airport with additional remote gating capabilities on North Field. Modifications to the vehicle service road (VSR) will be required to provide circulation and connectivity around the remote gating operation for GSE access as well as access for fuel trucks traveling to/from the refueling depot located east of the remote hardstand apron.

North Cargo Aircraft Parking

The current North Cargo apron can accommodate one (1) B767-300 and one (1) B767-400 aircraft. These parking positions will not be impacted by the proposed North Field remote parking positions. The North Cargo operation provides additional flexibility for the Airport to accommodate three (3) E175-EWT regional jet aircraft parking positions when the cargo operator is not utilizing their positions. The regional jet positions would serve as RON parking positions and not remote aircraft parking operations.

Figure 2-4.1: North Field Remote Parking

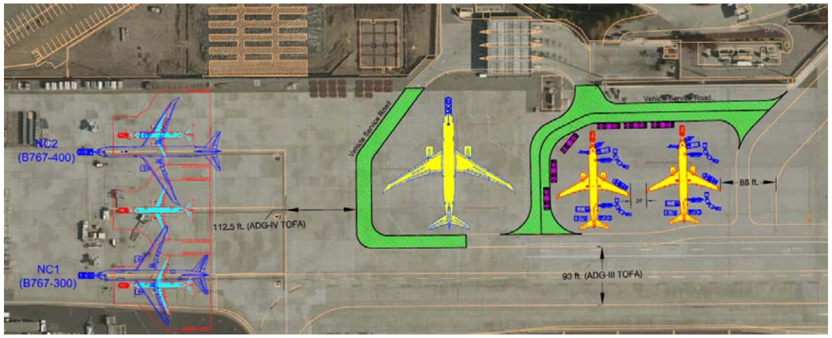


Figure 2-4.2: North Field Remote Parking (Alternative Configuration)

South Field Aircraft Parking Analysis

South Apron RON Parking

As shown in **Figure 2-5.1** and **Figure 2-5.2** the South Field apron can accommodate a combination of remote gating operations as well as RON parking positions. The South Field apron can accommodate seven (7) B737 MAX 9 positions, one (1) B737 MAX 7 position and four (4) E175-EWT positions. Of these positions, only four (4) B737 MAX 9 positions and three (3) E175-EWT positions are anticipated to be used as remote gating operations. The remaining positions will be used to accommodate RON aircraft operations.

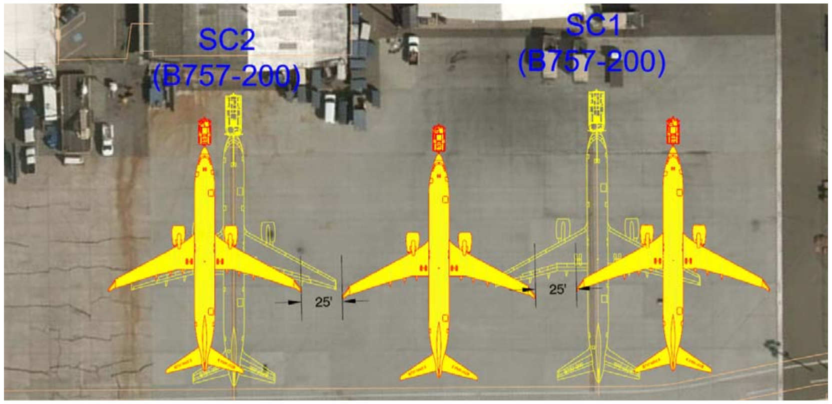
Passengers will be bused from a remote holding area at Terminal B to the remote gates. All GSE functions to service the aircraft would occur on-site.

The aircraft parking layout considers required clearance areas for Aircraft Rescue and Fire Fighting (ARFF) facilities as well as ensuring that the aircraft operations do not adversely impact ingress/egress to other South Field airport facilities.

As depicted in Figure 2-5.1, VSR modifications would be required to serve the remote gating operations. GSE equipment and passenger busing operations would utilize the proposed VSR roadways to service the aircraft and to avoid additional traffic on the existing tail-of-stand VSR.

Figures 2-5.1: South Apron RON Parking

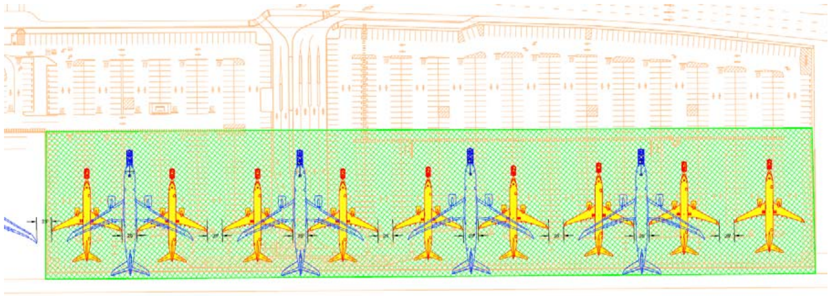
Figures 2-5.2: South Apron RON Parking (2)



Surface Parking Lots 5 & 6 Conversion

To meet future RON parking demands in the 14 MAP High scenario, an evaluation was conducted to identify areas at the Airport that could potentially be converted to aircraft apron parking areas. Adjacent to Gate 30 at SJC is surface parking Lots 5 and 6. As depicted in **Figure 2-6**, the South Parking Lot can be converted into nine (9) B737-MAX 9 aircraft parking positions or four (4) A330-800 NEO aircraft. Providing wide body/MARS parking capability in this area is of particular importance. These positions could also potentially be used for remote aircraft operations as well. An estimated 800-850 surface parking positions would be lost in the surface parking lots in order to accommodate the full development of the aircraft parking ramp area. Most RON positions only used for one (1) turn flight a day.

Figure 2-6: Surface Parking Lots 5 & 6 Conversion

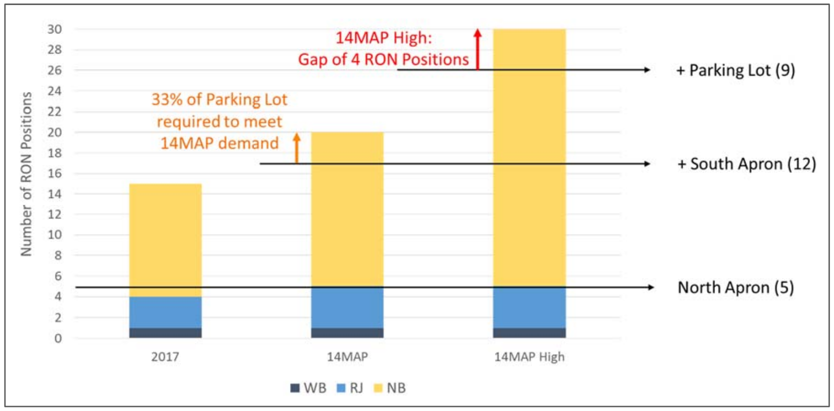


In conclusion, the North Apron could accommodate 1 WB and 4 NB positions, the South Apron could accommodate 8 NB and 4 RJ positions, and the surface parking lot could accommodate 9 NB positions.

Figure 2-7 presents a gap analysis of the additional parking positions required vs. the maximum number of parking positions that could be provided at the Airport.

- For the 2017 scenario, the maximum combination of the revised North and South Aprons would provide more than adequate parking positions.
- For the 14 MAP scenario, the maximum combination of the revised North and South Aprons would provide for 17 of the 20 parking positions required. Therefore, an additional 3 positions would have to be developed by converting a part of the Surface Parking Lot.
- For the High scenario, the combination of the revised North and South Aprons would provide 17 of the 30 parking positions required. The conversion of the entire Surface Parking Lot would only provide an additional 9 parking positions. Therefore, a gap of 4 RON positions would exist even with complete conversion of the Surface Parking Lot.

Figure 2-7: Gap Analysis



Most RON positions are only used for 1 turn flight a day. Therefore, the RON requirement could be managed using a combination of parking in the west airfield, demand management, and operational strategies. The inability to provide 4 RON at the High scenario could result in the loss of 4 turn flight operations per day.

Chapter 3: Terminal Capacity Gap Analysis and Capacity Enchancement Options

Methodology

The terminal capacity gap analysis was performed using the rolling hour passenger demand for both the 2017 and 14 MAP DDFS and applying planning parameters for each of the key passenger processing elements in a spreadsheet model to determine the passenger processing facilities required to achieve the target level of service.

The International Air Transport Association' (IATA) Optimum Level of Service was used as the basis for the gap analysis. Per the IATA Airport Design Reference Manual (ADRM) 10th Edition, the Optimum Level of Service is defined as "providing sufficient space to accommodate all necessary functions in a comfortable environment with stable passenger flows and acceptable waiting times." the goal of the Optimum Level of Service (formerly Level of Service C) is to balance economic terminal dimensions with passenger expectations. The IATA Level of Service range is shown in **Table 3-1**.

Table 3-1: Level of Service

Passenger Terminal Processor					
ADRM 9th Edition	A	B	C	D	E
ADRM 10th edition	Over Design		Optimum	Suboptimum	

Source: International Air Transportation Association, Airport Design Reference Manual, 10th Edition

Design Day Flight Schedules

The Design Day Flight Schedules for 2017 and 14 MAP, as shown in **Exhibits 3-1** through **3-3** were used as the basis of demand for the terminal capacity gap analysis. The following provides a few key points about the change in demand from 2017 to the 14 MAP demand level:

- Terminal A Arriving passengers increase 43% from 2017 to 14 MAP; Departing passengers increase 15% from 2017 to 14 MAP (see **Figure 3-1**)
- Terminal B Arriving passengers increase 16% from 2017 to 14 MAP; Departing passengers increase 07% from 2017 to 14 MAP (see **Figure 3-2**)
- International Arriving passengers increased by 37% from 2017 to 14 MAP and International Departing passengers increased by 07% from 2017 to 14 MAP (see **Figure 3-3**)

Figure 3-1: Terminal A Domestic Passengers

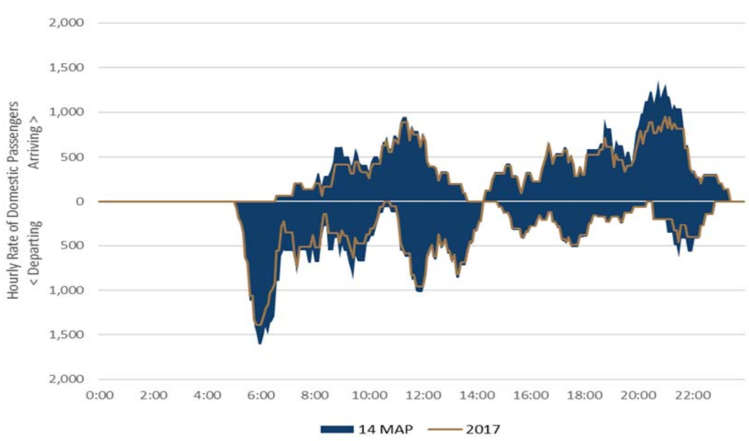


Figure 3-2: Terminal B Domestic Passengers

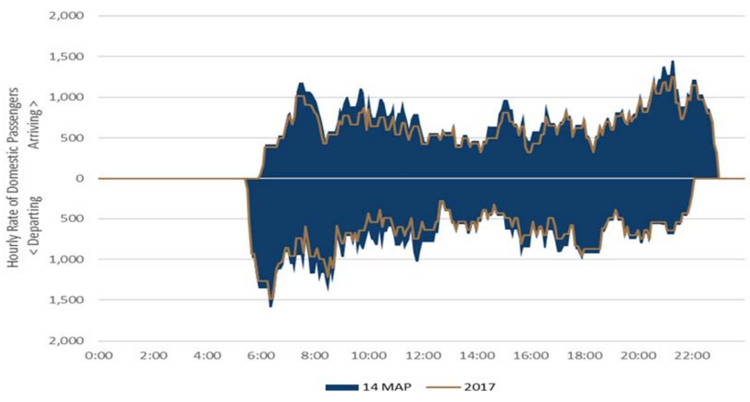
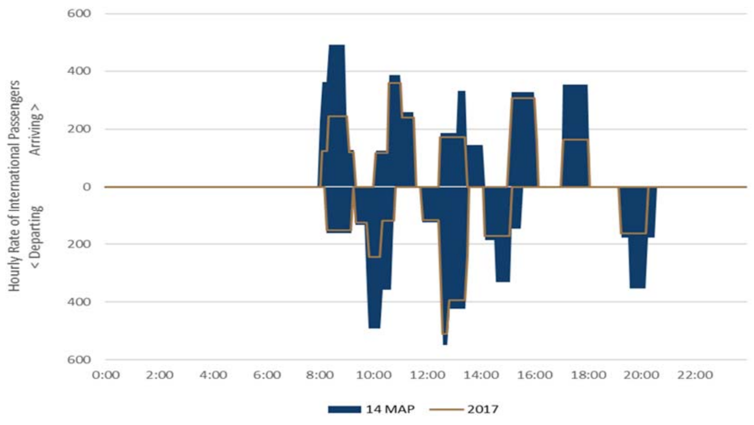


Figure 3-3: International Passengers



Planning Parameters / Assumptions

Table 3-2 shows the parameters and assumptions used in the terminal capacity gap analysis. This is based on a combination of data provided by San Jose International Airport (SJC) staff or other stakeholders, airport industry planning guidance as well as L&B's experience at other, similar airports.

Table 3-2: Planning Parameters and Assumptions

Terminal Component	Assumptions / Parameters	Source(s)
Ticketing Counters	Preferential and common-use airlines assigned counters based on lease agreement	SJC
Security Checkpoint	160 passengers per hour per lane blended (standard and Pre✓ lanes); 10.8 square feet per person in queue	L&B experience, IATA
Baggage Screening	720 bags per hour per EDS; 1 additional EDS required for N+1 redundancy	L&B experience, TSA
Baggage Make-up	3-4 carts per NB; 7-8 carts per WB based on peak 2-hour departures; 12 feet of frontage per cart or container	L&B experience
Holdrooms	Based on max aircraft capacity of gate: 3,300 SF for WB (B787-9); 2,400 SF for NB (B737-MAX9)	IATA
Concessions	7.0 square feet per 1,000 enplaned passenger (primarily domestic O&D airport)	L&B experience
Baggage Claim – DOM	1.5 linear feet of claim frontage per peak 20-minute deplaning passenger; 60% of passengers check bags	L&B experience
Baggage Claim – INT	2.0 linear feet of claim frontage per claiming passenger; 90% of passengers check bags	L&B experience
CBP Processing	Based on CBP ATDS guidelines per peak hour passengers; 400 in 2017, 600 for 14 MAP	CBP ATDS
Arrivals Hall	.3 meeters/greeters per passenger; 20.5 square feet per person; 20% additional area for seating	IATA, L&B experience

Source: L&B, others as noted.

Near-term Projects

The terminal capacity gap analysis accounts for near-term capital improvement projects that are currently being implemented and will provide additional capacity. **Table 3.3** shows the near term projects that were considered in the analysis.

Table 3-3: Near-term Capital Improvement Projects

Project	Timing	Planning Assumptions
Gates 29 & 30	Complete in late-2017	Holdroom requirements include Gates 29 (NB) and 30 (WB); Existing area <u>includes</u> conversion of existing space to holdroom area (approx. 3,000 square feet)
FIS Improvements	Complete in April 2017	Additional baggage claim device and arrivals hall expansion included in terminal capacity gap analysis

Source: San Jose International Airport.

Terminal Capacity Gap Analysis Findings

The terminal capacity gap analysis findings for Terminal A, Terminal B and the U.S. Customs and Border Protection (CBP) facilities are provided in the following sections. A red, amber, and green (RAG) chart (see **Figure 3-4**) was developed to highlight whether or not each component of the terminal facilities meets the demand at each forecast level.

Figure 3-4: Terminal Capacity Gap Analysis RAG Chart

🟩 Capacity Meets or Exceeds Demand, Optimum LOS
🟨 Demand Exceeds Capacity, Optimum/SubOptimum LOS
🟥 Demand Substantially Exceeds Capacity, SubOptimum LOS

Source: L&B.

Terminal A Capacity Gap Analysis

The Terminal A capacity gap analysis results are presented in **Table 3-4**. The following provides a summary of the findings:

- Ticketing/check processing capacity is Optimum for 14 MAP assuming that the airline use and lease agreement is utilized for the Ticket Counter allocation methodology. Four (4) additional ticket counter positions will be required for the High scenario but it is possible that the airlines could absorb the extra demand through higher utilization of self-service kiosks or web check-in.
- Baggage screening capacity (number of EDS machines) meets demand at both the 14 MAP and High scenarios.
- Baggage make-up (linear frontage) capacity is slightly below demand at the 14 MAP level and significantly below demand at the High scenario. It is likely that airlines currently will have to stage fewer carts per flight than operationally desired.
- One (1) additional security screening checkpoint (SSCP) lane would be required for the High scenario. The existing queue area is sufficient for all demand levels.
- Holdroom area is SubOptimum for 2017 and 14 MAP based on maximum aircraft gauge. See **Table 3-7** (page 20) for individual holdroom requirements. It is not likely that all gates will be occupied by the largest aircraft at the same time and therefore passengers will spill over into adjacent holdrooms, minimizing the periods of heavy congestion.
- Baggage claim frontage is sufficient for 14 MAP but slightly below requirements for the High scenario. Baggage claim area is suboptimum for 14 MAP and significantly below the High scenario requirements. It is likely that there will be heavy congestion around the baggage claim devices during the peak periods.

Table 3-4: Terminal A Capacity Gap Analysis Results

Element	Existing	2017	14 MAP	HIGH
Ticketing/Check-in	60	56*	60*	64*
Air Canada	4	**6**	6	6
Air China	8	**8**	8	8
American Airlines	**10**	**14**	**14**	**16**
Hawaiian Airlines	4	6	**6**	**6**
Jet Blue	**4**	**4**	**4**	**4**
United Airlines	**6**	**4**	**4**	**6**
Volaris	6	6	**6**	**6**
Delta Air Lines	**6**	**12**	**12**	**12**
All Nippon Airways	6	**8**	8	8
Aeromexico	-	6	**6**	**6**
New INT 1	-	-	8	8
New INT 2	-	-	**8**	**8**
New INT 3	-	-	6	6
Baggage Screening	4	3	3	3
Baggage Make-up (frontage)	542	528	600	720
SSCP – Lanes	8	7	8	9
SSCP – Queue Area	4,820	3,000	3,500	3,900
Concessions - Secure	17,600	16,800	21,700	21,700
Holdrooms**	34,060	45,900	45,900	45,900
Bag Claim – Frontage	460	410	460	500
Bag Claim – Area	14,000	14,300	16,000	17,500

Source: L&B

*Table Notes: * Numbers shown bold are included in the peak ticket counter position requirements due to the timing of the flights.*

*** Includes remote bus gate holdrooms*

Terminal B Capacity Gap Analysis

The Terminal B capacity gap analysis results are presented in **Table 3-5**. The following provides a summary of the findings:

- Additional ticketing/check processing capacity is required at Terminal B for all demand levels assuming that the airline use and lease agreement is utilized for the Ticket Counter allocation methodology.
- Baggage screening capacity (number of EDS machines) meets demand at both the 14 MAP and High scenarios.
- Baggage make-up (linear frontage) capacity is below demand at the 14 MAP level and significantly below demand at the High scenario. Airlines will have to stage fewer carts per flight than operationally desired to meet the 14 MAP demand but additional capacity will have to be added for the High scenario.
- Three (3) additional security screening checkpoint (SSCP) lanes would be required for the High scenario. The existing queue area is sufficient for all demand levels.
- Holdroom seating area is Optimum for all demand levels when including the additional space that has been identified for Gates 29 and 30. See **Table 3-7** (see page 20) for individual holdroom requirements.
- Baggage claim frontage is insufficient for 14 MAP and substantially below requirements for the High scenario. Baggage claim area is below requirements for 14 MAP and significantly below the High scenario requirements. Additional baggage claim frontage and area will be required for the High scenario.

Table 3-5: Terminal B Capacity Gap Analysis Results

Element	Existing	2017	14 MAP	HIGH
Ticketing/Check-in	40	48*	48*	58*
Alaska Airlines	**10**	**14**	**14**	**16**
British Airways	8	8	8	8
Lufthansa	**8**	**8**	**8**	**8**
Southwest Airlines	**14**	**18**	**18**	**26**
Hainan Airlines	**6**	**8**	**8**	**8**
Baggage Screening	4	3	3	4
Baggage Make-up	720	708	768	948
SSCP – Lanes	8	7	8	11
SSCP – Queue Area	5,500	3,200	3,500	5,000
Concessions - Secure	29,900	25,200	28,000	28,000
Holdrooms**	48,315	33,600	38,400	45,600
Bag Claim – Frontage	537	590	640	765
Bag Claim – Area	17,600	17,800	19,000	23,000

Source: L&B

*Table Notes: * Numbers shown bold are included in the peak ticket counter position requirements due to the timing of the flights. ** Includes holdroom area designated for Gates 29 and 30*

U.S. CBP Facilities

The U.S. CBP Facilities "FIS" capacity gap analysis results are presented in **Table 3-6**. The High scenario was not analyzed as it only impacts the domestic flights. The following provides a summary of the findings:

- Primary processing (passport check) has sufficient officer positions for 2017 and is slightly under the requirements for 14 MAP. However, the queue area is substantially undersized for both demand scenarios. Additional area is required.
- The baggage claim devices are significantly undersized for both 2017 and 14 MAP. They should be approximately 250 to 300 linear feet of frontage each.
- Exit Control area is slightly undersized for both 2017 and 14 MAP.
- Secondary processing queue area is sufficient for 2017 but significantly undersized for 14 MAP.
- The Arrivals Hall area includes the recent expansion and is sufficient for 2017 but slightly undersized for 14 MAP.

Table 3-6: U.S. CBP Facilities Capacity Gap Analysis

Element	Existing	2017	14 MAP
Primary Processing			
Officer Positions	10	8	12
Queueing	2,450	3,760	5,640
Secondary Processing			
Secondary Queueing	500	500	750
Secondary Inspection	1	1	1
Exit Control			
Exit Podium	150	180	180
International Bag Claim			
Claim Devices[1]	2	2	2
Claim Frontage	337	420	460
Arrivals Hall			
Arrivals Hall[2]	2,070	1,700	2,400

Source: L&B

Table Notes: Includes the new flat plate international bag claim device. Includes the new arrivals hall expansion.

Holdroom Capacity

The previous sections provided analysis of the holdroom capacity for each terminal. **Figure 3-5** and **Table 3-7** provide additional detail regarding the required area for each group of holdrooms. As indicated, Gates 1-5, 7-8 and 15-16 have substantial shortages as compared to the requirements. Gates 1-5 have a significant shortage due to the number of gates and maximum size of the aircraft that are able to be parked at those gates. Relocating Hawaiian Airlines' flight (B-767) would make a substantial improvement.

Figure 3-5: Holdroom Locations

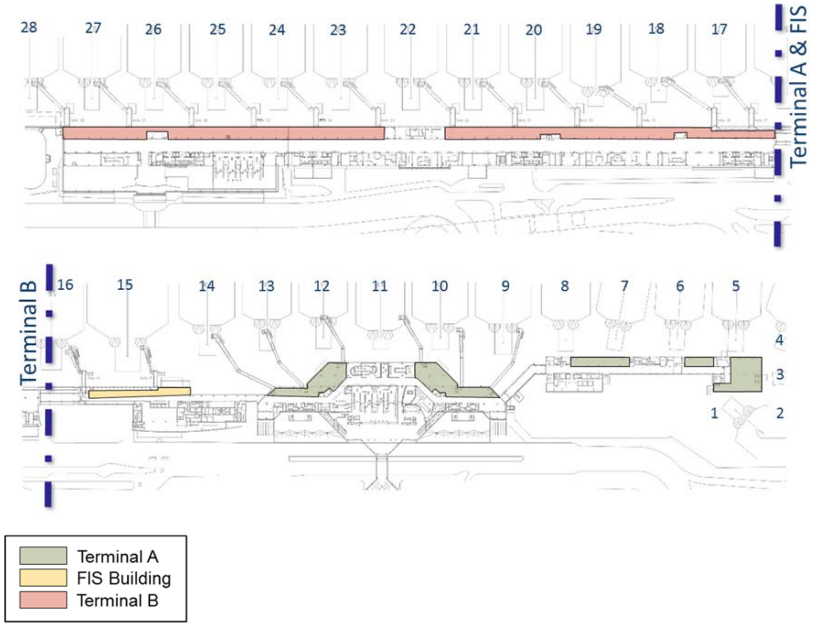


Table 3-7: Holdroom Analysis

Gates	# of Gates	Existing Area (SQFT)	Required Area (SQFT)	Difference +/(-)
1-5	5	7,580	12,900	(5,320)
6	1	1,750	2,400	(650)
7-8	2	3,525	4,800	(1,275)
9-11	3	8,280	7,200	1,080
12-14	3	7,860	7,200	660
15-16	2	5,065	6,600	(1,535)
17-22	6	21,530	14,400	7,130
23-28	6	21,315	14,400	6,915
29-30	2	5,470*	4,800	670
Total	**30**	**82,375**	**74,700**	**7,675**

Source: L&B

*Table Notes: * Existing area includes area to be converted to holdrooms for Gates 29 and 30.*

Conclusions

Based on the capacity gap analysis presented in the previous sections, the following conclusions were identified:

- Departures processing capacity at Terminals A & B is capable of accommodating 14 MAP. There may be a slight shortage of ticket counters during the peak period but both terminals maintain SubOptimum Level of Service or better. Enforcement of the airline use and lease agreement is necessary to achieve the 14 MAP demand level.
- Terminal B is not capable of handling the High scenario demand as much of the growth is driven by Southwest and Alaska.
- Terminal B will need additional security screening checkpoint lanes to meet the High scenario.
- Terminal B baggage claim frontage and claim hall area is less than required but will accommodate 14 MAP at reduced levels of service during the peak periods. An additional device or devices will be required to meet the High scenario.
- CBP Passport Check and International baggage claim capacity are below the target requirements for 14 MAP.
- Enlargement of the Passport Check queue area and increased processing capacity are necessary for both 2017 and 14 MAP. The queueing situation will continue to worsen as additional flights are added during the peak hours.

Terminal Capacity Enhancement Options

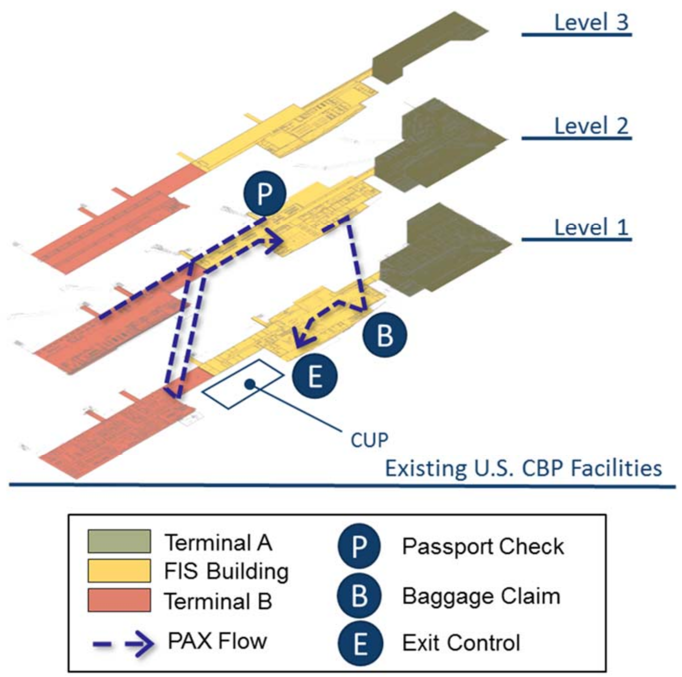
Several terminal capacity enhancement options were developed to address the capacity shortfalls identified in the terminal capacity gap analysis. These options include enhancements to the U.S. CBP facilities, additional bus gate holdrooms and additional baggage claim capacity for Terminal B. Below is a description of each of the terminal capacity enhancement options.

U.S. CBP Facilities

Figure 3-6 provides an illustration of the existing U.S. CBP facilities as well as the passenger flow. Arriving passengers enter the sterile corridor on Level 2, take a ramp down to Level 1 and then ramp back up to the Primary Processing on Level 2. After Primary Processing, passengers go to bag claim and Exit Control on Level 1.

As in indicated in the gap analysis, the U.S. CBP facilities are generally insufficient to meet the current and projected demand levels. In addition to the capacity issues, there are operational issues associated with the current facilities, including operationally dependent gates. The options described below seek to address the capacity and operational issues through various degrees of capital investment. It is possible that they could be implemented in combination to address both short-term and long-term capacity issues.

Figure 3-6: Existing U.S. CBP Facilities

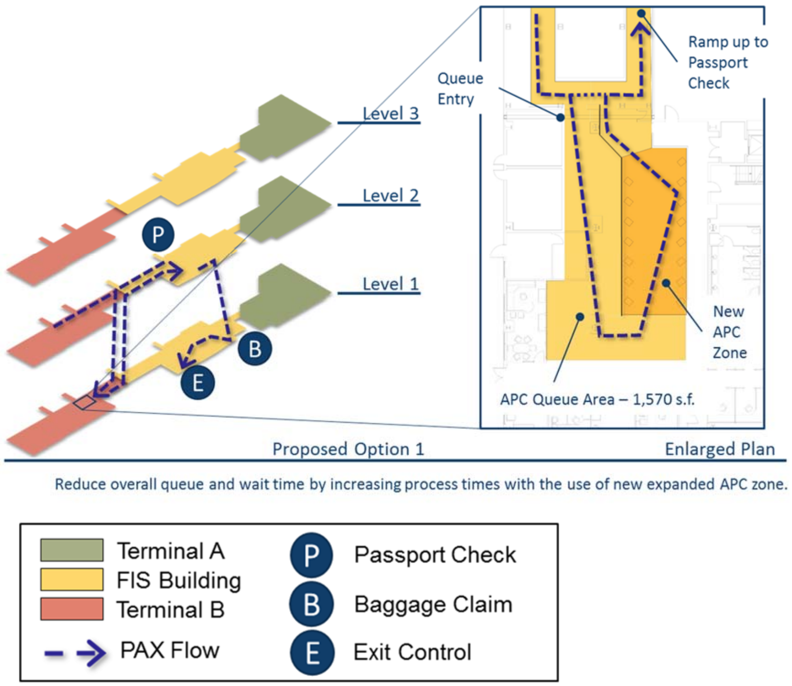


Option 1- Enhanced APC

As shown in **Figure 3-7**, Option 1 provides a dedicated area for Automated Passport Control (APC) kiosks on Level 1. Eligible arriving passengers would proceed through the APC Zone on Level 1 before going to the Passport Check area on Level 2. Passengers not eligible for APC would proceed directly to Passport Check. The key benefit of this option is the provision of additional queueing space at Passport Check. Other considerations include:

- APC Zone displaces Airport Administration offices on Level 1 in Terminal B.
- This is not a long-term solution but could be part of an interim improvement.
- This option does not address baggage claim, Secondary Processing or Exit Control.

Figure 3-7: Option 1- Enhanced APC



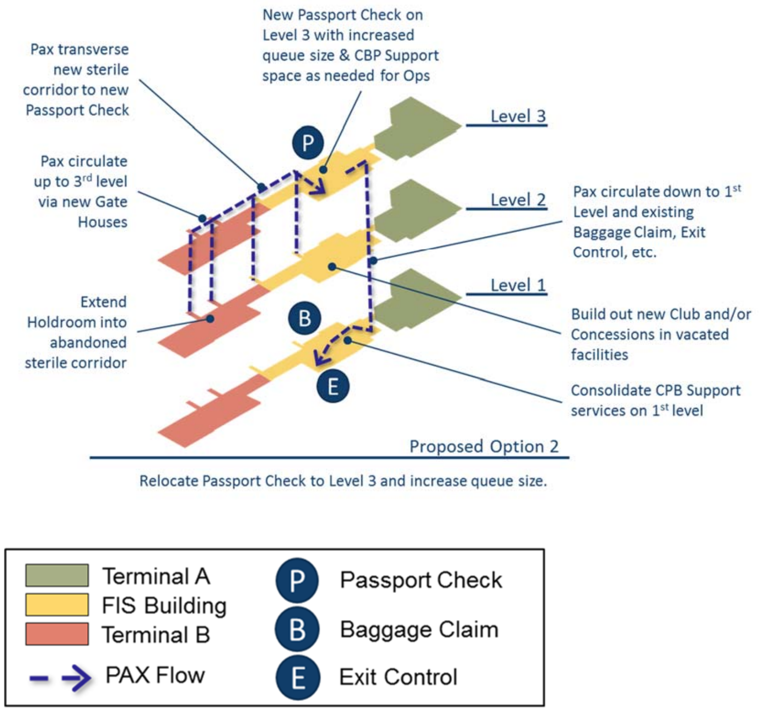
Reduce overall queue and wait time by increasing process times with the use of new expanded APC zone.

Option 2 – Relocate Passport Check

As shown in **Figure 3-8**, Option 2 relocates the Passport Check functions to Level 3 to provide adequate space for processing and queuing. A new sterile corridor would be constructed on Level 3 to collect passengers from the gates. After Passport Check, passengers would descend to Level 1 for baggage claim, Secondary Processing or Exit Control. The key benefits of this solutions are that adequate space is provided for Passport Check and the operational dependencies for the international arrivals gates could be reduced or eliminated. Other considerations include:

- Option 2 is not a long-term solution as it does not address Baggage Claim or Exit Control capacity.
- Implementation phasing likely a major challenge due to relocation of multiple facilities and maintaining operations during construction.
- This options displaces The Club at SJC, which could potentially be relocated to Level 2 where Passport Check is currently located.

Figure 3-8: Option 2 – Relocate Passport Check



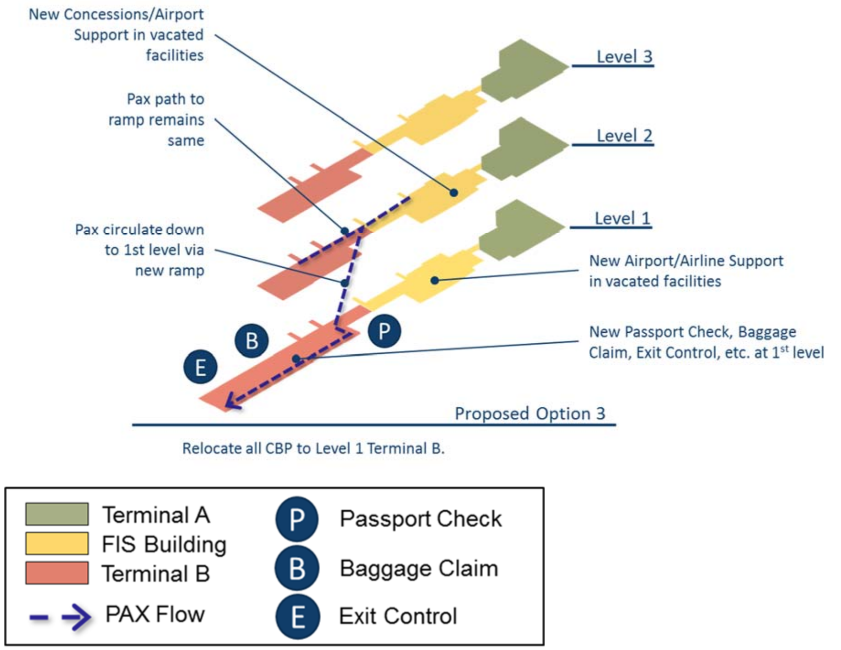
Option 3 – Relocate CBP

As shown in **Figure 3-9**, Option 3 relocates the entire CBP facilities to Level 1 in the area where the Airport Administration offices are currently located. The new CBP facilities would be configured in a "one-stop" layout which is preferred by CBP for airports the size of SJC. Arriving passengers would follow the current path to Level 1 and would then enter the APC Zone before claiming their checked baggage. A combined Passport Check and Exit Control inspection would occur after baggage claim. The key benefits of this solution are that the CBP facilities are located on one level and the one-stop configuration improves CBP staffing efficiency. Other considerations include:

- Option 3 is a potential long-term solution.
- International arrival gates remain operationally dependent.
- The new CBP facilities displace nearly all Airport Administration offices. A new location will have to be determined.

Curbside access is very limited in this area of the terminal roadway.

Figure 3-9: Option 3 – Relocate CBP



Option 4 – Relocate CBP to Terminal B Phase 2

As shown in **Figure 3-10**, Option 4 relocates the entire CBP facilities to Level 1 in the Phase 2 component of Terminal B. The new CBP facilities would be configured in a “one-stop” layout which is preferred by CBP for airports the size of SJC. Arriving passengers would descend to Level 1 immediately after deplaning and would then entire the APC Zone before claiming their checked baggage. A combined Passport Check and Exit Control inspection would occur after baggage claim. The key benefits of this solution are that the CBP facilities are located on one level and the one-stop configuration improves CBP staffing efficiency. Other considerations include:

- Option 4 is a potential long-term solution and provides the opportunity for increased capacity over the other options.
- International arrival gates would be operationally independent.
- The new CBP facilities would not be operational until the component of Terminal B Phase 2 is complete.

Summary of CBP Capacity Enhancement Options

Table 3-8 (see following page) provides a summary of the key attributes, benefits and challenges of each of the CBP Capacity Enhancement Options. Option 4 clearly provides the best long-term solution. Option 1 could be a good initial step that addresses the current queuing issue at Passport Check while either Option 3 or 4 are being implemented. Option 2 is the least desirable as it only addressed Passport Check capacity and has challenging implementation phasing.

Figure 3-10: Option 4 – Relocate CBP – Terminal B Phase 2

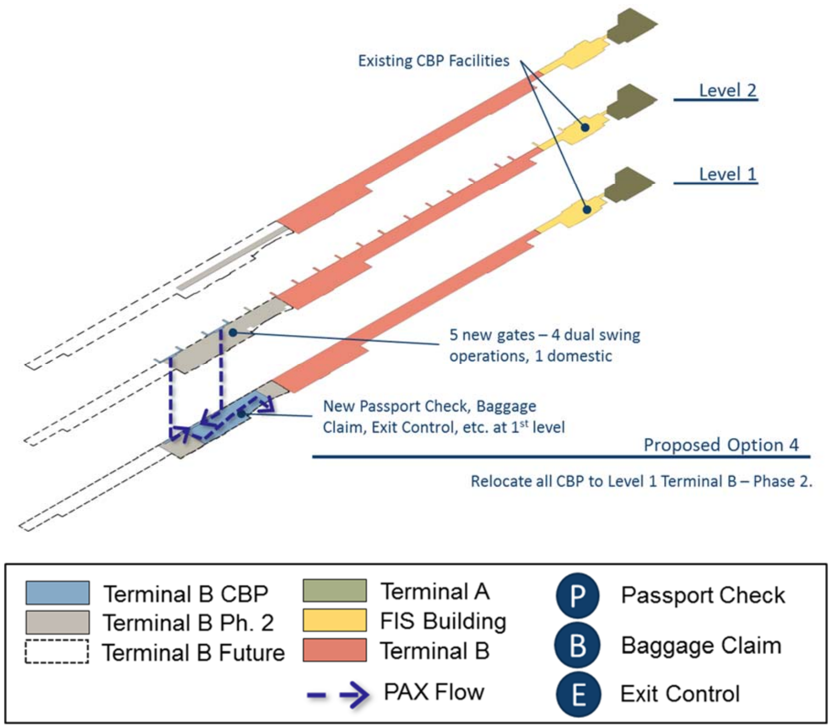


Table 3-8: Comparison of CBP Capacity Enhancement Options

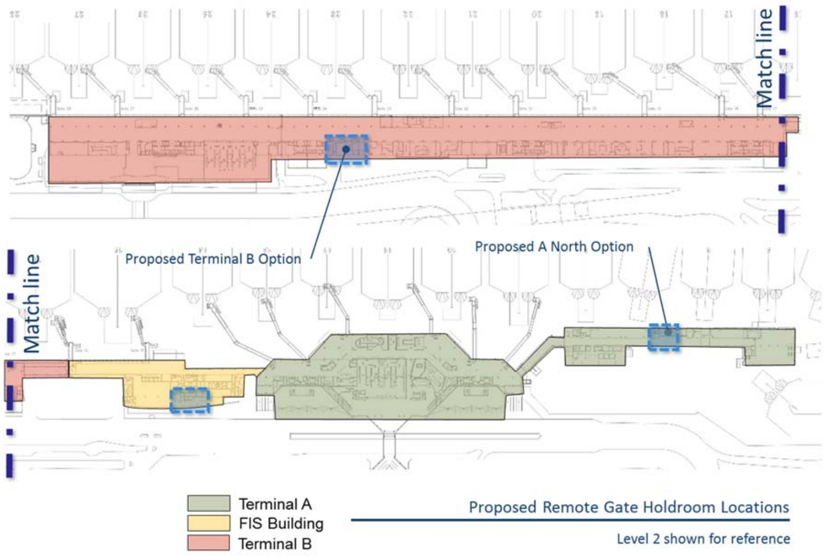
Key Metric	Option 1 Enhanced APC	Option 2 Relocate Passport Check	Option 3 Relocate CBP	Option 4 New CBP in TB PH 2
Capacity Enhancement	Improved Passport Check Processing	Passport Check meets 14 MAP requirements	Meets 14 MAP requirements	Meets 14 MAP requirements
APC Zone	Yes	No (insufficient space)	Yes	Yes
Vertical Transitions	No change – down 1, up 1, down 1	Up 1, down 2	Down 1	Down 1
Implementation Considerations	Partial Relocation of Airport Offices	Floor elevation differences between buildings, Phasing, Expanding 3rd floor onto existing roofs	Phasing, Relocation of Airport Offices	Part of Terminal B Phase 2
Benefits	Increased processing capacity without additional CBP staff, Additional queue area	Eliminate gate dependencies, Integrate ACP and Passport Check	Ideal CBP configuration	Ideal CBP configuration, Long-term expansion capability, No impact to existing space
Challenges	Relocating Airport Offices, Does not address Bag Claim or Exit Control	Does not address Bag Claim or Exit Control, Potential loss of revenue space (Club at SJC), Complex implementation	Relocating Airport Offices, Curbside access, Connection to TA and TB	May require interim improvements at existing CBP due to construction time for Terminal-B Phase 2

Source: L&B

Remote Bus Gate Holdrooms

Several options were developed to address the need for additional remote bus gate holdroom capacity. As shown in **Figure 3-11**, three locations were identified that could potentially be used for remote bus gate holdrooms.

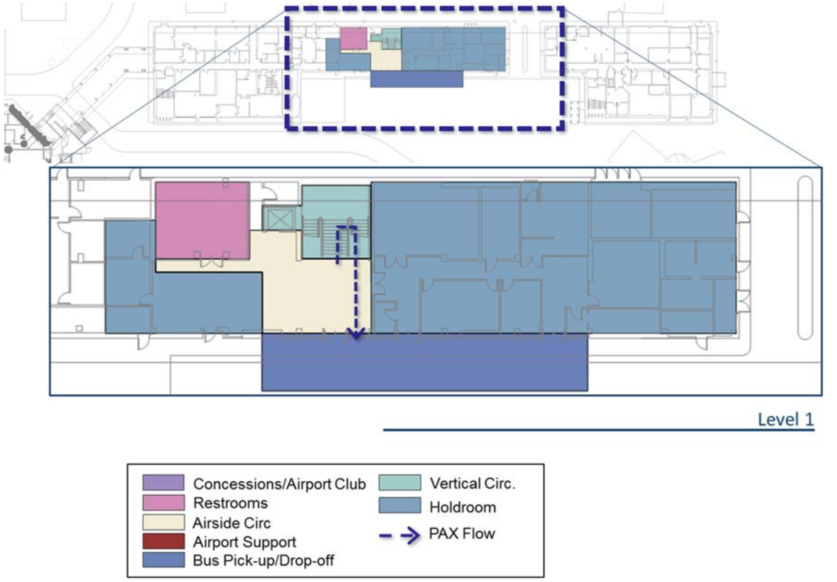
Figure 3-11: Remote Gate Holdrooms – Locations



Terminal A Bus Gate Holdroom Expansion

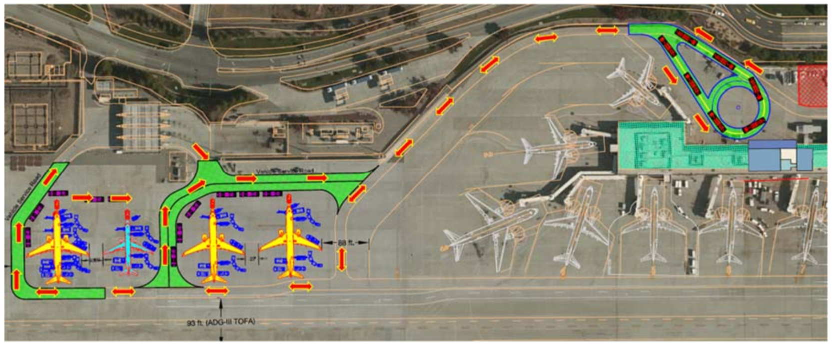
The first location (see **Figure 3-12**) is in the north section of Terminal A, across from Gate 7. The area on Level 1 that is currently used for remote bus gate holdroom seating could be expanded to just over 5,000 square feet by converting the adjacent ramp support space to holdroom. That would enough area to serve 2 narrowbody aircraft or 1 widebody aircraft. An additional public restroom on Level 1 would be required in this option.

Figure 3-12: Remote Gate Holdrooms – A North



As shown in **Figure 3-13**, the proposed North Field passenger busing operation will provide a location at Terminal A for passengers to board buses and be transported to the North Field remote parking positions as previously discussed. A bus turnaround area will be provided and the buses will travel along the VSR until reaching the existing North Field remote parking apron. Along the VSR, the estimated travel distance from the busing area to the furthest remote aircraft position is 0.35 miles.

Figure 3-13: A North Passenger Bussing Operation



A series of VSR additions are required to provide vehicle circulation and routing around and in between the proposed hardstand parking positions for GSE movements. Additionally, at SJC, the current aircraft fueling operation is handled solely by fuel trucks. There is no hydrant fueling for any aircraft parking position at the Airport. The current location of the refueling depot for fuel trucks is located east of the proposed aircraft hardstand operation. Ensuring that fuel truck access to the refueling depot is not adversely impacted by the remote aircraft apron operations is a priority. The proposed modifications to the VSR enable independent access for fueling trucks to enter/exit the refueling depot without conflict.

North Field Remote Aircraft Parking

As previously mentioned in Section 2 , the North Field remote aircraft parking positions can accommodate three (3) B737 MAX 9 narrow body aircraft and one (1) E175-EWT parking positions. An alternate parking configuration accommodates one (1) A330-800 position and two (2) B737 MAX 9 narrow body aircraft.

Terminal B Bus Gate Holdroom Expansion

The second location (see **Figures 3-14** and **3-15**) is in Terminal B on Level 1 between Gates 22 and 23. The existing secure stair well and elevator would be converted to a public access and the support space on Level 1 converted to approximately 5,200 square feet of holdroom space – enough to accommodate 2 narrowbody aircraft. The existing restroom on Level 1 would be used by passengers in the holdroom.

Figure 3-14: REMOTE Gate HOLDROOMS – Terminal B

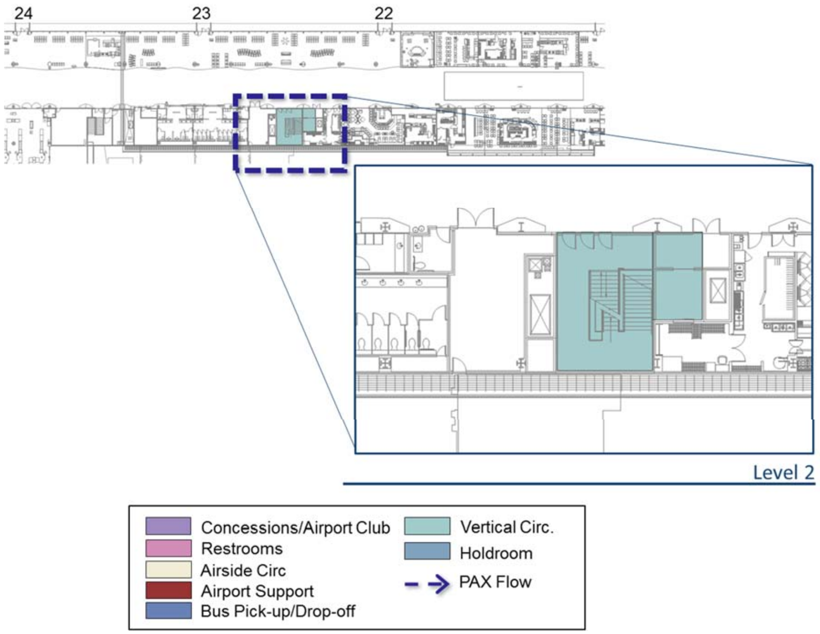
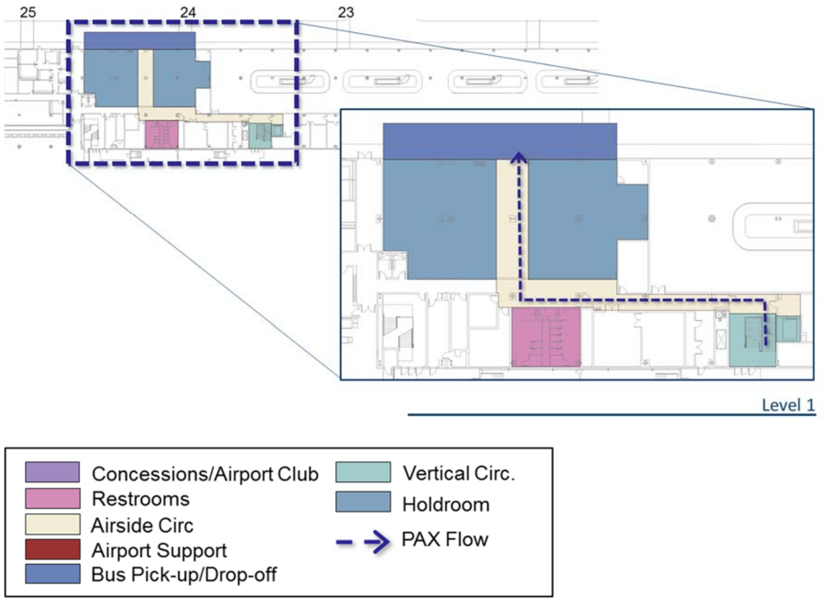
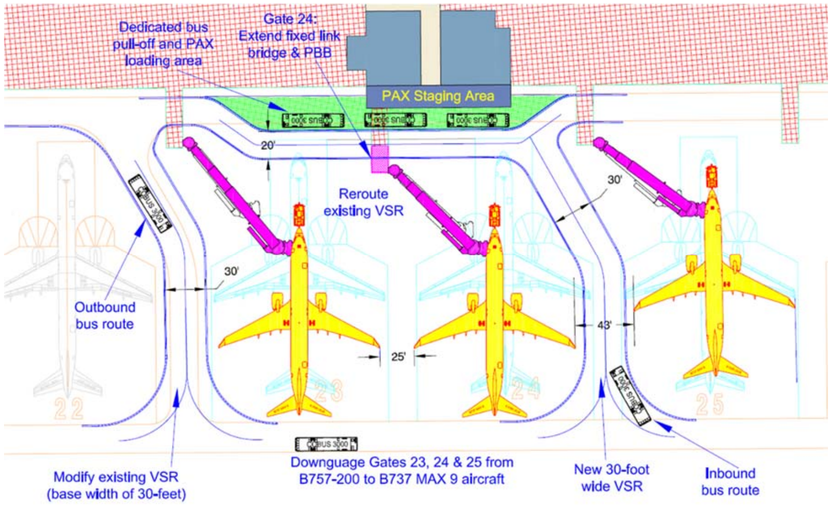


Figure 3-15: Remote Gate Holdrooms – Terminal B



As shown in **Figure 3-16**, the proposed Terminal B passenger busing operation will provide a location at for passengers to board buses and be transported to remote aircraft parking positions located in the South Field. A dedicated bus staging area would be provided adjacent to a passenger staging area at Terminal B. The bus staging area would accommodate a maximum of three (3) Cobus 3000 size vehicles. The Cobus 3000 is approximately 45.25 feet in length, 9.83 feet wide and 10.16 feet tall.

Figure 3-16: Terminal B Passenger Bussing Operation



Terminal B Remote Aircraft Parking

In this concept, Gates 23, 24 and 25 would be downgraded from B757-200 aircraft parking positions to accommodate additional space for VSR connectivity to serve the passenger busing operation. The three positions would accommodate B737 MAX 9 & A321 NEO sized aircraft. To reduce impacts to the terminal, it is estimated that the existing passenger boarding bridges and fixed link extensions at Gates 23 and 25 would remain in their current locations. However further evaluation of passenger boarding bridge (PBB) equipment and docking compatibility with narrow body aircraft fleet at each gate would be required.

VSR Circulation

A main reason for downgrading Gates 23, 24 and 25 from B757-200 positions to narrowbody aircraft positions is to enable dual VSR roadway circulation lanes between aircraft parking positions at Gates 22 and 23, and Gate 24 and 25. Dual VSR lanes between adjacent aircraft parking positions would be 30 feet wide (15 foot lanes) and would provide circulation for the Cobus operations servicing the Terminal B remote gates hold room. The head-of-stand roadway network at Gates 23 and 24 would be shifted west of their current position to allow space to accommodate the buses parking area. The additional VSR lanes provide required circulation for the operation of other GSE vehicles operating at Terminal B.

FIS Building Bus Gate Holdroom Expansion

The third location (see **Figures 3-17** and **3-18**) assumes that the CBP facilities in the FIS Building have been relocated and the existing facilities are available for other functions. This would allow for approximately 12,000 square feet of space on Level 1 to be converted to remote bus gate holdroom space – enough to serve 5 narrowbody aircraft. Passengers would use the existing stair, escalator and elevator after the existing Passport Check to access the holdrooms on Level 1.

Figure 3-17: Remote Gate Holdrooms – Convert FIS

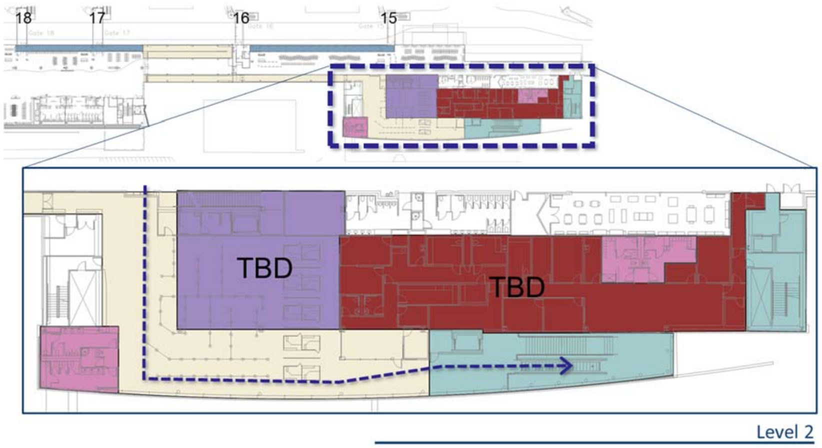
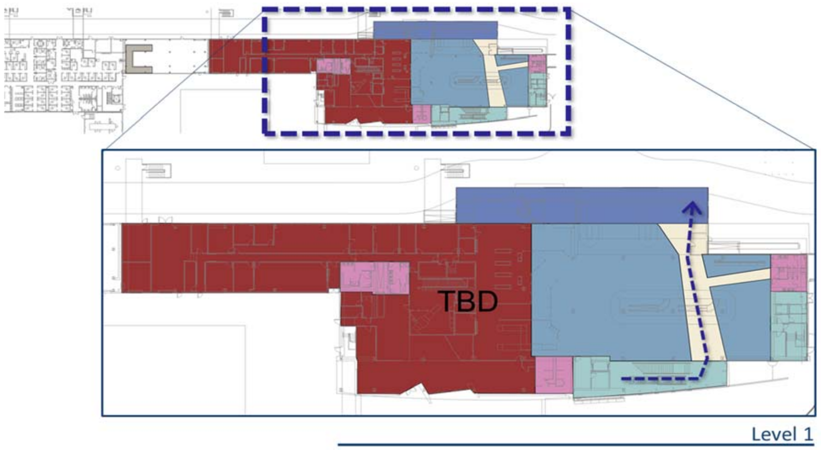


Figure 3-18: Remote Holdrooms - Convert FIS



- 🟪 Concessions/Airport Club
- 🟪 Restrooms
- ⬜ Airside Circ
- 🟥 Airport Support
- 🟦 Bus Pick-up/Drop-off
- 🟩 Vertical Circ.
- 🟦 Holdroom
- - → PAX Flow

Table 3-9 provides a summary of the Remote Bus Gate Holdroom capacity enhancement options. Below are the key findings:

- A combination of options will be needed to meet the requirements for 14 MAP Scenario, if CBP is not relocated.
- The conversion of the CBP spaces option can be configured to meet both 14 MAP Scenario and 14 MAP High Scenario.
- The 14 MAP High Scenario requirements could be met by combining the options for Terminal A and Terminal B.

Table 3-9: Remote Holdroom – Summary

	A North	Convert FIS	Terminal B
Approximate Area	5,100 sf	12,000 sf	5,170 sf
WB Accommodation (3300 sf each)	1+	3+	1+
NB Accommodation (2400 sf each)	2+	5+	2+

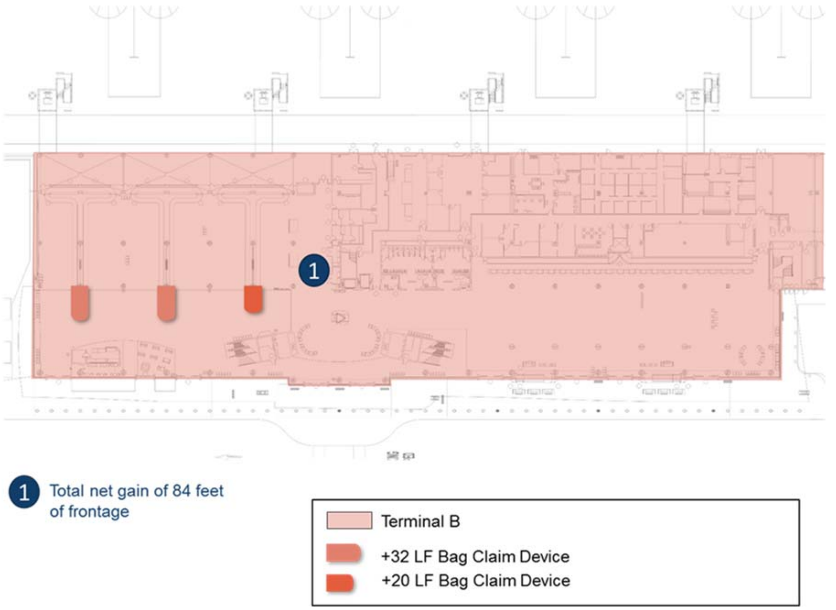
	14 Map Scenario	14 MAP HIGH Scenario
WB Remote Holdroom Required	0	0
NB Remote Holdroom Required	2-N, 2-S	2-N, 5-S
Total Area Required (sf)	9,600	16,800

Source: L&B

Terminal B Baggage Claim

The Terminal B Baggage Claim capacity could be enhanced to address the near-term capacity shortfall as indicated in **Table 3-5**. As shown in **Figure 3-19**, each of the existing baggage claim devices could be extended to provide up to 84 feet of additional claim frontage. However, this would still be approximately 20 linear feet short of the target for the 14 MAP scenario, which would result in SubOptimum Level of Service during the peak periods. Additional claim devices, likely to be included in Terminal B Phase 2, would be required to meet the High scenario.

Figure 3-19: Terminal B Bag Claim



Chapter 4: Landside Gap Analysis And Capacity Enhancement Options

Methodology

In order to determine the existing as well as future demand and its impact of available capacity, a Trip Generation, Distribution and Assignment model was developed and calibrated to the data collection day conditions. This model was developed to mathematically derive a relationship between passengers served by the Airport on the day of the data collection and observed traffic on that day. The distribution and assignment components of the model was then used to determine the circulation patterns of individual vehicle modes. Once the model was calibrated to data collection day, the anticipated number of Peak Month Average Day (PMAD) passengers for 2017, based on Design Day Flight Schedule (DDFS) was used as an input to calculate the existing (2017) design day vehicle demand. Similarly, the future vehicle demand was determined based on future 14 MAP and 14 MAP High passenger activity level DDFS. Year 2017, as well as the future 14 MAP and 14 MAP high demand level determination were conducted for the arrival as well as departure peak hours at each of the two terminals.

The modeled traffic demand for 2017 as well as the future 14 MAP and 14 MAP High demand levels, were analyzed to determine the capacity utilization based on the principles and procedures outlined in the Airport Cooperative Research Program Report 40 - Airport Curbside and Terminal Area Roadway Operations (ACRP 40). A Measure of Effectiveness (MOE) in terms of a letter grade Level of Service (LOS) was calculated based on ACRP 40 for existing, 2017 as well as the future 14 MAP and 14 MAP High demand levels.

The letter grade LOS ranges from “A” to “F”, with “A” being ideal free flow conditions and “F” representing congested conditions. LOS “C” is generally accepted to be ideal by most airports as well as other transportation agencies. Analysis was conducted to determine any shortfalls in capacity to reach the ideal LOS “C” or an acceptable (for Future conditions) LOS “D”.

Data Collection

To determine the future capacity requirements to serve the 14 MAP demand levels on the terminal curbsides as well as the on-airport roadways, an understanding of existing demand and available capacity on these landside components is required. The existing capacity can be determined on the basis of industry standard measures, however, to understand demand, the volume of traffic by mode using the on-airport roadways and curbsides; as well as circulatory behavior of individual vehicle modes needed to be determined.

Based on information obtained from the airport, any recent and relevant roadway traffic counts or studies/surveys/documents that could lead to determination of the on-airport roadway traffic demand was unavailable. Therefore, Landrum and Brown coordinated with National Data Services to collect and process traffic data. This data collection included the following:

24-hour Automated Traffic Volume (ATR) counts at key roadway links on the Airport: The ATR counts were collected at 25 locations around the airport to determine the volume of traffic. Each location was strategically chosen such that circulatory behavior of each of the vehicle modes could be determined mathematically. The ATR counts also helped in determining the peak hours for the analysis as well as to correlate the passenger volumes and the vehicle volumes.

A 2-hour classification survey encompassing the arrival as well as the departure peak hours to determine the volume of individual vehicle modes accessing the curbsides at each terminal to supplement any Automated Vehicle Identifier (AVI) data supplied by the Airport. **Table 4-1** shows the vehicle classifications during the arrivals as well as the departure peak hours at each of the terminals.

Table 4-1: Vehicle Classifications

Vehicle Modes	Terminal A Arrival Peak	Terminal B Arrival Peak	Terminal A Departure Peak	Terminal B Departure Peak
Rental Shuttle	2.8%	2.5%	3.4%	1.8%
Private Parking Shuttles	1.6%	2.1%	0.0%	0.0%
Public Transportation Bus	0.2%	0.2%	0.3%	0.2%
Charter / Intercity Bus	0.2%	0.2%	0.3%	0.2%
Limousine	0.9%	6.0%	1.4%	2.6%
Airport Shuttle	2.8%	2.5%	3.4%	1.8%
Hotel Shuttle	0.7%	3.1%	2.6%	0.2%
TNC (Uber, Lyft, etc.)	20.2%	8.8%	22.4%	10.2%
Super Shuttle	2.8%	2.5%	0.0%	0.2%
Private Vehicles	56.1%	60.5%	55.0%	68.9%
Taxi Cabs	11.7%	11.7%	11.3%	14.1%

Source: Data collected on February 9, 2017; SJC Airport

A 2-hour dwell time survey encompassing the arrival as well as the departure peak hours to determine the average vehicle dwell times by individual vehicle modes accessing the curbsides and the ground transportation centers at each terminal. **Table 4-2** shows the average Dwell times at each of the terminals during the arrivals as well as the departure peak hours. A sample of a total of 525 vehicles (across all modes) were surveyed to determine the Average dwell times.

A 2-Hour occupancy survey encompassing the arrival as well as the departure peak hours to determine the average vehicle occupancy times by individual vehicle modes accessing the curbsides and the ground transportation centers at each terminal. **Table 4-3** shows the average occupancy at each of the terminals during the arrivals as well as the departure peak hours. A large sample of a total of 2,300 vehicles (across all modes) were surveyed to determine occupancy

Table 4-2: Average Dwell Times

Vehicle Modes	Terminal A Arriving Passengers	Terminal A Departing Passengers	Terminal B Arriving Passengers	Terminal A Departing Passengers
	Dwell Time	Dwell Time	Dwell Time	Dwell Time
	(Average - Minutes)	(Average - Minutes)	(Average - Minutes)	(Average - Minutes)
Rental Shuttle	1.30	1.19	2.07	2.57
Private Parking Shuttles	2.48	0.80	-	1.80
Public Transportation Bus	0.36	0.18	1.00	0.27
Charter / Intercity Bus	8.63	3.29	19.38	2.47
Limousine	1.13	-	-	-
Airport Shuttle	0.68	0.89	0.91	1.00
Hotel Shuttle	16.40	0.79	1.60	1.23
TNC (Uber, Lyft, etc.)	6.54	0.98	1.26	0.82
Taxicab	Managed Mode	1.64	Managed Mode	1.27
Private Vehicle	1.99	1.25	1.33	1.40

Table Notes: "-" represents low sample size for usable data
Arrival Taxis were assumed to be managed mode therefore not analyzed
Source: Data collected on February 9, 2017; SJC Airport

For all future vehicle demand forecasting and analysis, the vehicle classifications, average dwell times as well as average occupancies of non-High Occupancy Vehicles (HOV) were assumed to be constant. For HOV's the traffic models generated additional vehicles only if the occupancies reached an assumed maximum occupancy of the vehicle which was set to be 80% of maximum capacity of the vehicles. For e.g. a 40 passenger bus was assumed to have a maximum occupancy of 30 passengers, and generated additional buses only when the modeled occupancy exceeded 30 passengers.

Table 4-3: Average Vehicle Occupancies

Vehicle Modes	Terminal A Arriving Passengers	Terminal A Departing Passengers	Terminal B Arriving Passengers	Terminal A Departing Passengers
	Occupancy	Occupancy	Occupancy	Occupancy
	(Average PAX)	(Average PAX)	(Average PAX)	(Average PAX)
Rental Shuttle	4.32	0.38	2.92	5.23
Private Parking Shuttles	2.71	1.00	-	5.33
Public Transportation Bus	1.52	0.50	3.11	1.60
Charter / Intercity Bus	10.50	4.00	23.57	3.00
Limousine	1.00	-	-	-
Airport Shuttle	9.79	3.60	5.64	3.20
Hotel Shuttle	1.00	1.45	1.40	3.73
TNC (Uber, Lyft, etc.)	1.21	1.24	1.09	1.34
Taxicab	Managed Mode	1.30	Managed Mode	1.41
Private Vehicle	1.39	1.22	1.30	1.33

Table Notes: "-" represents low sample size for usable data
Arrival Taxis were assumed to be managed mode therefore not analyzed
Source: Data collected on February 9, 2017

Trip Generation

The traffic data collected on February 9, 2017 was compared to the passenger activity based on the passenger schedule for the same day. The passenger schedule was adjusted for show up profiles (time the passengers arrive at the curbsides- earliness for departing passengers and lateness for arriving passengers and calibrated such that the passengers and vehicular traffic volumes correlates with each other as shown in **Figures 4-1** and **4-2**.

Figure 4-1: Terminal A Passengers and Vehicles (Arrivals +Departures) – 2017 Data Day

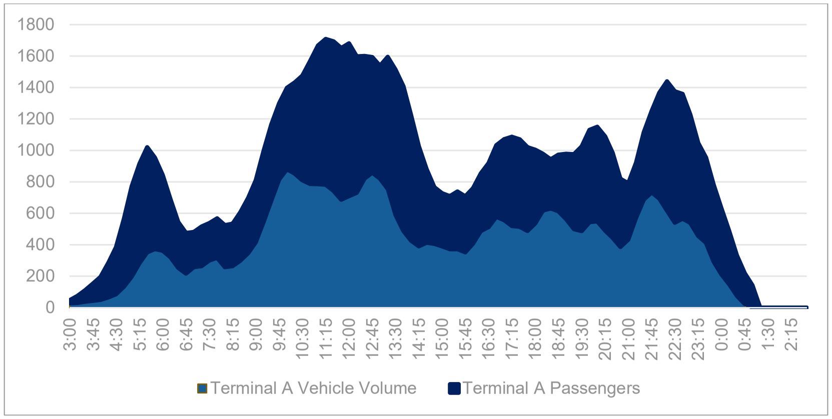
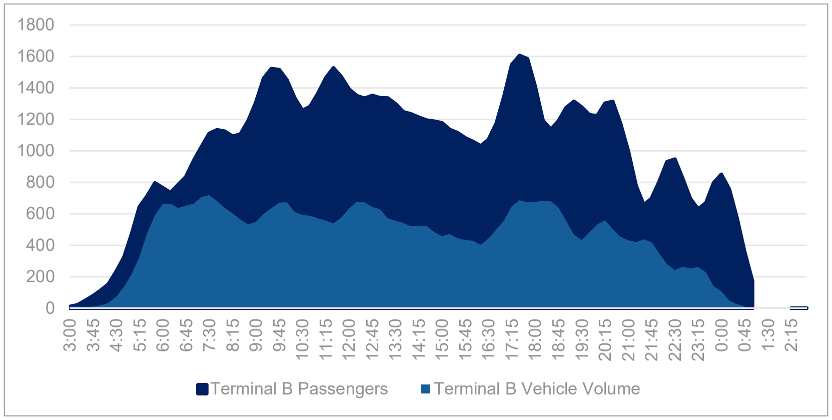


Figure 4-2: Terminal B Passengers and Vehicles (Arrivals +Departures) – 2017 Data Day



Based on the calibrations, the arrival and departure peak hour of passengers as well as for the resulting vehicles for each of the terminals was determined as shown in **Table 4-4**. The same show up profiles were also applied to the future schedules developed as explained in Chapter 1 and the peak hours were determined and shown in Table 4-4. The Terminal A- Arrival peak hour shifted to 12:00 noon from late night in the 2017 design day based on absolute high number of passengers, however, the relative volumes were similar in magnitude. The Departure peak hours for both terminals at all demand levels occurred a couple hours earlier as compared to the existing data day schedule.

Table 4-4: Peak Hours

	Existing 2017	2017 DDFS	14 MAP	High
	(hour starting)	(hour starting)	(hour starting)	(hour starting)
Terminal A Arrival Peak	21:00	12:00	21:30	22:00
Terminal B Arrival Peak	9:00	22:45	22:00	22:45
Terminal A Departure Peak	11:30	4:30	4:30	4:30
Terminal B Departure Peak	6:30	4:30	4:45	4:45

Source: Passenger Schedule for February 9, 2017 adjusted for show-up profiles at the curbsides. L&B

The 2017 Peak day, 14 MAP as well as the 14 MAP trips by mode were generated based on the passenger and vehicle relationships developed as a part of the calibration process. **Table 4-5** and **Table 4-6** show the Terminal A and Terminal B modeled trips on the curbsides, for existing data collection day, 2017 Design Day, 14 MAP as well as the High scenarios. The tables show the vehicle volume for each of the curbsides at their individual peaks. In addition to curbside volumes, the on airport roadway volumes were developed for each of the passenger demand levels. The key roadway volumes are shown in **Table 4.7**. These roadway volumes represent the highest volume on the roadway link at any time of the day regardless of the arrivals or departures peak hours at either terminals.

Table 4-5: Terminal A Vehicle Volumes at Curbsides (vehicles per hour)

Zone	Mode	Curb Side	Existing Volume	2017 DDFS	14 MAP	High
Departure	Rental Shuttle	Inner	12	12	14	14
Departure	Private Parking Shuttles	Inner	0	0	0	0
Departure	Public Transportation Bus	Inner	1	1	1	1
Departure	Charter / Intercity Bus	Inner	1	1	1	1
Departure	Limousine	Inner	5	7	9	10
Departure	Airport Shuttle	Inner	12	12	12	12
Departure	Hotel Shuttle	Inner	9	9	11	11
Departure	TNC (Uber, Lyft, etc.)	Inner	78	155	190	218
Departure	Super Shuttle	Inner	0	0	0	0
Departure	Private Vehicle and Dep Taxicabs	Inner	232	333	407	468
Departure	Bypass		243	272	296	393
Arrival	Private Vehicle	Outer	141	193	219	244
Zone 7	Charter Bus	GTC	1	1	1	1
Zone 6	Hotel Shuttle	GTC	9	9	11	11
Zone 5	Public Transportation Bus	GTC	1	1	1	1
Zone 3&4	Rental/Airport shuttles	GTC	24	24	26	26

Source: Data Collected on February 9, 2017. Modeled Vehicle Volumes, L&B

Table 4-6: Terminal B Vehicle Volumes at Curbsides (vehicles per hour)

Zone	Mode	Curb Side	Existing	2017 DDFS	14 MAP	High
Departure	TNC (Uber, Lyft, etc.)	Inner	67	133	145	193
Departure	Super Shuttle	Inner	0	0	0	0
Departure	Private Vehicle and Dep Taxi	Inner	547	612	666	883
Departure	Bypass		4	4	5	6
Arrival	Private Vehicle	Inner	294	343	393	484
Zone 3&4	Rental Shuttle	Outer	12	12	14	14
Zone 3&4	Airport Shuttle	Outer	12	12	12	12
Zone 5 &6	Hotel Shuttle	Outer	15	15	17	21
Zone 5 &6	Scheduled Bus	Outer	1	1	1	1
Zone 8&9	Private Parking Shuttles	Outer	10	10	12	12
Zone 10 &11	Charter / Intercity Bus	Outer	1	1	1	1
Zone 10 &11	Limousine	Outer	29	34	39	48
Zone 10 &11	Super Shuttle	Outer	12	14	16	20
Zone 10 &11	TNC (Uber, Lyft, etc.)	Outer	43	85	97	120

Source: Data Collected on February 9, 2017. Modeled Vehicle Volumes, L&B

Table 4-7: Key Roadway Link Volumes (vehicles per hour)

Link Name	Existing Volumes	2017 DDFS	14 MAP	High
Airport Blvd. Entry from South	763	1,015	1,125	1,192
Airport Blvd. Exit to South	773	1,144	1,130	1,198
Airport Return/Recirc Rd.	328	344	527	559
Airport Exit Loop	1,282	1,359	1,814	1,923
Exit to Skyport Dr.	1,028	1,465	1,560	1,654
Airport Blvd To Rental Cars	247	232	363	385
Airport Blvd Under Skyport Dr. Bridge	1,092	1,230	1,374	1,457
Airport Blvd Downstream of Skyport Dr.	919	865	1,350	1,431
Airport Blvd Before Exit to Airport Pkwy. And Terminal B	1,826	1,996	2,294	2,431
Airport Pkwy. Exit	727	819	915	970
Entry Loop to Terminal B	595	645	837	887
Airport Blvd Downstream of Airport Pkwy	1,184	1,257	1,531	1,623
Airport Blvd to Economy Lot 1	215	226	346	366
Airport Exit from Economy Lot 1	92	128	130	137
Terminal Drive	141	203	213	226
Terminal A Outer Curbside Roadway	537	914	875	928
Terminal A Inner Curbside Roadway	593	845	867	919
Terminal A Curbside Exit Roadway	963	1,386	1,454	1,542
Airport Pkwy. Joining Airport Blvd. Exit	250	289	286	303
Airport Blvd at Terminal A and Terminal B Bridge	1,050	1,496	1,593	1,689
Terminal B Curbside Entry	719	779	1,012	1,072
Terminal B Outer Curbside Roadway	1,035	1,475	1,571	1,665
Terminal B Outer Curbside Roadway Exit	1,570	1,665	2,222	2,355
Terminal B Inner Curbside Roadway	691	749	972	1,030
Airport Blvd Before Return Rd	2,326	2,469	3,009	3,189
Terminal A and Terminal B Inner Roadway Connection	243	320	320	340

Source: Data Collected on February 9, 2017. Modeled Vehicle Volumes, L&B

Curbside and Roadway Facility Requirements

All facility requirements were conducted per the guidelines presented in the Airport Co-operative Research Program Report 40 (ACRP 40), published by the Transportation Research Board (TRB). ACRP 40 gives the capacity of the airport roadways and curbsides.

A letter grade Level of Service (LOS) from “A’ to “F” is assigned on the basis of the capacity of the facility and the demand levels. Letter grade LOS “A” represents ideal free flow conditions while letter grade LOS “F” represents failure of a facility to meet demand. The facility should meet at least LOS “C” to be ideal and LOS “D” to be considered acceptable. **Table 4-8** and **Table 4-9** show the LOS criteria for curbsides as well as roadways respectively.

Curbside Level of Service

Curbsides are analyzed on the basis of the utilization of a given curbside. Utilization is defined as the linear curbside length required to meet demand. This is a probabilistic measure of the maximum accumulation of vehicles at the curbside at any given instant in time. **Table 4-10** shows the curbside LOS at existing, 2017 DDFS, 14 MAP demand level and well as High demand level scenarios. Terminal B inner curbsides are anticipated to fail during the departures as well as arrivals peak hours for all future demand level scenarios. Terminal A departure curbsides are likely to be moderately congested during the peak hours at 14 MAP baseline as well as High demand levels.

Roadway Level of Service

Roadway facility requirements are based on the ratio of volume to capacity (v/c ratio) of the roadway link being studied. Trip assignment results in various roadway volumes on different roadway links within the airport. Each roadway link has a capacity depending on the speeds, type of roadway etc. For roadways adjacent to the curbsides, the capacity of the roadway reduces with curbside utilization for non-curbside roadways, the capacity is defined on the basis of the type of roadways. **Table 4-11** shows the roadway LOS at existing, 2017 DDFS, 14 MAP demand level and well as High scenarios.

Terminal B inner curbside roadway will be congested at 14 MAP as well as High demand levels. However, this is a direct result of the curbside congestion and will mitigate itself once the curbsides are mitigated. Further, moderate congestion is expected during the peak periods at the Airport Blvd Exit after Terminal B. All other roadways operate at an acceptable LOS during all hours at all demand level scenarios.

Table 4-8: Level of Service Criteria – Curbsides

LEVEL OF SERVICE (LOS)	UTILIZATION RANGE	DESCRIPTION
A	0% - 90%	EXCELLENT: Drivers experience no interference from pedestrians or other motorists
B	91% - 110%	VERY GOOD: Relatively free flow conditions with limited double parking
C	111% - 130%	GOOD: Double parking near doors is common with some intermittent triple parking
D	131% - 170%	FAIR: Vehicle maneuverability restricted due to frequent double/triple parking
E	171% - 200%	POOR: Significant delays and queues; double/triple parking throughout curbside
F	> 200%	FAILURE: Motorists unable to access/depart curbside; significant queuing along entry road

Source: Airport Co-operative Research Program Report 40 (ACRP 40), Transportation Research Board (TRB) Washington DC

Table 4-9: Level of Service Criteria - Roadways

Criteria	A	B	C	D	E	F
Maximum v/c ratio 50 MPH Roadways	0.28	0.45	0.65	0.86	1	>1
Maximum v/c ratio 45 MPH Roadways	0.26	0.43	0.62	0.82	1	>1
Maximum v/c ratio 40 MPH Roadways	0.26	0.42	0.61	0.82	1	>1
Maximum v/c ratio 35 MPH Roadways	0.26	0.42	0.61	0.8	1	>1
Maximum v/c ratio 30 MPH Roadways	0.26	0.41	0.6	0.79	1	>1
Maximum v/c ratio 25 MPH Roadways	0.25	0.4	0.59	0.79	1	>1

Source: Airport Co-operative Research Program Report 40 (ACRP 40), Transportation Research Board (TRB) Washington DC

Table 4-10: Level of Service Curbsides

		Existing		2017 DDFS		14 MAP		High	
Curbside	**Zone**	Utilization	LOS	Utilization	LOS	Utilization	LOS	Utilization	LOS
Terminal A Departure Curbside	Inner	83%	A	118%	C	141%	D	147%	D
Terminal B Departure (Inner) Curbside	Inner	183%	E	208%	F	217%	F	275%	F
Terminal B Outer Curbside	Zone 3&4	48%	A	48%	A	48%	A	48%	A
Terminal B Outer Curbside	Zone 8&9	30%	A	30%	A	30%	A	44%	A
Terminal B Outer Curbside	Zone 8&9	32%	A	32%	A	32%	A	32%	A
Terminal B Outer Curbside	Outer	32%	A	42%	A	42%	A	64%	B
Terminal A Arrival Curbside	Outer	41%	A	47%	A	47%	A	61%	A
Terminal B Arrival Curbside	Inner	100%	B	110%	C	140%	D	160%	D
Terminal A GTC	Zone 7	22%	A	22%	A	22%	A	22%	A
Terminal A GTC	Zone 6	35%	A	35%	A	35%	A	35%	A
Terminal A GTC	Zone 5	100%	D	100%	D	100%	D	100%	D
Terminal A GTC	Zone 3&4	40%	A	40%	A	40%	A	40%	A

Source: Airport Co-operative Research Program Report 40 (ACRP 40), Transportation Research Board (TRB) Washington DC, L&B

Table 4-11: Level of Service Roadways

	Existing	2017 DDFS	14 MAP	High
Link Name	LOS	LOS	LOS	**LOS**
Airport Blvd. Entry from South	A	B	B	B
Airport Blvd. Exit to South	C	D	D	E
Airport Return/Recirc Rd.	B	B	C	C
Airport Exit Loop	C	C	D	D
Exit to Skyport Dr.	A	B	B	B
Airport Blvd To Rental Cars	A	A	B	B
Airport Blvd Under Skyport Dr. Bridge	A	B	B	B
Airport Blvd Downstream of Skyport Dr.	A	A	B	A
Airport Blvd Before Exit to Airport Pkwy. And Terminal B	A	A	B	B
Airport Pkwy. Exit	A	A	B	B
Entry loop to Terminal B	A	A	B	B
Airport Blvd Downstream of Airport Pkwy	A	A	B	B
Airport Blvd to Economy Lot 1	A	A	B	A
Airport Exit from Economy Lot 1	A	A	A	A
Terminal Drive	A	A	A	A
Terminal A Outer Curbside Roadway	B	C	C	C
Terminal A Inner Curbside Roadway	A	A	C	C
Terminal A Curbside Exit Roadway	B	C	C	C
Airport Pkwy. Joining Airport Blvd. Exit	A	A	A	A
Airport Blvd at Terminal A and Terminal B Bridge	B	B	B	C
Terminal B Curbside Entry	A	A	B	B
Terminal B Outer Curbside Roadway	B	C	D	D
Terminal B Outer Curbside Roadway Exit	C	C	D	D
Terminal B Inner Curbside Roadway	B	B	E	E
Airport Blvd Before Return Rd	B	B	C	C
Terminal A and Terminal B Inner Roadway Connection	A	B	B	B

Source: Airport Co-operative Research Program Report 40 (ACRP 40), Transportation Research Board (TRB) Washington DC, L&B

Figure 4-3 and **Figure 4-4** illustrate the Roadway Level of Service at the High scenario for Terminal A and Terminal B respectively. Under all other demand scenarios, the roadways performed at an acceptable LOS.

Figure 4-3: Terminal A – High Scenario Roadway LOS

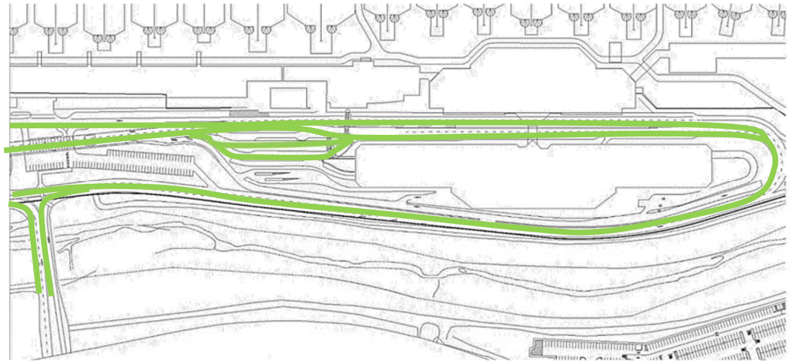
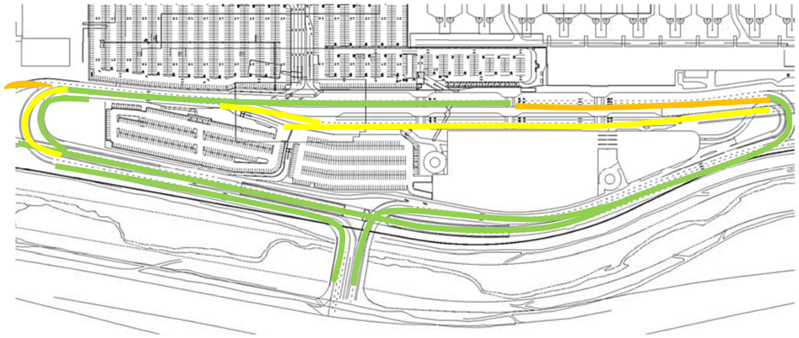


Figure 4-4: Terminal B – High Scenario Roadway LOS



Curbside and Roadway Enhancement Options

Four low cost options were considered to mitigate the adverse impact on the inner curbsides of Terminal B and the resulting roadway impacts as follows

Option 1 – As shown in **Figure 4-5**, relocate Transportation Network Company (TNC-Uber, Lyft etc.) drop offs to Zone 9 and in turn relocate private parking shuttles picking up at Zone 9 to Zone 6 at the outer curbsides of Terminal B at 14 MAP demand levels. This resulted in mitigating the inner curbsides which performed at an acceptable LOS “D” and outer curbsides performed at an ideal LOS of “C” or better. At the High scenario as shown in **Figure 4-6**, in addition to relocating the TNC’s and Private Parking Shuttles, Taxicabs dropping off passengers will also need to be relocated to the Zone 4 on the outer curbsides. This resulted in mitigating the inner curbsides which performed at an acceptable LOS “D” and the outer curbsides at Zone 9 as well as Zone 4 performed at and acceptable LOS “D”.

Option 2 – Build a canopy on the north side of Terminal B inner curbsides essentially increasing the curbside linear frontage by 130 feet to encourage drop-off in less desirable areas as shown in **Figure 4-7** under 14 MAP scenario. This results in mitigating the curbside to an acceptable LOS “D”. However, this option would require relocation of the existing fire hydrant and may cause sporadic weaving problems for vehicles on the outer lane trying to get to the curbside drop off lanes. Similarly, **Figure 4-8** shows mitigation Option 2 strategy to increase the curbside length under High demand scenario. However, under this scenario, the curbsides will be congested, performing at a LOS “E” during the peak hours.

Option 3 – Is a hybrid of Option 1 and 2 with a 130’ canopy together with relocation of the TNC to Zone 9. **Figure 4-9** under 14 MAP scenario. This results in mitigating the curbside to LOS “C” or better. However, this option would also require relocation of the existing fire hydrant and may cause sporadic weaving problems for vehicles on the outer lane trying to get to the curbside drop off lanes. Similarly, **Figure 4-10** shows mitigation Option 2 strategy to increase the curbside length under High demand scenario resulting in an acceptable LOS “D” on the inner curbside as well as at Zone 9 on the outer curbsides.

Option 4 – Under this option, all inner curbside modes are swapped with outer curbside modes with the exception of the arrival taxicab pickups which will continue on the outer curbsides. Under 14 MAP demand conditions, as shown in **Figure 4-11**, all curbsides operate at an LOS “D” or better. However, under High conditions, as shown in **Figure 4-12**, outer curbsides will be congested. The bypass roadways will also experience congestion in the peak hour under both demand scenarios.

Figure 4-5: Option 1- Terminal B Curbside Mitigations – 14 MAP Baseline

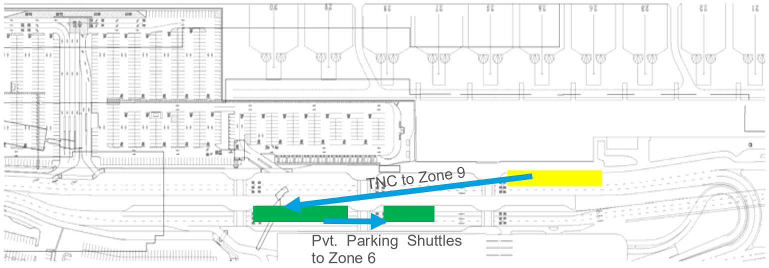


Figure 4-6: Option 1 – Terminal B Curbside Mitigations – 14 MAP High

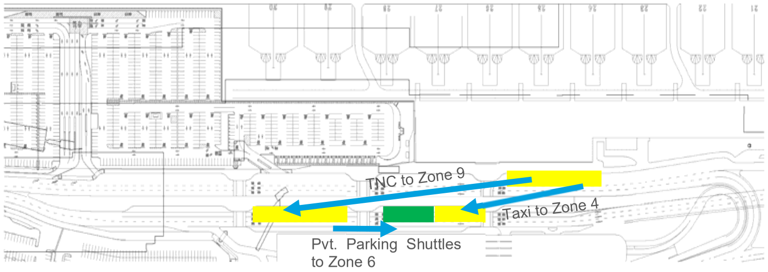


Figure 4-7: Option 2- Terminal B Curbside Mitigations – 14 MAP Baseline

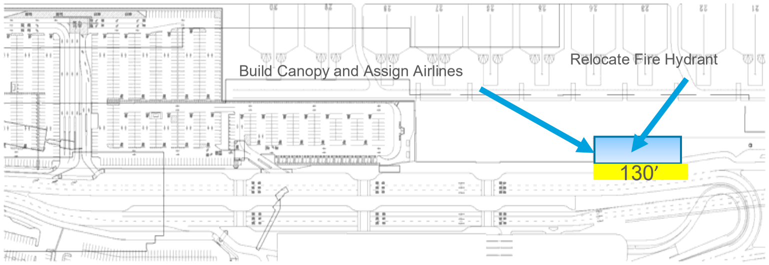


Figure 4-8: Option 2 – Terminal B Curbside Mitigations – 14 MAP High

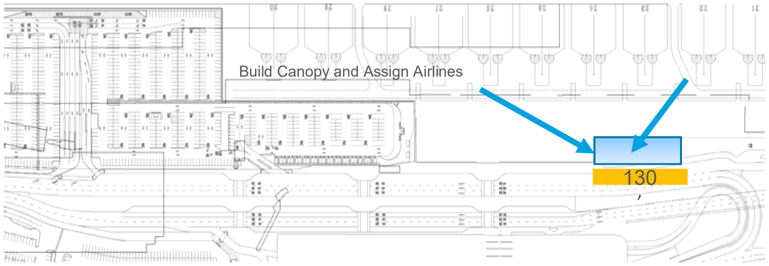


Figure 4-9: Option 3 – Terminal B Curbside Mitigations – 14 MAP Baseline

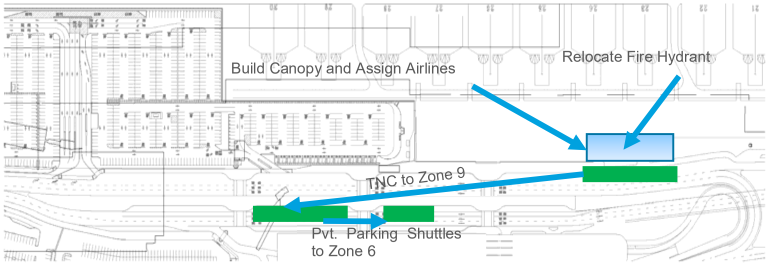


Figure 4-10: Option 3 – Terminal B Curbside Mitigations – 14 MAP High

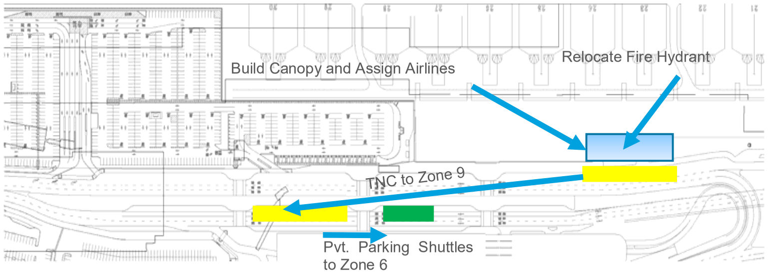


Figure 4-11: Option 4 – Terminal B Curbside Mitigations – 14 MAP Baseline

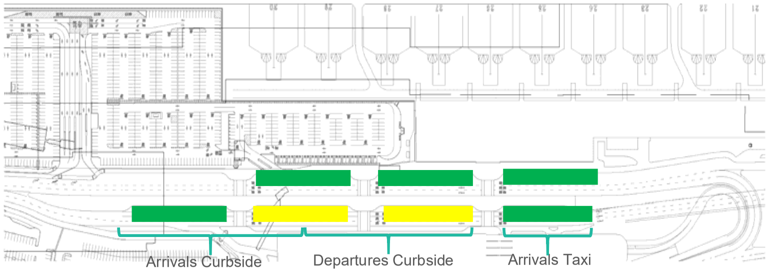
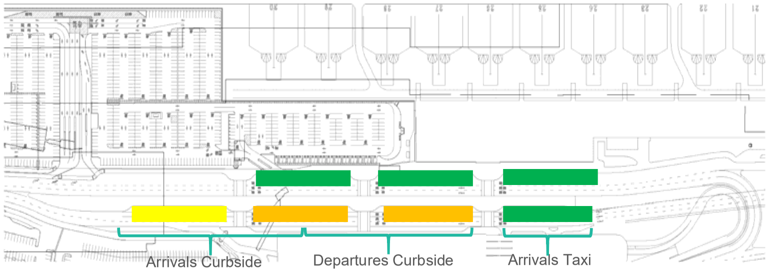


Figure 4-12: Option 4 – Terminal B Curbside Mitigations – 14 MAP High



A comparison of the scenarios is provided below:

Relocate modes (Option 1)

Pros

- Less expensive fix

Cons

- May have push back from relocated modes
- Widening of curbside loading/unloading lanes at the TNC zone is recommended but not required.
- LOS on outer curbside worse, but acceptable
- Enforcement needed
- Additional signage required, may confuse users

Build Canopy (Option 2 and Option 3)

Pros

- Modes remain on inner curbside at 14 MAP non high scenario – Existing operations
- Outer curbside not affected
- Enforcement needed
- Additional signage not required

Cons

- May have push back from Airlines assigned to canopy curbside
- Congested operations at 14 MAP High scenario

Swap Inner and Outer Curbside allocations (Option 4)

Pros

- Ability to share the curbside between arrivals and departures modes giving higher efficiency
- Less confusing to passengers by having all commercial vehicles (except taxi) on inner curbsides and private vehicles and TNC's on the outer curbsides.

Cons

- Longer walk distance for passengers
- Moderately congested operations at 14 MAP High scenario
- May require widening of Curbside loading/unloading lanes.
- Outer roadway bypass lanes will operate at Level of Service E

Conclusions

Terminal B inner curbsides are anticipated to fail during the departures as well as arrivals peak hours for all future demand level scenarios. Terminal A departure curbsides are likely to be moderately congested during the peak hours at 14 MAP as well as High demand levels.

All other curbsides are expected to operate at an acceptable Level of Service (LOS) with periods of minor congestion during the peak hours at all demand level scenarios.

Terminal B inner curbside roadway will be congested at 14 MAP as well as High demand levels. However, this is a direct result of the curbside congestion and will mitigate itself once the curbsides are mitigated. Further, moderate congestion is expected during the peak periods at the Airport Blvd Exit after Terminal B. All other roadways operate at an acceptable LOS during all hours at all demand level scenarios.

Mitigation Option 1 is most likely to provide an acceptable LOS and is also the least disruptive while being the most cost effective. In addition, it is recommended that on the arrivals side of the Terminal B inner curbsides, a canopy be built to extend the linear footage of the arrivals curbsides. This will limit sporadic congestion by encouraging the passenger pick-ups to spread over a longer area. The overall length of these arrivals curbsides are expected to be sufficient at all demand levels, however, with passengers desiring to be picked up right outside of the arrival baggage claim doors may result in severe congestion if a large proportion of the passengers congregate near the doors.

Attachment 2

FAA Approval of Aviation Activity Forecast

August 12, 2021

U.S. Department
of Transportation
**Federal Aviation
Administration**

Western-Pacific Region
Airports Division

San Francisco Airports District Office
1000 Marina Boulevard, Suite 220
Brisbane, CA 94005-1835

August 12, 2021

Mr. Andres Niemeyer
Airport Deputy Director – Planning and Development
Norman Y. Mineta San Jose International Airport
1701 Airport Boulevard Suite B-1130
San Jose, California 95110-1206

Dear Mr. Niemeyer,

RE: FAA Approval of Aviation Activity Forecast; Norman Y. Mineta San Jose International Airport

The San Francisco Airports District Office (ADO) has completed the final review of the updated *Mineta San Jose International Airport Aviation Activity Forecasts* document, dated July 16, 2021, for the Norman Y. Mineta San Jose International Airport. The SFO-ADO review comments are as follow:

- Concur with the forecast approach and alignment of the forecast to the Federal Aviation Administration (FAA) Terminal Area Forecast (TAF). The COVID-19 adjusted forecast recovery scenario and forecast assumptions presented are considered reasonable.

- Concur with the forecast levels and growth rates for the passenger enplanements and total operations as presented in *Table 1: Summary of Enplanements and Aircraft Operations in Terminal Area Forecast (TAF).* The subject aviation activity forecast is considered consistent with the 2021 Terminal Area Forecast (TAF).

This forecast was prepared at the same time as the evolving impacts of the COVID-19 public health emergency. Forecast approval is based on the methodology, data and conclusions at the time the document was prepared. However, consideration of the impacts of the COVID-19 public health emergency on aviation activity is warranted to acknowledge the reduced confidence in growth projections using currently available data.

Accordingly, FAA approval of this forecast does not constitute justification for future projects. Justification for future projects will be made based on activity levels at the time the project is requested for development. Documentation of actual activity levels meeting planning activity levels will be necessary to justify AIP funding for eligible projects.

If you have any questions, please contact me at 650-827-7611.

Kind regards,

8/12/2021

X Katherine Kennedy

Katherine Kennedy
Community Planner
Signed by: 481468

Katherine Kennedy
FAA Airport Planner

Cc Ryan Sheelen, Senior Planner
Camille Garibaldi, FAA Environmental Protection Specialist

Appendix C

Air Quality and Climate

Appendix C-1:

Operational Emissions Analysis

TABLE OF CONTENTS

LIST OF TABLES

ATTACHMENTS

1 Introduction

This document summarizes the assumptions and methodologies used to analyze operational air quality impacts for the Environmental Assessment (EA) for the Proposed Terminal B South Concourse Improvements at the Norman Y. Mineta San Jose International Airport (SJC or the Airport). Operational emissions inventories were developed for the Existing Conditions (2019) and future No Action and Proposed Action Alternatives (2029 and 2034). For purposes of the air quality analysis, the study area is considered the entire geographic area that could be impacted by the Proposed Action. Therefore, the Study Area for air quality is the San Francisco Bay Area Air Basin (SFBAAB or Basin).

The 2019 Existing Conditions represents the existing environment in 2019. The Existing Conditions (2019) fleet mix was based on the SJC Airport Noise Monitoring System (ANOMS) radar data from 2019, and FAA's Traffic Flow Management System Count (TFMSC). Passenger air carriers, all-cargo, air taxi, and General Aviation (GA) operations were obtained from the 2019 ANOMS data and the military operations were obtained from the FAA TFMSC data.

The Future Alternatives include years 2029 and 2034. The Future Alternatives fleet mixes were developed based on the Existing Conditions fleet mix, FAA's Terminal Area Forecast (TAF), announced aircraft retirement and replacement plans by passenger and all-cargo airlines, FAA's Aerospace Forecast 2021-2041, and US Department of Transportation T100.

The air quality emissions inventories were prepared for carbon monoxide (CO), volatile organic compounds (VOC), nitrogen oxides (NO_x), sulfur dioxide (SO_2), particulate matter less than 10 micrometers in diameter (coarse or PM_{10}), and particulate matter less than 2.5 micrometers in diameter (fine or $PM_{2.5}$). The climate emissions inventory was prepared for carbon dioxide (CO_2). As is customary for GHG emissions inventories, the results are reported in units of metric tonnes (MT) of carbon dioxide equivalents (CO_2e), by source, on an annual basis.

For the purpose of disclosing the increase or decrease in pollutant and pollutant precursor emissions with the improvements to the airport, the inventories were prepared only for the emission sources that would be affected by the improvements – aircraft (including Ground Support Equipment (GSE), Auxiliary Power Units (APU)), and construction activity (see *Appendix C-2, Construction Emissions Analysis*).

2 Operations

Emissions produced from airport operations include those from aircraft, engine maintenance run-up, GSE, and APU.

2.1 Aircraft

The aircraft-related emission inventories were prepared using FAA's Aviation Environmental Design Tool (AEDT, Version 3e). With the exception of the number of operations, and for consistency, the aircraft operational data (i.e., fleet, aircraft engine assignments, and runway use) input to the AEDT were data developed in support of the analysis for Noise and Noise Compatible

Land Use of this EA (See *Appendix G, Noise*). *Appendix G* also includes the AEDT non-standard aircraft substitution coordination with the FAA Office of Environment and Energy (AEE) for both noise and air quality analyses.

Because it is customary for criteria air pollutant and pollutant precursor inventories to be reported in tons on an annual basis, the number of operations used in the noise analysis were factored to reflect the actual annual (2019) and future forecast (2029 and 2034) level of operations for the air quality analysis. Detailed fleet mixes are included in *Attachment 1* of this Appendix.

Except for ground-based taxi-in/taxi-out, including apron idling and departure runway queue delay, the default aircraft operating times in AEDT by aircraft mode (e.g., approach, take-off, climbout) were used. For the Existing Conditions, airport-specific times-in-mode for taxi-in and taxi-out were obtained from the FAA Aviation System Performance Metrics (ASPM) database. It was determined that the Existing Conditions airfield-wide average taxi-in time was 4 minutes and 38 seconds and the average taxi-out time was 13 minutes and 35 seconds.

Future Alternatives taxi-in/taxi-out times were projected by linear regression based on historical 2010-2019 FAA ASPM data, which indicated high correlation between operations and taxi times at SJC. **Table 1** shows the historical and projected taxi times. It should be noted that these times are expected to be the same between the No Action and Proposed Action Alternatives.

Table 1: Historical and Projected Taxi Times (Minutes)

Year	Departure	Taxi-Out Times	Arrival	Taxi-In Times
Historical				
2010	52,042	10.2	52,357	3.7
2011	51,848	10.2	52,070	3.7
2012	50,456	10.5	50,522	3.8
2013	52,654	11.0	52,783	3.8
2014	55,554	11.2	55,510	4.0
2015	56,906	11.8	56,984	4.3
2016	63,315	12.1	63,395	4.5
2017	72,013	12.8	72,066	4.5
2018	79,217	13.7	79,208	4.5
2019	84,515	13.6	84,438	4.6
Forecast				
2029	138,922	19.5	138,922	6.3
2034	155,305	21.2	155,305	6.7

Source: FAA ASPM and HNTB analysis, 2022.

2.2 Engine Maintenance Run-up

Aircraft maintenance engine run-ups emissions can be modeled in AEDT 3e. The Airport provided detailed engine 2019 run-up logs for use in the Existing Conditions engine run-up emission modeling. Future Alternatives run-up operations were adjusted based on the FAA TAF operation growth factors. It should be noted that run-up operations are expected to be the same between the No Action and Proposed Action Alternatives. Table 2 summarizes the run-up operation inputs.

Table 2: Run-up Operation Inputs

AEDT Aircraft	Engines	2019	2029	2034
Airbus A320-200 Series	CFM56-5-A1	2.0	2.7	3.0
Boeing 737-8	LEAP-1B27	1.0	1.3	1.5
Bombardier Challenger 600	ALF 502L-2	2.0	2.7	3.0
Cessna 500 Citation I	JT15D-4 series	1.0	1.3	1.5
Cessna 550 Citation Bravo	PW530	11.0	14.8	16.6
Cessna 560 Citation Ultra	JT15D-5C	6.0	8.1	9.1
Cessna 680-A Citation Latitude	PW306B	3.0	4.0	4.5
Cessna 750 Citation X	AE3007C1	1.0	1.3	1.5
CESSNA CITATION 510	PW530	3.0	4.0	4.5
Dassault Falcon 900-EX	TFE731-3	1.0	1.3	1.5
Embraer ERJ175	CF34-8E5	5.0	6.7	7.5
Gulfstream G550	BR700-710A1-10	3.0	4.0	4.5
Gulfstream G650ER	BR700-725A1-12	1.0	1.3	1.5
Gulfstream IV-SP	TAY Mk611-8	2.0	2.7	3.0
Israel IAI-1125 Astra	TFE731-3	1.0	1.3	1.5
Grand Total		**43.0**	**58.0**	**64.9**

Source: 2019 Run-up logs and HNTB analysis, 2022.

In summary, **Table 3** provides the aircraft operation, engine run-up, and taxi-in/taxi-out time inputs to AEDT by year.

Table 3: Air Quality Model Inputs

Year	Operations	Run-ups	Taxi-in (Minutes)	Taxi-out (Minutes)
2019	205,866	43.0	4.6	13.6
2029	277,844	58.0	6.3	19.5
2034	310,609	64.9	6.7	21.2

2.3 GSE and APU

GSE includes ground equipment essential for passenger and aircraft services, such as air conditioner, baggage tractor, and various service trucks. APU provides power to sufficiently large commercial aircraft. In addition to aircraft emissions, GSE and APU are also sources of CO, VOC, NO_X, SO_2, $PM_{2.5}$, and PM_{10}, among other parameters.

AEDT provides default APU and GSE assignment to commercial aircraft, as well as emission factors. The default assignment and emission factors were applied to the aircraft in the Existing Conditions and the Future Alternatives.

2.4 Operational Criteria Air Pollutant Emissions

Table 4 provides the Existing Conditions and Future Alternatives operational emissions for criteria air pollutants. The emissions estimated for both Future Alternatives are expected to increase from the Existing Conditions as a result of higher operations and higher taxi-in and taxi-out times. It should be noted that operations, fleet mix and taxi-in and taxi-out times are expected to be the same between the No Action and Proposed Action Alternatives.

Table 4: Operational Criteria Air Pollutant Emissions (tons per year)

Year	Scenario	Category	CO	NOx	VOC	SO_2	$PM_{2.5}$	PM_{10}
2019	Existing Conditions	Aircraft	773.4	600.8	120.8	61.2	5.1	5.1
		GSE	194.4	21.3	7.1	0.1	1.0	1.1
		APU	28.6	24.4	3.2	3.7	3.4	3.4
		Total	***996.3***	***646.5***	***131.1***	***64.9***	***9.5***	***9.6***
2029	Future Alternatives	Aircraft	1,254.8	938.6	197.7	96.1	7.2	7.2
		GSE	190.2	17.2	8.5	0.2	1.1	1.2
		APU	33.3	36.8	2.4	5.3	4.4	4.4
		Total	***1,478.4***	***992.7***	***207.7***	***101.6***	***12.8***	***12.8***
2034	Future Alternatives	Aircraft	1,424.1	1,096.8	227.7	111.1	8.1	8.1
		GSE	202.3	17.4	8.0	0.2	1.1	1.2
		APU	29.4	40.9	2.8	5.7	4.6	4.6
		Total	***1,655.8***	***1,155.1***	***238.5***	***117.0***	***13.8***	***13.9***

Source: FAA ASPM and HNTB analysis, 2022.

2.5 Operational GHG Emissions

Existing Conditions and Future Alternatives operational GHG emissions from aircraft are estimated in the AEDT model. AEDT does not estimate fuel consumptions for APU and GSE. Therefore, APU and GSE GHG emissions were estimated based on the airport GSE fuel use records, growth factors, and methodologies recommended by the FAA.

APU GHG emissions were estimated using the methodology recommended by the FAA in the Aviation Emissions and Air Quality Handbook[1] (the Handbook). Default APU assignments and operating durations[2] in AEDT were applied to estimate the total APU operating durations for the Existing Conditions and Future Alternatives. Then, APU fuel usage rates in the Handbook were used to estimate total fuel consumptions. The emissions factor for Jet A – startup mode in the Handbook was used to determine the CO_2, CH_4, and N_2O emissions. Finally, Equation C-5 in the Handbook was applied to estimate APU GHG emissions. **Table 5** summarizes the Existing Conditions and Future Alternatives APU fuel consumption.

Table 5: APU Fuel Consumption

Fuel (Gallon)	2019	2029	2034
Fuel	1,069,607	1,554,050	1,666,866

Source: AEDT, the Handbook, and HNTB analysis, 2022.

GSE GHG emissions were estimated based on GSE fuel consumption records collected by the airport in 2018[3]. Growth factors were developed based on Existing Conditions and Future fleet mixes and default AEDT GSE assignments and operating duration**. Table 6** depicts the 2018 airport GSE fuel consumption and the GSE fuel consumption projections.

Table 6: GSE Fuel Consumption

Fuel (Gallon)	2018	2019	2029	2034
Gasoline	102,911	109,869	154,602	166,644
Diesel	119,545	124,339	175,931	190,318

Source: Airport GSE fuel records and HNTB analysis, 2022.

Table 7 provides the Existing Conditions and Future Alternatives operational GHG emissions from aircraft, APUs and GSE. The Future Alternatives GHG emissions are expected to increase from the Existing Conditions as a result of higher operations and higher taxi-in and taxi-out times.

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[1] Section C.2.2, Auxiliary Power Units, Appendix C, Emissions Inventory for Greenhouse Gases, Aviation Emissions and Air Quality Handbook, Version 3, Update 1, January 2015, FAA.

[2] SJC Gates are equipped with electricity. Therefore, the AEDT default operating durations are likely conservative.

[3] SJC Draft EIR, Amendment to the Airport Master Plan, Appendix G – GHG, Table 3.5-4, Oct 2019.

Table 7: CO_2e Emissions (MT per year)

Year	Scenario	Category	CO_2e
2019	Existing Conditions	Aircraft	149,468
		GSE	2,254
		APU	9,385
		Total	***161,107***
2029	Future Alternatives	Aircraft	234,888
		GSE	3,181
		APU	13,635
		Total	***251,705***
2034	Future Alternatives	Aircraft	271,457
		GSE	3,436
		APU	14,625
		Total	***289,518***

Note: MT = metric tonnes; CO_2e = carbon dioxide equivalent

Source: HNTB analysis, 2022.

Attachment 1

Fleet Mix

Table 1-1: Fleet Mixes

Aircraft Description	Engine	Operation	Stage Length	2019	2029	2034
Aerospatiale SA-350D Astar (AS-350)	TPE3	A	1	48.6	26.2	25.9
Aerospatiale SA-350D Astar (AS-350)	TPE3	D	1	48.6	26.2	25.9
Agusta A119	250B17	A	1	34.4	126.9	175.2
Agusta A119	250B17	D	1	34.4	126.9	175.2
Airbus A220-100	01P20PW186	A	1	919.2	1,463.1	1,661.5
Airbus A220-100	01P20PW186	D	2	919.2	1,463.1	1,661.5
Airbus A220-300	01P20PW184	A	1	-	32.0	36.4
Airbus A220-300	01P20PW184	D	1	-	11.1	12.7
Airbus A220-300	01P20PW184	D	2	-	13.9	15.8
Airbus A220-300	01P20PW184	D	3	-	2.8	3.2
Airbus A220-300	01P20PW184	D	4	-	4.2	4.7
Airbus A300F4-600 Series	1PW048	A	1	16.9	-	-
Airbus A300F4-600 Series	1PW048	D	1	13.7	-	-
Airbus A300F4-600 Series	1PW048	D	4	3.2	-	-
Airbus A300F4-600 Series	2GE036	A	1	126.0	-	-
Airbus A300F4-600 Series	2GE036	D	4	126.0	-	-
Airbus A300F4-600 Series	3GE056	A	1	56.0	-	-
Airbus A300F4-600 Series	3GE056	D	4	56.0	-	-
Airbus A319-100 Series	01P08CM108	A	1	144.8	202.8	230.3
Airbus A319-100 Series	01P08CM108	D	2	144.8	202.8	230.3
Airbus A319-100 Series	3CM022	A	1	253.4	354.9	403.1
Airbus A319-100 Series	3CM022	D	2	253.4	354.9	403.1
Airbus A319-100 Series	3IA006	A	1	291.3	101.4	115.2
Airbus A319-100 Series	3IA006	D	1	2.0	-	-
Airbus A319-100 Series	3IA006	D	2	203.3	101.4	115.2
Airbus A319-100 Series	3IA006	D	3	20.0	-	-
Airbus A319-100 Series	3IA006	D	4	66.0	-	-

Table 1-1: Fleet Mixes

Aircraft Description	Engine	Operation	Stage Length	2019	2029	2034
Airbus A319-100 Series	6CM044	A	1	181.0	253.5	287.9
Airbus A319-100 Series	6CM044	D	2	181.0	253.5	287.9
Airbus A319-100 Series	7CM050	A	1	1,845.4	1,118.4	1,270.0
Airbus A319-100 Series	7CM050	D	1	872.3	82.1	93.2
Airbus A319-100 Series	7CM050	D	2	596.8	618.0	701.8
Airbus A319-100 Series	7CM050	D	3	359.8	400.7	455.0
Airbus A319-100 Series	7CM050	D	4	13.4	13.2	15.0
Airbus A319-100 Series	7CM050	D	5	3.1	4.4	5.0
Airbus A320-200 Series	01P08CM105	A	1	307.6	-	-
Airbus A320-200 Series	01P08CM105	D	1	193.5	-	-
Airbus A320-200 Series	01P08CM105	D	2	93.3	-	-
Airbus A320-200 Series	01P08CM105	D	3	8.9	-	-
Airbus A320-200 Series	01P08CM105	D	4	11.8	-	-
Airbus A320-200 Series	01P10IA021	A	1	1,315.5	1,512.7	1,515.7
Airbus A320-200 Series	01P10IA021	D	1	687.7	818.1	819.7
Airbus A320-200 Series	01P10IA021	D	2	27.1	-	-
Airbus A320-200 Series	01P10IA021	D	3	2.6	-	-
Airbus A320-200 Series	01P10IA021	D	4	598.0	694.6	696.0
Airbus A320-200 Series	01P10IA022	A	1	60.5	72.0	72.2
Airbus A320-200 Series	01P10IA022	D	1	32.7	39.0	39.0
Airbus A320-200 Series	01P10IA022	D	4	27.8	33.1	33.1
Airbus A320-200 Series	1IA003	A	1	403.8	-	-
Airbus A320-200 Series	1IA003	D	1	4.5	-	-
Airbus A320-200 Series	1IA003	D	2	244.3	-	-
Airbus A320-200 Series	1IA003	D	3	23.4	-	-
Airbus A320-200 Series	1IA003	D	4	131.6	-	-
Airbus A320-200 Series	2CM014	A	1	1,004.4	-	-

Table 1-1: Fleet Mixes

Aircraft Description	Engine	Operation	Stage Length	2019	2029	2034
Airbus A320-200 Series	2CM014	D	1	608.1	-	-
Airbus A320-200 Series	2CM014	D	2	315.4	-	-
Airbus A320-200 Series	2CM014	D	3	35.5	-	-
Airbus A320-200 Series	2CM014	D	4	45.4	-	-
Airbus A320-200 Series	2CM018	A	1	1,282.6	1,661.8	1,526.3
Airbus A320-200 Series	2CM018	D	1	47.7	134.0	151.7
Airbus A320-200 Series	2CM018	D	2	432.7	621.1	704.8
Airbus A320-200 Series	2CM018	D	3	614.0	696.7	518.2
Airbus A320-200 Series	2CM018	D	4	188.2	210.0	151.6
Airbus A320-200 Series	3CM026	A	1	59.8	-	-
Airbus A320-200 Series	3CM026	D	1	35.8	-	-
Airbus A320-200 Series	3CM026	D	2	18.9	-	-
Airbus A320-200 Series	3CM026	D	3	2.2	-	-
Airbus A320-200 Series	3CM026	D	4	2.8	-	-
Airbus A320-NEO	01P20CM128	A	1	155.2	495.8	923.3
Airbus A320-NEO	01P20CM128	D	1	74.8	104.8	119.0
Airbus A320-NEO	01P20CM128	D	2	42.6	59.6	67.7
Airbus A320-NEO	01P20CM128	D	3	22.9	200.8	446.4
Airbus A320-NEO	01P20CM128	D	4	14.9	130.5	290.2
Airbus A321-100 Series	1IA005	A	1	42.0	258.1	293.1
Airbus A321-100 Series	1IA005	D	1	2.4	85.6	97.2
Airbus A321-100 Series	1IA005	D	2	39.5	172.4	195.8
Airbus A321-100 Series	1IA005	D	4	0.1	0.1	0.1
Airbus A321-200 Series	01P08CM104	A	1	142.3	-	-
Airbus A321-200 Series	01P08CM104	D	1	58.7	-	-
Airbus A321-200 Series	01P08CM104	D	2	83.6	-	-
Airbus A321-200 Series	3CM025	A	1	1.4	1.9	2.2

Table 1-1: Fleet Mixes

Aircraft Description	Engine	Operation	Stage Length	2019	2029	2034
Airbus A321-200 Series	3CM025	D	1	0.1	0.1	0.1
Airbus A321-200 Series	3CM025	D	2	1.3	1.8	2.1
Airbus A321-200 Series	3IA008	A	1	9.0	105.8	226.0
Airbus A321-200 Series	3IA008	D	1	2.0	23.5	50.2
Airbus A321-200 Series	3IA008	D	4	7.0	82.3	175.7
Airbus A321-200 Series	4CM038	A	1	3.4	4.8	5.4
Airbus A321-200 Series	4CM038	D	1	0.2	0.2	0.2
Airbus A321-200 Series	4CM038	D	2	3.2	4.5	5.2
Airbus A321-NEO	01P08CM103	A	1	-	9.8	11.1
Airbus A321-NEO	01P08CM103	D	1	-	2.8	3.2
Airbus A321-NEO	01P08CM103	D	2	-	7.0	7.9
Airbus A321-NEO	01P18PW157	A	1	683.5	1,048.0	1,187.2
Airbus A321-NEO	01P18PW157	D	1	2.0	103.0	173.8
Airbus A321-NEO	01P18PW157	D	4	681.5	945.0	1,013.5
Airbus A321-NEO	01P20CM132	A	1	15.9	737.1	962.9
Airbus A321-NEO	01P20CM132	D	1	9.9	0.9	1.2
Airbus A321-NEO	01P20CM132	D	2	5.0	64.0	83.6
Airbus A321-NEO	01P20CM132	D	3	1.0	94.6	123.6
Airbus A321-NEO	01P20CM132	D	4	-	577.6	754.4
Airbus A330-200 Series	2RR023	A	1	43.8	59.9	68.0
Airbus A330-200 Series	2RR023	D	2	1.0	1.4	1.6
Airbus A330-200 Series	2RR023	D	4	42.8	58.5	66.4
Airbus A330-200 Series	4PW067	A	1	0.6	-	-
Airbus A330-200 Series	4PW067	D	4	0.6	-	-
Airbus A330-200 Series	9PW095	A	1	0.3	-	-
Airbus A330-200 Series	9PW095	D	4	0.3	-	-
Beechcraft T-6 Texan 2 (FAS)	PT6A64	A	1	2.2	1.8	1.8

Table 1-1: Fleet Mixes

Aircraft Description	Engine	Operation	Stage Length	2019	2029	2034
Beechcraft T-6 Texan 2 (FAS)	PT6A64	D	1	2.2	1.8	1.8
Bell 206 JetRanger	250B17	A	1	85.4	55.1	54.6
Bell 206 JetRanger	250B17	D	1	85.4	55.1	54.6
Bell 430	250B17	A	1	29.7	10.6	10.5
Bell 430	250B17	D	1	29.7	10.6	10.5
Boeing 717-200 Series	4BR002	A	1	250.7	-	-
Boeing 717-200 Series	4BR002	D	1	17.0	-	-
Boeing 717-200 Series	4BR002	D	2	233.7	-	-
Boeing 737-400 Series	1CM007	A	1	3.0	46.0	52.2
Boeing 737-400 Series	1CM007	D	1	-	18.7	21.3
Boeing 737-400 Series	1CM007	D	2	-	2.9	3.3
Boeing 737-400 Series	1CM007	D	3	1.5	10.7	12.2
Boeing 737-400 Series	1CM007	D	4	1.5	13.6	15.5
Boeing 737-400 Series Freighter	1CM007	A	1	29.8	-	-
Boeing 737-400 Series Freighter	1CM007	D	1	13.4	-	-
Boeing 737-400 Series Freighter	1CM007	D	2	2.1	-	-
Boeing 737-400 Series Freighter	1CM007	D	3	6.2	-	-
Boeing 737-400 Series Freighter	1CM007	D	4	8.2	-	-
Boeing 737-500 Series	1CM007	A	1	52.7	73.9	83.9
Boeing 737-500 Series	1CM007	D	1	30.4	42.6	48.4
Boeing 737-500 Series	1CM007	D	2	12.2	17.0	19.4
Boeing 737-500 Series	1CM007	D	3	5.1	7.1	8.1
Boeing 737-500 Series	1CM007	D	4	5.1	7.1	8.1
Boeing 737-700 Freighter	01P11CM114	A	1	408.6	-	-
Boeing 737-700 Freighter	01P11CM114	D	1	309.6	-	-
Boeing 737-700 Freighter	01P11CM114	D	2	76.2	-	-
Boeing 737-700 Freighter	01P11CM114	D	3	17.6	-	-

Table 1-1: Fleet Mixes

Aircraft Description	Engine	Operation	Stage Length	2019	2029	2034
Boeing 737-700 Freighter	01P11CM114	D	4	5.2	-	-
Boeing 737-700 Freighter	3CM032	A	1	1.0	-	-
Boeing 737-700 Freighter	3CM032	D	1	1.0	-	-
Boeing 737-700 Series	3CM030	A	1	17,506.8	38,997.9	44,281.9
Boeing 737-700 Series	3CM030	D	1	13,145.5	27,519.6	31,247.5
Boeing 737-700 Series	3CM030	D	2	3,247.4	7,089.2	8,050.3
Boeing 737-700 Series	3CM030	D	3	775.9	2,554.2	2,900.5
Boeing 737-700 Series	3CM030	D	4	321.7	1,812.1	2,057.7
Boeing 737-700 Series	3CM030	D	5	16.2	22.7	25.8
Boeing 737-700 Series	3CM031	A	1	1,637.2	-	-
Boeing 737-700 Series	3CM031	D	1	1,238.3	-	-
Boeing 737-700 Series	3CM031	D	2	305.0	-	-
Boeing 737-700 Series	3CM031	D	3	70.6	-	-
Boeing 737-700 Series	3CM031	D	4	23.4	-	-
Boeing 737-700 Series	3CM032	A	1	6,608.7	-	-
Boeing 737-700 Series	3CM032	D	1	5,005.4	-	-
Boeing 737-700 Series	3CM032	D	2	1,233.5	-	-
Boeing 737-700 Series	3CM032	D	3	284.1	-	-
Boeing 737-700 Series	3CM032	D	4	85.6	-	-
Boeing 737-700 Series	8CM064	A	1	1,770.6	-	-
Boeing 737-700 Series	8CM064	D	1	1,341.5	-	-
Boeing 737-700 Series	8CM064	D	2	330.4	-	-
Boeing 737-700 Series	8CM064	D	3	76.1	-	-
Boeing 737-700 Series	8CM064	D	4	22.6	-	-
Boeing 737-8	01P20CM136	A	1	-	8,433.4	9,797.0
Boeing 737-8	01P20CM136	D	1	-	862.8	1,029.6
Boeing 737-8	01P20CM136	D	2	-	2,675.4	3,087.1

Table 1-1: Fleet Mixes

Aircraft Description	Engine	Operation	Stage Length	2019	2029	2034
Boeing 737-8	01P20CM136	D	3	-	2,093.1	2,402.8
Boeing 737-8	01P20CM136	D	4	-	2,802.1	3,277.5
Boeing 737-8	01P20CM137	A	1	201.0	3,789.6	11,701.6
Boeing 737-8	01P20CM137	D	1	108.8	2,681.3	8,279.4
Boeing 737-8	01P20CM137	D	2	28.0	691.0	2,133.6
Boeing 737-8	01P20CM137	D	3	62.2	246.7	761.6
Boeing 737-8	01P20CM137	D	4	2.1	170.7	527.0
Boeing 737-800 Series	01P11CM114	A	1	38.3	34.8	-
Boeing 737-800 Series	01P11CM114	D	1	18.6	16.9	-
Boeing 737-800 Series	01P11CM114	D	2	6.8	6.2	-
Boeing 737-800 Series	01P11CM114	D	3	5.7	5.2	-
Boeing 737-800 Series	01P11CM114	D	4	7.2	6.5	-
Boeing 737-800 Series	01P11CM116	A	1	68.7	34.8	-
Boeing 737-800 Series	01P11CM116	D	1	18.8	16.9	-
Boeing 737-800 Series	01P11CM116	D	2	25.8	6.2	-
Boeing 737-800 Series	01P11CM116	D	3	8.7	5.2	-
Boeing 737-800 Series	01P11CM116	D	4	15.4	6.5	-
Boeing 737-800 Series	01P11CM122	A	1	6,744.5	6,097.0	-
Boeing 737-800 Series	01P11CM122	D	1	3,253.0	2,958.8	-
Boeing 737-800 Series	01P11CM122	D	2	1,211.7	1,078.3	-
Boeing 737-800 Series	01P11CM122	D	3	1,009.2	914.3	-
Boeing 737-800 Series	01P11CM122	D	4	1,270.7	1,145.5	-
Boeing 737-800 Series	3CM032	A	1	871.0	240.6	273.2
Boeing 737-800 Series	3CM032	D	1	7.7	0.3	0.3
Boeing 737-800 Series	3CM032	D	2	198.1	55.1	62.6
Boeing 737-800 Series	3CM032	D	3	458.2	127.8	145.1
Boeing 737-800 Series	3CM032	D	4	206.9	57.3	65.1

Table 1-1: Fleet Mixes

Aircraft Description	Engine	Operation	Stage Length	2019	2029	2034
Boeing 737-800 Series	3CM034	A	1	5,313.6	5,150.8	5,234.7
Boeing 737-800 Series	3CM034	D	1	843.8	1,024.1	922.0
Boeing 737-800 Series	3CM034	D	2	1,401.5	1,238.4	1,287.4
Boeing 737-800 Series	3CM034	D	3	1,216.3	917.0	956.3
Boeing 737-800 Series	3CM034	D	4	1,851.9	1,971.3	2,069.0
Boeing 737-800 Series	8CM051	A	1	93.3	-	-
Boeing 737-800 Series	8CM051	D	1	7.8	-	-
Boeing 737-800 Series	8CM051	D	2	51.1	-	-
Boeing 737-800 Series	8CM051	D	3	9.7	-	-
Boeing 737-800 Series	8CM051	D	4	24.7	-	-
Boeing 737-800 Series	8CM064	A	1	448.0	125.5	142.5
Boeing 737-800 Series	8CM064	D	1	0.5	0.2	0.2
Boeing 737-800 Series	8CM064	D	2	102.6	28.8	32.7
Boeing 737-800 Series	8CM064	D	3	238.0	66.7	75.7
Boeing 737-800 Series	8CM064	D	4	106.8	29.9	34.0
Boeing 737-800 Series	8CM065	A	1	127.4	21.1	24.0
Boeing 737-800 Series	8CM065	D	1	3.1	0.0	0.0
Boeing 737-800 Series	8CM065	D	2	73.6	7.0	8.0
Boeing 737-800 Series	8CM065	D	3	15.3	6.3	7.1
Boeing 737-800 Series	8CM065	D	4	35.4	7.8	8.8
Boeing 737-800 Series	8CM066	A	1	6.1	-	-
Boeing 737-800 Series	8CM066	D	1	0.0	-	-
Boeing 737-800 Series	8CM066	D	2	3.8	-	-
Boeing 737-800 Series	8CM066	D	3	0.6	-	-
Boeing 737-800 Series	8CM066	D	4	1.6	-	-
Boeing 737-9	01P20CM136	A	1	-	20.9	23.7
Boeing 737-9	01P20CM136	D	1	-	13.9	15.8

Table 1-1: Fleet Mixes

Aircraft Description	Engine	Operation	Stage Length	2019	2029	2034
Boeing 737-9	01P20CM136	D	2	-	5.6	6.3
Boeing 737-9	01P20CM136	D	3	-	1.4	1.6
Boeing 737-9	01P20CM137	A	1	-	455.0	826.6
Boeing 737-9	01P20CM137	D	1	-	3.5	6.3
Boeing 737-9	01P20CM137	D	2	-	284.8	517.4
Boeing 737-9	01P20CM137	D	3	-	43.8	79.5
Boeing 737-9	01P20CM137	D	4	-	122.9	223.4
Boeing 737-9	01P20CM140	A	1	-	2,484.0	3,290.8
Boeing 737-9	01P20CM140	D	1	-	589.2	780.7
Boeing 737-9	01P20CM140	D	2	-	1,081.1	1,432.3
Boeing 737-9	01P20CM140	D	3	-	365.7	484.5
Boeing 737-9	01P20CM140	D	4	-	447.9	593.3
Boeing 737-900 Series	8CM051	A	1	144.4	101.1	45.9
Boeing 737-900 Series	8CM051	D	1	2.4	1.7	0.8
Boeing 737-900 Series	8CM051	D	2	40.7	28.5	12.9
Boeing 737-900 Series	8CM051	D	3	91.5	64.1	29.1
Boeing 737-900 Series	8CM051	D	4	9.7	6.8	3.1
Boeing 737-900 Series	8CM065	A	1	814.8	645.9	589.0
Boeing 737-900 Series	8CM065	D	1	99.2	58.8	50.9
Boeing 737-900 Series	8CM065	D	2	238.0	157.7	132.9
Boeing 737-900 Series	8CM065	D	3	177.7	134.3	102.3
Boeing 737-900 Series	8CM065	D	4	299.9	295.1	302.8
Boeing 737-900 Series	8CM066	A	1	9.0	6.3	2.9
Boeing 737-900 Series	8CM066	D	1	0.2	0.1	0.0
Boeing 737-900 Series	8CM066	D	2	2.5	1.8	0.8
Boeing 737-900 Series	8CM066	D	3	5.7	4.0	1.8
Boeing 737-900 Series	8CM066	D	4	0.6	0.4	0.2

Table 1-1: Fleet Mixes

Aircraft Description	Engine	Operation	Stage Length	2019	2029	2034
Boeing 737-900-ER	01P11CM122	A	1	4,221.9	3,140.2	2,879.4
Boeing 737-900-ER	01P11CM122	D	1	615.5	346.6	293.9
Boeing 737-900-ER	01P11CM122	D	2	1,331.2	823.2	698.9
Boeing 737-900-ER	01P11CM122	D	3	777.4	561.2	452.2
Boeing 737-900-ER	01P11CM122	D	4	1,497.8	1,409.2	1,434.4
Boeing 737-900-ER	01P11CM123	A	1	20.8	23.3	24.8
Boeing 737-900-ER	01P11CM123	D	1	0.0	0.0	0.0
Boeing 737-900-ER	01P11CM123	D	2	1.8	2.0	2.2
Boeing 737-900-ER	01P11CM123	D	3	2.7	3.0	3.2
Boeing 737-900-ER	01P11CM123	D	4	16.3	18.3	19.5
Boeing 757-200 Series	3RR034	A	1	2.0	-	-
Boeing 757-200 Series	3RR034	D	2	2.0	-	-
Boeing 757-200 Series	4PW072	A	1	204.2	-	-
Boeing 757-200 Series	4PW072	D	1	11.3	-	-
Boeing 757-200 Series	4PW072	D	2	5.0	-	-
Boeing 757-200 Series	4PW072	D	3	3.0	-	-
Boeing 757-200 Series	4PW072	D	4	184.9	-	-
Boeing 757-200 Series	4PW073	A	1	10.3	13.9	15.8
Boeing 757-200 Series	4PW073	D	1	3.4	4.2	4.7
Boeing 757-200 Series	4PW073	D	2	2.0	2.8	3.2
Boeing 757-200 Series	4PW073	D	3	1.0	1.4	1.6
Boeing 757-200 Series	4PW073	D	4	4.0	5.6	6.3
Boeing 757-200 Series	5RR038	A	1	1.3	-	-
Boeing 757-200 Series	5RR038	D	1	1.3	-	-
Boeing 757-200 Series Freighter	3RR028	A	1	28.1	-	-
Boeing 757-200 Series Freighter	3RR028	D	1	3.1	-	-
Boeing 757-200 Series Freighter	3RR028	D	4	25.0	-	-

Table 1-1: Fleet Mixes

Aircraft Description	Engine	Operation	Stage Length	2019	2029	2034
Boeing 757-200 Series Freighter	4PW072	A	1	0.8	-	-
Boeing 757-200 Series Freighter	4PW072	D	1	0.1	-	-
Boeing 757-200 Series Freighter	4PW072	D	4	0.7	-	-
Boeing 757-200 Series Freighter	4PW073	A	1	24.8	-	-
Boeing 757-200 Series Freighter	4PW073	D	1	2.8	-	-
Boeing 757-200 Series Freighter	4PW073	D	4	22.0	-	-
Boeing 767-300 ER Freighter	1GE030	A	1	478.5	1,024.2	1,163.0
Boeing 767-300 ER Freighter	1GE030	D	1	5.0	9.2	10.4
Boeing 767-300 ER Freighter	1GE030	D	4	473.5	1,015.0	1,152.6
Boeing 767-300 Series	1GE020	A	1	1.7	-	-
Boeing 767-300 Series	1GE020	D	2	0.7	-	-
Boeing 767-300 Series	1GE020	D	3	0.3	-	-
Boeing 767-300 Series	1GE020	D	4	0.7	-	-
Boeing 767-300 Series	1PW043	A	1	3.3	-	-
Boeing 767-300 Series	1PW043	D	2	1.3	-	-
Boeing 767-300 Series	1PW043	D	3	0.7	-	-
Boeing 767-300 Series	1PW043	D	4	1.3	-	-
Boeing 767-300 Series	1RR011	A	1	29.8	36.2	41.1
Boeing 767-300 Series	1RR011	D	1	5.4	7.5	8.5
Boeing 767-300 Series	1RR011	D	2	9.7	13.7	15.5
Boeing 767-300 Series	1RR011	D	3	2.0	2.8	3.2
Boeing 767-300 Series	1RR011	D	4	7.8	5.3	6.0
Boeing 767-300 Series	1RR011	D	5	2.0	2.8	3.2
Boeing 767-300 Series	1RR011	D	7	3.0	4.2	4.7
Boeing 777-300 Series	8GE100	A	1	-	365.0	365.0
Boeing 777-300 Series	8GE100	D	7	-	365.0	365.0
Boeing 787-8 Dreamliner	9GENX3	A	1	373.1	522.5	593.4

Table 1-1: Fleet Mixes

Aircraft Description	Engine	Operation	Stage Length	2019	2029	2034
Boeing 787-8 Dreamliner	9GENX3	D	6	329.3	461.2	523.8
Boeing 787-8 Dreamliner	9GENX3	D	7	43.8	61.3	69.6
Boeing 787-9 Dreamliner	01P17GE214	A	1	512.3	354.9	511.7
Boeing 787-9 Dreamliner	01P17GE214	D	2	-	2.4	5.3
Boeing 787-9 Dreamliner	01P17GE214	D	4	-	97.5	216.9
Boeing 787-9 Dreamliner	01P17GE214	D	6	30.9	43.3	49.1
Boeing 787-9 Dreamliner	01P17GE214	D	7	481.4	211.7	240.4
Boeing DC-10-10 Series	3GE076	A	1	8.7	7.2	7.2
Boeing DC-10-10 Series	3GE076	D	1	8.7	7.2	7.2
Boeing F/A-18 Hornet	F4044	A	1	2.2	1.8	1.8
Boeing F/A-18 Hornet	F4044	D	1	2.2	1.8	1.8
Boeing F-15E Strike Eagle	F1229A	A	1	2.2	1.8	1.8
Boeing F-15E Strike Eagle	F1229A	D	1	2.2	1.8	1.8
Bombardier Challenger 300	6AL006	A	1	2,041.3	2,996.2	3,168.0
Bombardier Challenger 300	6AL006	D	1	2,041.3	2,996.2	3,168.0
Bombardier Challenger 600	01P05GE189	A	1	725.6	753.4	823.7
Bombardier Challenger 600	01P05GE189	D	1	725.6	753.4	823.7
Bombardier CRJ-200	1GE035	A	1	33.8	11.1	12.7
Bombardier CRJ-200	1GE035	D	1	17.9	7.0	7.9
Bombardier CRJ-200	1GE035	D	2	13.9	1.4	1.6
Bombardier CRJ-200	1GE035	D	3	1.0	1.4	1.6
Bombardier CRJ-200	1GE035	D	4	1.0	1.4	1.6
Bombardier CRJ-700	01P05GE189	A	1	47.8	538.1	611.0
Bombardier CRJ-700	01P05GE189	D	1	22.9	27.2	30.9
Bombardier CRJ-700	01P05GE189	D	2	23.7	508.0	576.8
Bombardier CRJ-700	01P05GE189	D	4	1.1	2.9	3.3
Bombardier CRJ-700	01P08GE191	A	1	0.5	-	-

Table 1-1: Fleet Mixes

Aircraft Description	Engine	Operation	Stage Length	2019	2029	2034
Bombardier CRJ-700	01P08GE191	D	1	0.1	-	-
Bombardier CRJ-700	01P08GE191	D	2	0.4	-	-
Bombardier CRJ-700	01P08GE192	A	1	427.2	-	-
Bombardier CRJ-700	01P08GE192	D	1	3.7	-	-
Bombardier CRJ-700	01P08GE192	D	2	422.6	-	-
Bombardier CRJ-700	01P08GE192	D	4	1.0	-	-
Bombardier CRJ-900	01P08GE190	A	1	1,000.4	1,399.0	1,588.7
Bombardier CRJ-900	01P08GE190	D	1	0.8	-	-
Bombardier CRJ-900	01P08GE190	D	2	998.6	1,397.6	1,587.1
Bombardier CRJ-900	01P08GE190	D	3	1.0	1.4	1.6
Bombardier CRJ-900	01P08GE191	A	1	0.4	-	-
Bombardier CRJ-900	01P08GE191	D	1	0.2	-	-
Bombardier CRJ-900	01P08GE191	D	2	0.2	-	-
Bombardier Global 5000	01P04BR013	A	1	240.5	321.6	353.1
Bombardier Global 5000	01P04BR013	D	1	74.6	102.1	114.2
Bombardier Global 5000	01P04BR013	D	2	56.9	75.8	83.0
Bombardier Global 5000	01P04BR013	D	3	14.3	19.5	21.8
Bombardier Global 5000	01P04BR013	D	4	78.4	103.8	113.2
Bombardier Global 5000	01P04BR013	D	5	5.7	7.3	7.8
Bombardier Global 5000	01P04BR013	D	6	7.0	8.7	8.9
Bombardier Global 5000	01P04BR013	D	7	3.6	4.3	4.3
Bombardier Global Express	4BR002	A	1	616.3	698.4	753.9
Bombardier Global Express	4BR002	D	1	308.3	345.6	372.0
Bombardier Global Express	4BR002	D	2	80.1	97.1	106.6
Bombardier Global Express	4BR002	D	3	30.0	32.8	35.0
Bombardier Global Express	4BR002	D	4	139.4	154.4	165.7
Bombardier Global Express	4BR002	D	5	6.4	7.8	8.6

Table 1-1: Fleet Mixes

Aircraft Description	Engine	Operation	Stage Length	2019	2029	2034
Bombardier Global Express	4BR002	D	6	5.4	6.4	7.0
Bombardier Global Express	4BR002	D	7	45.5	53.2	58.0
Bombardier Global Express	4BR002	D	8	1.2	1.1	1.1
Bombardier Learjet 31	1AS001	A	1	48.5	41.7	43.3
Bombardier Learjet 31	1AS001	D	1	48.5	41.7	43.3
Bombardier Learjet 35	1AS001	A	1	125.7	125.7	132.8
Bombardier Learjet 35	1AS001	D	1	125.7	125.7	132.8
Bombardier Learjet 40	1AS001	A	1	43.1	58.0	63.6
Bombardier Learjet 40	1AS001	D	1	43.1	58.0	63.6
Bombardier Learjet 45	1AS001	A	1	176.4	181.7	190.0
Bombardier Learjet 45	1AS001	D	1	176.4	181.7	190.0
Bombardier Learjet 60	TFE731	A	1	248.1	188.3	204.0
Bombardier Learjet 60	TFE731	D	1	248.1	188.3	204.0
Bombardier Learjet 75	1AS002	A	1	47.3	92.3	98.7
Bombardier Learjet 75	1AS002	D	1	47.3	92.3	98.7
Cessna 150 Series	O200	A	1	29.7	23.4	21.8
Cessna 150 Series	O200	D	1	29.7	23.4	21.8
Cessna 170 (FAS)	IO360	A	1	34.4	41.8	39.1
Cessna 170 (FAS)	IO360	D	1	34.4	41.8	39.1
Cessna 172 Skyhawk	IO360	A	1	497.2	476.7	445.0
Cessna 172 Skyhawk	IO360	D	1	497.2	476.7	445.0
Cessna 182	IO360	A	1	291.9	279.9	261.3
Cessna 182	IO360	D	1	291.9	279.9	261.3
Cessna 206	TIO540	A	1	200.5	183.1	170.9
Cessna 206	TIO540	D	1	200.5	183.1	170.9
Cessna 210 Centurion	TIO540	A	1	323.9	196.3	183.3
Cessna 210 Centurion	TIO540	D	1	323.9	196.3	183.3

Table 1-1: Fleet Mixes

Aircraft Description	Engine	Operation	Stage Length	2019	2029	2034
Cessna 310	TIO540	A	1	34.4	22.3	22.6
Cessna 310	TIO540	D	1	34.4	22.3	22.6
Cessna 340	TIO540	A	1	81.9	83.0	84.1
Cessna 340	TIO540	D	1	81.9	83.0	84.1
Cessna 414	TIO540	A	1	58.1	56.7	57.5
Cessna 414	TIO540	D	1	58.1	56.7	57.5
Cessna 421 Piston	TIO540	A	1	78.3	73.4	74.3
Cessna 421 Piston	TIO540	D	1	78.3	73.4	74.3
Cessna 441 Conquest II	TPE8	A	1	35.6	36.1	33.4
Cessna 441 Conquest II	TPE8	D	1	35.6	36.1	33.4
Cessna 500 Citation I	1PW035	A	1	28.7	29.9	32.1
Cessna 500 Citation I	1PW035	D	1	28.7	29.9	32.1
Cessna 501 Citation ISP	1PW035	A	1	54.0	46.6	47.5
Cessna 501 Citation ISP	1PW035	D	1	54.0	46.6	47.5
Cessna 550 Citation II	1PW036	A	1	130.3	128.0	133.3
Cessna 550 Citation II	1PW036	D	1	130.3	128.0	133.3
Cessna 560 Citation Excel	PW530	A	1	1,601.1	1,852.0	2,005.8
Cessna 560 Citation Excel	PW530	D	1	1,601.1	1,852.0	2,005.8
Cessna 560 Citation V	1PW037	A	1	332.4	271.4	285.2
Cessna 560 Citation V	1PW037	D	1	332.4	271.4	285.2
Cessna 650 Citation III	1AS001	A	1	67.3	60.6	61.4
Cessna 650 Citation III	1AS001	D	1	67.3	60.6	61.4
Cessna 680 Citation Sovereign	03P14PW194	A	1	558.2	757.3	836.5
Cessna 680 Citation Sovereign	03P14PW194	D	1	558.2	757.3	836.5
Cessna 680-A Citation Latitude	7PW078	A	1	510.6	775.1	867.8
Cessna 680-A Citation Latitude	7PW078	D	1	510.6	775.1	867.8
Cessna 750 Citation X	8AL025	A	1	870.6	1,105.5	1,233.3

Table 1-1: Fleet Mixes

Aircraft Description	Engine	Operation	Stage Length	2019	2029	2034
Cessna 750 Citation X	8AL025	D	1	870.6	1,105.5	1,233.3
CESSNA CITATION 510	PW530	A	1	83.7	54.2	55.2
CESSNA CITATION 510	PW530	D	1	83.7	54.2	55.2
Cessna CitationJet CJ/CJ1 (Cessna 525)	1PW035	A	1	355.4	372.9	381.8
Cessna CitationJet CJ/CJ1 (Cessna 525)	1PW035	D	1	355.4	372.9	381.8
Cessna CitationJet CJ2 (Cessna 525A)	1PW036	A	1	227.1	200.5	221.4
Cessna CitationJet CJ2 (Cessna 525A)	1PW036	D	1	227.1	200.5	221.4
Cessna CitationJet CJ3 (Cessna 525B)	1PW038	A	1	372.8	481.7	508.3
Cessna CitationJet CJ3 (Cessna 525B)	1PW038	D	1	372.8	481.7	508.3
Cessna CitationJet CJ4 (Cessna 525C)	1PW038	A	1	85.1	162.8	165.5
Cessna CitationJet CJ4 (Cessna 525C)	1PW038	D	1	85.1	162.8	165.5
CIRRUS SF-50 Vision	1PW035	A	1	86.6	433.9	505.9
CIRRUS SF-50 Vision	1PW035	D	1	68.8	344.7	402.0
CIRRUS SF-50 Vision	1PW035	D	2	15.4	77.3	90.1
CIRRUS SF-50 Vision	1PW035	D	3	2.4	11.9	13.9
Cirrus SR22 Turbo (FAS)	TIO540	A	1	785.6	1,426.4	1,628.0
Cirrus SR22 Turbo (FAS)	TIO540	D	1	785.6	1,426.4	1,628.0
DAHER TBM 900/930	PT6A66	A	1	76.7	337.3	423.5
DAHER TBM 900/930	PT6A66	D	1	76.7	337.3	423.5
Dassault Falcon 2000	03P14PW194	A	1	682.5	709.1	767.2
Dassault Falcon 2000	03P14PW194	D	1	682.5	709.1	767.2
Dassault Falcon 20-D	CF700D	A	1	10.8	9.0	9.0
Dassault Falcon 20-D	CF700D	D	1	10.8	9.0	9.0
Dassault Falcon 50	1AS002	A	1	172.5	151.0	155.0
Dassault Falcon 50	1AS002	D	1	103.4	89.6	91.7
Dassault Falcon 50	1AS002	D	2	17.1	14.1	14.2
Dassault Falcon 50	1AS002	D	3	9.3	8.8	9.2

Table 1-1: Fleet Mixes

Aircraft Description	Engine	Operation	Stage Length	2019	2029	2034
Dassault Falcon 50	1AS002	D	4	39.0	35.5	36.9
Dassault Falcon 50	1AS002	D	5	3.7	3.0	3.0
Dassault Falcon 900	1AS002	A	1	431.0	411.2	445.0
Dassault Falcon 900	1AS002	D	1	171.1	170.3	185.5
Dassault Falcon 900	1AS002	D	2	68.8	56.0	59.0
Dassault Falcon 900	1AS002	D	3	66.5	65.0	70.6
Dassault Falcon 900	1AS002	D	4	112.1	108.7	117.9
Dassault Falcon 900	1AS002	D	5	4.6	3.8	4.0
Dassault Falcon 900	1AS002	D	6	7.8	7.4	8.0
Diamond DA40	IO360	A	1	28.5	48.8	55.5
Diamond DA40	IO360	D	1	28.5	48.8	55.5
Dornier 328 Jet	7PW078	A	1	22.9	32.0	36.4
Dornier 328 Jet	7PW078	D	1	22.9	32.0	36.4
EADS Socata TB-20 Trinidad	TIO540	A	1	26.1	21.8	20.4
EADS Socata TB-20 Trinidad	TIO540	D	1	26.1	21.8	20.4
EADS Socata TBM-700	PT6A60	A	1	34.0	28.3	26.8
EADS Socata TBM-700	PT6A60	D	1	34.0	28.3	26.8
Embraer 312 Tucano	TPE12B	A	1	43.9	35.0	32.4
Embraer 312 Tucano	TPE12B	D	1	43.9	35.0	32.4
Embraer ERJ145-XR	01P06AL032	A	1	1,817.6	2,545.9	2,891.0
Embraer ERJ145-XR	01P06AL032	D	1	1,530.8	2,144.2	2,434.8
Embraer ERJ145-XR	01P06AL032	D	2	286.8	401.7	456.1
Embraer ERJ175	01P08GE197	A	1	7,178.7	10,166.7	11,544.9
Embraer ERJ175	01P08GE197	D	1	5,044.5	7,144.2	8,112.7
Embraer ERJ175	01P08GE197	D	2	1,003.3	1,420.9	1,613.6
Embraer ERJ175	01P08GE197	D	3	1,130.9	1,601.6	1,818.7
Embraer ERJ175	01P08GE198	A	1	757.4	1,143.9	1,281.3

Table 1-1: Fleet Mixes

Aircraft Description	Engine	Operation	Stage Length	2019	2029	2034
Embraer ERJ175	01P08GE198	D	1	525.3	735.7	835.5
Embraer ERJ175	01P08GE198	D	2	232.2	408.1	445.8
Embraer ERJ175-LR	01P08GE197	A	1	7,048.2	9,921.1	11,248.4
Embraer ERJ175-LR	01P08GE197	D	1	5,068.9	7,100.0	8,062.5
Embraer ERJ175-LR	01P08GE197	D	2	1,978.2	2,819.5	3,184.1
Embraer ERJ175-LR	01P08GE197	D	3	1.0	1.6	1.8
Embraer Legacy 450 (EMB-545)	01P14HN014	A	1	125.7	182.8	207.1
Embraer Legacy 450 (EMB-545)	01P14HN014	D	1	125.7	182.8	207.1
Embraer Legacy 500 (EMB-550)	01P14HN015	A	1	40.7	46.5	50.9
Embraer Legacy 500 (EMB-550)	01P14HN015	D	1	40.7	46.5	50.9
Embraer Legacy 600	6AL014	A	1	27.1	32.2	33.7
Embraer Legacy 600	6AL014	D	1	12.8	15.4	16.2
Embraer Legacy 600	6AL014	D	2	7.3	8.4	8.6
Embraer Legacy 600	6AL014	D	3	2.3	2.8	3.0
Embraer Legacy 600	6AL014	D	4	4.8	5.6	5.8
Embraer Phenom 100 (EMB-500)	PW530	A	1	459.5	571.4	644.7
Embraer Phenom 100 (EMB-500)	PW530	D	1	459.5	571.4	644.7
Embraer Phenom 300 (EMB-505)	PW530	A	1	880.7	1,270.4	1,412.1
Embraer Phenom 300 (EMB-505)	PW530	D	1	880.7	1,270.4	1,412.1
EPIC LT/Dynasty	PT667A	A	1	49.8	381.7	500.8
EPIC LT/Dynasty	PT667A	D	1	49.8	381.7	500.8
Eurocopter EC-130	TPE3	A	1	243.7	212.4	219.3
Eurocopter EC-130	TPE3	D	1	243.7	212.4	219.3
Eurocopter EC-155B1	T400	A	1	2.2	1.8	1.8
Eurocopter EC-155B1	T400	D	1	2.2	1.8	1.8
Fairchild SA-227-AC Metro III	PW125B	A	1	32.0	33.4	31.0
Fairchild SA-227-AC Metro III	PW125B	D	1	32.0	33.4	31.0

Table 1-1: Fleet Mixes

Aircraft Description	Engine	Operation	Stage Length	2019	2029	2034
Falcon 7X	03P16PW192	A	1	196.1	286.6	297.3
Falcon 7X	03P16PW192	D	1	196.1	286.6	297.3
Glasair (FAS)	TIO540	A	1	33.2	21.3	19.9
Glasair (FAS)	TIO540	D	1	33.2	21.3	19.9
Grumman AA-5A/B (FAS)	O320	A	1	108.0	67.7	63.2
Grumman AA-5A/B (FAS)	O320	D	1	108.0	67.7	63.2
Grumman E-2 Hawkeye	T56-1	A	1	4.3	3.6	3.6
Grumman E-2 Hawkeye	T56-1	D	1	4.3	3.6	3.6
Gulfstream G150	1AS002	A	1	75.2	50.9	53.1
Gulfstream G150	1AS002	D	1	75.2	50.9	53.1
Gulfstream G200	7PW077	A	1	484.4	440.6	486.5
Gulfstream G200	7PW077	D	1	484.4	440.6	486.5
Gulfstream G280	01P11HN012	A	1	315.3	816.1	824.7
Gulfstream G280	01P11HN012	D	1	315.3	816.1	824.7
Gulfstream G300	1RR019	A	1	37.8	32.4	32.8
Gulfstream G300	1RR019	D	1	37.8	32.4	32.8
Gulfstream G400	11RR048	A	1	912.4	931.4	1,017.3
Gulfstream G400	11RR048	D	1	912.4	931.4	1,017.3
Gulfstream G-5 Gulfstream 5 / G-5SP Gulfstream G500	3BR001	A	1	924.2	1,180.4	1,232.2
Gulfstream G-5 Gulfstream 5 / G-5SP Gulfstream G500	3BR001	D	1	924.2	1,180.4	1,232.2
Gulfstream G650	01P11BR016	A	1	661.2	1,482.3	1,527.7
Gulfstream G650	01P11BR016	D	1	349.3	763.0	787.8
Gulfstream G650	01P11BR016	D	2	66.0	156.5	160.3
Gulfstream G650	01P11BR016	D	3	39.4	93.0	95.3
Gulfstream G650	01P11BR016	D	4	133.2	288.5	299.9
Gulfstream G650	01P11BR016	D	5	3.5	9.3	9.4
Gulfstream G650	01P11BR016	D	6	3.5	7.8	8.0

Table 1-1: Fleet Mixes

Aircraft Description	Engine	Operation	Stage Length	2019	2029	2034
Gulfstream G650	01P11BR016	D	7	56.0	142.5	144.4
Gulfstream G650	01P11BR016	D	8	9.1	18.6	19.6
Gulfstream G650	01P11BR016	D	9	1.2	3.1	3.1
Gulfstream I	RDA7	A	1	6.5	5.4	5.4
Gulfstream I	RDA7	D	1	6.5	5.4	5.4
Hawker HS-125 Series 700	1AS002	A	1	242.5	262.4	285.9
Hawker HS-125 Series 700	1AS002	D	1	242.5	262.4	285.9
Honda HA-420 Hondajet	1PW036	A	1	24.0	87.1	100.7
Honda HA-420 Hondajet	1PW036	D	1	24.0	87.1	100.7
Israel IAI-1125 Astra	1AS002	A	1	53.4	48.0	50.2
Israel IAI-1125 Astra	1AS002	D	1	53.4	48.0	50.2
Mooney M20-K	TSIO36	A	1	308.5	164.5	153.6
Mooney M20-K	TSIO36	D	1	308.5	164.5	153.6
Piaggio P.180 Avanti	PT6A60	A	1	219.3	181.2	168.3
Piaggio P.180 Avanti	PT6A60	D	1	219.3	181.2	168.3
Pilatus PC-12	PT67B	A	1	531.9	532.6	518.4
Pilatus PC-12	PT67B	D	1	531.9	532.6	518.4
Piper PA-24 Comanche	TIO540	A	1	91.4	41.4	38.6
Piper PA-24 Comanche	TIO540	D	1	91.4	41.4	38.6
Piper PA-28 Cherokee Series	O320	A	1	243.2	180.3	168.3
Piper PA-28 Cherokee Series	O320	D	1	243.2	180.3	168.3
Piper PA-31 Navajo	TIO540	A	1	29.7	27.8	28.2
Piper PA-31 Navajo	TIO540	D	1	29.7	27.8	28.2
Piper PA-32 Cherokee Six	TIO540	A	1	57.0	47.1	43.9
Piper PA-32 Cherokee Six	TIO540	D	1	57.0	47.1	43.9
Piper PA-34 Seneca	TSIO36	A	1	32.0	32.5	32.9
Piper PA-34 Seneca	TSIO36	D	1	32.0	32.5	32.9

Table 1-1: Fleet Mixes

Aircraft Description	Engine	Operation	Stage Length	2019	2029	2034
Piper PA46 (Piston)	TIO540	A	1	52.2	32.6	30.4
Piper PA46 (Piston)	TIO540	D	1	52.2	32.6	30.4
Piper PA46-TP Meridian	PT6A42	A	1	73.4	141.5	131.4
Piper PA46-TP Meridian	PT6A42	D	1	73.4	141.5	131.4
Raytheon Beech 55 Baron	TIO540	A	1	58.1	46.1	46.7
Raytheon Beech 55 Baron	TIO540	D	1	58.1	46.1	46.7
Raytheon Beech 60 Duke	TIO540	A	1	49.8	46.7	47.3
Raytheon Beech 60 Duke	TIO540	D	1	49.8	46.7	47.3
Raytheon Beech Baron 58	TIO540	A	1	269.4	283.0	286.7
Raytheon Beech Baron 58	TIO540	D	1	269.4	283.0	286.7
Raytheon Beech Bonanza 36	TIO540	A	1	1,090.5	742.8	693.4
Raytheon Beech Bonanza 36	TIO540	D	1	1,090.5	742.8	693.4
Raytheon Beechjet 400	1PW035	A	1	131.8	139.7	153.3
Raytheon Beechjet 400	1PW035	D	1	131.8	139.7	153.3
Raytheon C-12 Huron	PT6A42	A	1	277.2	272.0	260.0
Raytheon C-12 Huron	PT6A42	D	1	277.2	272.0	260.0
Raytheon Hawker 1000	1AS002	A	1	45.3	48.8	54.6
Raytheon Hawker 1000	1AS002	D	1	45.3	48.8	54.6
Raytheon Hawker 4000 Horizon	01P07PW145	A	1	2.2	1.8	1.8
Raytheon Hawker 4000 Horizon	01P07PW145	D	1	2.2	1.8	1.8
Raytheon King Air 100	PT6A28	A	1	239.6	282.4	265.5
Raytheon King Air 100	PT6A28	D	1	239.6	282.4	265.5
Raytheon Premier I	1PW036	A	1	88.6	44.8	46.6
Raytheon Premier I	1PW036	D	1	88.6	44.8	46.6
Raytheon Super King Air 300	P660AG	A	1	1,528.2	1,499.6	1,514.2
Raytheon Super King Air 300	P660AG	D	1	1,528.2	1,499.6	1,514.2
Robinson R22	IO320	A	1	782.1	922.6	926.5

Table 1-1: Fleet Mixes

Aircraft Description	Engine	Operation	Stage Length	2019	2029	2034
Robinson R22	IO320	D	1	782.1	922.6	926.5
Rockwell Sabreliner 65	1AS002	A	1	29.1	20.9	21.6
Rockwell Sabreliner 65	1AS002	D	1	29.1	20.9	21.6
Rockwell Twin Commander 690	TP10GT	A	1	2.2	1.8	1.8
Rockwell Twin Commander 690	TP10GT	D	1	2.2	1.8	1.8
Ryan Navion B	TIO540	A	1	36.8	33.8	31.5
Ryan Navion B	TIO540	D	1	36.8	33.8	31.5
Sikorsky SH-60 Sea Hawk	T70041	A	1	2.2	1.8	1.8
Sikorsky SH-60 Sea Hawk	T70041	D	1	2.2	1.8	1.8
SOCATA TBM 850	PT6A66	A	1	62.9	39.1	36.3
SOCATA TBM 850	PT6A66	D	1	62.9	39.1	36.3
T-38 Talon	J855HA	A	1	8.7	7.2	7.2
T-38 Talon	J855HA	D	1	8.7	7.2	7.2
Vans RV10 (FAS)	TIO540	A	1	49.8	94.2	108.4
Vans RV10 (FAS)	TIO540	D	1	49.8	94.2	108.4
Grand Total				**205,886**	**277,844**	**310,609**

Source: FAA TAF, TFMSC, T100, and HNTB analysis, 2022.

Appendix C-2:

Construction Emissions Analysis

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LIST OF TABLES

ATTACHMENTS

1 Introduction

This document presents the background, assumptions, approach, and methodology for preparing criteria pollutant and pollutant precursor construction emissions inventories for the Draft Environmental Assessment (EA) for Terminal B South Concourse Improvements at the Norman Y. Mineta San Jose International Airport (SJC or the Airport). For purposes of the air quality analysis, the study area is considered the entire geographic area that could be impacted by the Proposed Action. Therefore, the Study Area for air quality is the San Francisco Bay Area Air Basin (SFBAAB or Basin). Construction emissions were estimated using the California Emissions Estimator Model® (CalEEMod) version 2020.4.0.

For the Proposed Action, construction-related emissions are primarily associated with the exhaust from heavy equipment (i.e., backhoes, bulldozers, graders, etc.), delivery trucks (i.e., cement trucks, dump trucks, etc.) and construction worker vehicles getting to and from the airport construction site(s); dust from site preparation, land clearing, material handling, equipment movement on unpaved areas, and demolition activities; and fugitive emissions from the storage/transfer of raw materials. These emissions are temporary in nature and generally confined to the construction site and the access/egress roadways.

The construction emissions inventories were prepared in CalEEMod for: carbon monoxide (CO) and reactive organic gases (ROG) (precursors of ozone); nitrogen oxides (NO_x); sulfur dioxide (SO_2); particulate matter less than 10 micrometers in diameter (coarse or PM_{10}); and particulate matter less than 2.5 micrometers in diameter (fine or $PM_{2.5}$), as well as Greenhouse Gas Emissions (GHG) (i.e., CO_2, CH_4, N_20, and CO_{2e}) for the Proposed Action Alternatives six-year construction period, 2023 through 2028.

2 Regulatory Setting

Federal, state, and local governments all share responsibility for air quality management. The federal Clean Air Act (CAA) is the primary statute that establishes national ambient air quality standards (NAAQS). It also establishes regulatory authorities to design and enforce air quality regulations. The EPA promulgates the NAAQS to safeguard public health and environmental welfare against the detrimental effects of ambient air pollution. California has adopted their own set of ambient standards, California Ambient Air Quality Standards (CAAQS), that are generally more stringent than the federal standards for the criteria air pollutants.

SJC is located in Santa Clara County in California. At the state level, the California Air Resources Board (CARB) manages air quality, regulates mobile emissions sources, and oversees the activities of county and regional air districts within California. SJC is located within the SFBAAB. The Bay Area Air Quality Management District (BAAQMD) within CARB has jurisdiction over the Basin. The BAAQMD is responsible for ensuring that federal and state air quality standards are met by monitoring ambient air pollutant levels throughout the region and implementing strategies to attain the standards.

An area that violates an air quality standard is referred to as nonattainment. A maintenance area is one that has previously been in violation of the standard but has since implemented an avoidance plan and has had no additional violations over an extended period of time. The General Conformity Rule of the CAA (40 CFR Parts 51 and 93) prohibits federal agencies from permitting or funding projects that do not conform to an applicable State Implementation Plan (SIP). The General Conformity Rule applies only to areas that are designated "non-attainment" or "maintenance". As a means of demonstrating conformity with the SIP, project-related emissions of the applicable "non-attainment/maintenance" pollutants are compared to *de minimis* level thresholds.

Table 1 summarizes the NAAQS. Santa Clara County is current designated by the USEPA to be in a marginal non-attainment area with respect to the 2008 and 2015 8-hour O_3 standards; and moderate non-attainment for the 2006 $PM_{2.5}$ standard. and **Table 2** summarizes the CAAQS. The SFBAAB is designated by BAAQMD to be in a nonattainment area for O_3, PM_{10} and $PM_{2.5}$.[1]

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[1] BAAQMD, Air Quality Standards and Attainment Status, https://www.baaqmd.gov/about-air-quality/research-and-data/air-quality-standards-and-attainment-status, accessed 12/16/22.

Table 1

National Ambient Air Quality Standards

Pollutant	Primary/ Secondary	Averaging Period	Standards
Carbon Monoxide (CO)	Primary	1-hour	35 ppm
		8-hour	9 ppm
Ozone (O_3)	Primary and Secondary	8-hour[a]	0.070 ppm
Nitrogen Dioxide (NO_2)	Primary	1-hour[b]	0.10 ppm
	Primary and Secondary	Annual	0.053 ppm
Sulfur dioxide (SO_2)	Primary	1-hour[c]	0.075 ppm
	Secondary	3-hour[d]	0.5 ppm
Coarse Particulate matter (PM_{10})	Primary and Secondary	24-hour	150 µg/m^3
Fine Particulate matter ($PM_{2.5}$)	Primary and Secondary	24-hour[d]	35 µg/m^3
	Primary	Annual[e]	12 µg/m^3
	Secondary	Annual[e]	15 µg/m^3
Lead (Pb)	Primary and Secondary	3-month[f]	0.15 µg/m^3

Notes: ppm = parts per million; and µg/m^3 = micrograms per cubic meter.

(a) Standard based on the annual fourth-highest daily maximum 8-hour concentration, averaged over three years.
(b) Standard based on the 98th percentile of 1-hour daily maximum concentrations, averaged over three years.
(c) Standard based on the 99th percentile of 1-hour daily maximum concentrations, averaged over three years.
(d) Standard based on the daily 98th percentile, averaged over three years.
(e) Standard based on annual mean, averaged over three years.
(f) Corresponds to a rolling three-month average over three years of monitoring data.

* *Primary standards* provide public health protection, including protecting the health of "sensitive" populations such as asthmatics, children, and the elderly. *Secondary standards* provide public welfare protection, including protection against decreased visibility and damage to animals, crops, vegetation, and buildings.

Source: USEPA NAAQS Table, https://www.epa.gov/criteria-air-pollutants/naaqs-table, and USEPA Green Book, https://www.epa.gov/green-book, accessed 9/14/22.

Table 2

Bay Area Air Quality Management District California Ambient Air Quality Standards

Pollutant	Averaging Time	CAAQS[a]
Ozone (O_3)	1-Hour	0.09 ppm
	8-Hour[b]	0.070 ppm
Carbon Monoxide (CO)	1-Hour	20 ppm
	8-Hour	9.0 ppm
Nitrogen Dioxide (NO_2)	1-Hour	0.18 ppm
	Annual	0.030 ppm
Sulfur Dioxide (SO_2)	1-Hour	0.25 ppm
	24-Hour	0.04 ppm
Coarse Particulate Matter (PM_{10})	24-Hour	50 µg/m^3
	Annual[c]	20 µg/m^3
Fine Particulate Matter ($PM_{2.5}$)	Annual[c]	12 µg/m^3
Lead	30-day Average	1.5 µg/m^3
Sulfates	24-Hour	25 µg/m^3
Hydrogen Sulfide	1-Hour	0.03 ppm
Vinyl Chloride	24-Hour	0.010 ppm
Visibility Reducing Particles	8-Hour	0.23/km

Notes:

[a] California standards for ozone, carbon monoxide (except Lake Tahoe), sulfur dioxide (1-hour and 24-hour), nitrogen dioxide, suspended particulate matter - PM_{10}, and visibility reducing particles are values that are not to be exceeded. The standards for sulfates, lead, hydrogen sulfide, and vinyl chloride are not to be equaled or exceeded. If the standard is for a 1-hour, 8-hour or 24-hour average (i.e., all standards except for lead and the PM_{10} annual standard), then some measurements may be excluded. In particular, measurements are excluded that ARB determines would occur less than once per year on the average.

[b] The 8-hour CA ozone standard was approved by the Air Resources Board on April 28, 2005 and became effective on May 17, 2006.

[c] In June 2002, CARB established new annual standards for $PM_{2.5}$ and PM_{10}.

Sources: CARB BAAQMD, Air Quality Standards and Attainment Status, https://www.baaqmd.gov/about-air-quality/research-and-data/air-quality-standards-and-attainment-status, accessed 5/25/22.

Table 3 summarizes the NAAQS *de minimis* thresholds set by EPA.

Table 3

NAAQS Attainment/ Non-attainment Designations and Applicable *de minimis* Thresholds

Pollutant	NAAQS Designation	*de minimis* Threshold (tons/year)
Carbon Monoxide (CO)	Maintenance	100
Lead (Pb)	Attainment	-
Nitrogen Dioxide (NO_2)	Attainment	-
Sulfur Dioxide (SO_2)	Attainment	-
Ozone (O_3)	Nonattainment	100 (NO_x and VOCs)[1]
Particulate Matter (PM_{10})	Attainment	-
Particulate Matter ($PM_{2.5}$)	Nonattainment	100

Note:

[1] NO_x and VOCs are precursors to ozone formation.

Source: EPA, General Conformity *De Minimis* Tables, https://www.epa.gov/general-conformity/de-minimis-tables, 2022.

3 Model Input

Construction emissions were estimated using the California Emissions Estimator Model® (CalEEMod) version 2020.4.0. The model was developed for the California Air Pollution Officers Association (CAPCOA) in collaboration with the California Air Districts[2]. It can model criteria pollutants including ROG, NOx, CO, SO_2, PM_{10}, $PM_{2.5}$, Fugitive PM_{10}, and Fugitive $PM_{2.5}$. In addition, it can model GHGs including Biogenic Carbon Dioxide (Bio-CO_2), Non-Biogenic Carbon Dioxide (Nbio-CO_2), CO_2, CH_4, Nitrous Oxide (N_2O), and CO_{2e}. CalEEMod applies widely accepted methodologies for modeling emissions including the EPA AP-42 emission factors, California Air Resources Board (CARB) vehicle emission models, studies commissioned by California agencies such as the California Energy Commission (CEC) and CalRecycle. Default values are incorporated in the model to account for different policies and requirements for different California Air Districts.

The following activities can be modeled by CalEEMod[3]:

- Short-term construction emissions from the following sources:
  - Off-road construction equipment;
  - On-road mobile equipment associated with workers, vendors, and hauling;
  - Fugitive dust associated with grading, demolition, truck loading, and on-road vehicles traveling along paved and unpaved roads; and,

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[2] California Emissions Estimator Model (CalEEMod), http://www.caleemod.com/, accessed November 2021.

[3] CalEEMod User's Guide, Version 2016.3.2, prepared for California Air Pollution Control Officers Association (CAPCOA), http://www.aqmd.gov/caleemod/user's-guide, accessed November 2021.

  - Architectural coating activities (including the painting/striping of parking lots) and paving (ROG).
- Operational emissions for fully built-out land use developments
  - On-road mobile vehicle traffic generated by the land uses;
  - Fugitive dust associated with roads;
  - Architectural coating activities (ROG);
  - Off-road equipment (e.g., forklifts, cranes) used during operation;
  - Landscaping equipment;
  - Emergency generators, fire pumps, and process boilers;
  - Use of consumer products, parking lot degreasers, fertilizers/pesticides, and cleaning supplies (ROG);
  - Wood stoves and hearth usage;
  - Natural gas usage in the buildings;
  - Electricity usage in the buildings (GHG only);
  - Electricity usage from lighting in parking lots and lighting, ventilation and elevators in parking structures;
  - Water usage per land use (GHG only); and,
  - Solid waste disposal per land use (GHG only).
- On-time vegetation sequestration changes
- Mitigation adjustments to both short-term construction and operational emissions. Several of the mitigation measures described in CAPCOA's Quantifying Greenhouse Gas Mitigation Measure have been incorporated into CalEEMod.

This study focused on the short-term construction emissions as a result of the Proposed Action Alternative in the Draft EA. The model inputs require project duration, land area, and building areas.

CalEEMod also includes mitigated emission modeling which allows the user to define engine tier for equipment types included in the model. Note that SJC requires the use of Tier 4 final engine emission standards for all off-road construction equipment. The construction emissions inventory was developed in CalEEMod with the assumption that all off-road construction equipment would use Tier 4 final engines (as indicated by "mitigated construction" emissions in the CalEEMod output, see ***Attachment 1***). To ensure implementation, Tier 4 engine requirements would be included in construction contracts, plans and specifications as needed.

3.1 Terminal B South Concourse

SJC provided the required inputs of durations and building areas for the South Concourse construction. **Table 4** shows the inputs to the CalEEMod model for South Concourse gate construction, which was broken into two phases: Gates 29-37 and Gates 38-42.

Table 4

South Concourse Terminal Projects, Duration, and Area

Project Description	Phase	Construction Duration	Land Area (acres)	Building Area (sqft)
Construct 16 airline gates with jet bridges and up to 750,000 SF of terminal building space	Gates 29-37	12/2023-3/2027	5.9	475,000
	Gates 38-42	9/2025-3/2028	3.3	268,000

Source: SJC and HNTB analysis, 2022.

Other general inputs to CalEEMod model include the following:

- Project Location: Santa Clara County
- CEC Forecasting Climate Zone: 4
- Land Use Setting: Urban
- Utility Company: Pacific Gas and Electric Company

CalEEMod default values for the Santa Clara County were applied to parameters not specified above. Based on these inputs, construction emissions for different years were estimated.

3.2 Apron Reconstruction

A high-level resource loaded construction schedule was developed based on SJC provided project durations and apron areas by phase for the apron reconstruction project. The construction schedule provided estimates of construction activity levels for the apron reconstruction, including hours of operation for off-road construction equipment and vehicle miles traveled for on-road trucks and employee vehicles. Construction activities were estimated based on the projected construction schedule for Phase 4, 5, 6 and 7 apron reconstruction, including apron areas. See ***Attachment 2*** for the Apron Reconstruction construction schedule. The apron reconstruction activity levels were input into CalEEMod as construction “Off-Road Equipment” activity and construction “Trips and VMT.”

Table 5 shows the inputs to the CalEEMod model for apron reconstruction, which is broken into Phases (4 through 7).

Table 5

Apron Reconstruction Projects, Duration, and Area

Project Description	Phase[1]	Construction Duration	Apron Area (sq. ft.)
Construct 392,000 square feet of apron pavement.	Phase 4	11/2023-4/2024	100,000
	Phase 5	2/2025-7/2025	75,000
	Phase 6	2/2026-7/2026	87,000
	Phase 7	2/2027-7/2027	130,000

Note: [1]The Proposed Action Alternative includes Phase 4 through 7 of Terminal B apron reconstruction. The timing for apron reconstruction is largely based on the availability of AIP funding. Environmental approval of Phases 1 through 4 was received in 2017 (FAA approved CATEX in January 2017). Phases 1 through 3 were completed in 2019. Although Phase 4 received approval under the 2017 CATEX, the project was not funded. Therefore, Phase 4 is included as part of this Proposed Action Alternative.

Source: SJC and HNTB analysis, 2022

4 Model Output

Table 6 summarizes the Proposed Action Alternative emissions in 2023 through 2028 resulting from construction activities modeled in CalEEMod. These construction emissions assume implementation of Tier 4 final standards for all off-road equipment, which serves to significantly reduce NO_x and PM emissions. To ensure implementation, Tier 4 engine requirements are included by SJC in all applicable construction contracts, plans and specifications. Therefore, the construction emissions inventory was developed in CalEEMod with a Tier 4 final engines input for all off-road construction equipment.

Table 5 compares the total construction emissions by year to the NAAQS *de minimis* thresholds of significance. As shown, the construction-related emissions are below the applicable NAAQS thresholds for all pollutants/precursors and construction years.

Table 6
Proposed Action Alternative CalEEMod Construction Emissions

Year	Pollutants (tons/year)					
	CO	NO_x	VOC	SO_2	$PM_{2.5}$	PM_{10}
2023	1.8	0.2	<0.1	<0.1	<0.1	<0.1
2024	5.4	0.7	0.1	<0.1	0.4	0.8
2025	7.7	1.2	0.2	<0.1	0.2	0.6
2026	9.8	1.6	0.3	<0.1	0.4	0.9
2027	3.3	0.8	2.6	<0.1	0.1	0.2
2028	0.2	<0.1	1.4	<0.1	<0.1	<0.1
NAAQS *de minimis* threshold	*100*	*100*	*100*	--	--	*100*

Notes:
Volatile organic compounds (VOCs) are referred as reactive organic gases (ROG) in CalEEMod.

Source: CalEEMod, HNTB analysis 2022.

Table 7 depicts the construction GHG emissions on an annual basis in metric tonnes for all construction years.

Table 7

Proposed Action Alternative CalEEMod Construction GHG Emissions

Year	CO_2e (MT/year)
2023	216
2024	757
2025	1,158
2026	1,495
2027	582
2028	31

Source: CalEEMod, HNTB analysis 2022.

5 Avoidance, Minimization, and Mitigation Measures

There are no mitigation measures required for the project because the project-related emissions would not exceed the CAA General Conformity *de minimis* levels, and therefore there are no significant impacts.

As it relates to construction emissions, SJC requires the use of Tier 4 final engine emission standards for all off-road construction equipment as a measure to minimize construction related emissions. The emissions inventory developed in CalEEMod includes the use of Tier 4 final engine emission factors for off-road equipment. To ensure implementation, Tier 4 engine requirements would be included in construction contracts and plans.

While construction-related emissions would be well below *de minimis* thresholds and temporary in nature, the emissions would be further reduced by employing construction best management practices (BMPs). As summarized in **Table 8**, BAAQMD recommends basic construction measures for all projects whether or not emissions exceed applicable thresholds.

Table 8

BMPs for Proposed Action Alternative

Number	Description
1	All exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) shall be watered two times per day.
2	All haul trucks transporting soil, sand, or other loose material off-site shall be covered.
3	All visible mud or dirt track-out onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day. The use of dry power sweeping is prohibited.
4	All vehicle speeds on unpaved roads shall be limited to 15 mph.
5	All roadways, driveways, and sidewalks to be paved shall be completed as soon as possible. Building pads shall be laid as soon as possible after grading unless seeding or soil binders are used.
6	Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to 5 minutes (as required by the California airborne toxics control measure Title 13, Section 2485 of California Code of Regulations [CCR]). Clear signage shall be provided for construction workers at all access points.
7	All construction equipment shall be maintained and properly tuned in accordance with manufacturer’s specifications. All equipment shall be checked by a certified mechanic and determined to be running in proper condition prior to operation.
8	Post a publicly visible sign with the telephone number and person to contact at the Lead Agency regarding dust complaints. This person shall respond and take corrective action within 48 hours. The Air District’s phone number shall also be visible to ensure compliance with applicable regulations.

Source: BAAQMD CEQA Air Quality Guidance Table 8.2.

Attachment 1:

CalEEMod Output

SJC Terminal B Extension Gates 29-37

Santa Clara County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Refrigerated Warehouse-Rail	475.00	1000sqft	5.90	475,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	58
Climate Zone	4			**Operational Year**	2028
Utility Company	Pacific Gas and Electric Company				
CO2 Intensity (lb/MWhr)	203.98	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - SJC input

Construction Phase - Based on SJC Master Plan schedule

Grading - Based on total area

Construction Off-road Equipment Mitigation - Assume Tier 4 final engines

Table Name	Column Name	Default Value	New Value
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00

tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	6.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	10.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
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tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstructionPhase	NumDays	20.00	60.00
tblConstructionPhase	NumDays	10.00	50.00
tblConstructionPhase	NumDays	20.00	50.00
tblConstructionPhase	NumDays	230.00	630.00
tblConstructionPhase	NumDays	20.00	40.00
tblConstructionPhase	PhaseEndDate	12/28/2023	2/22/2024
tblConstructionPhase	PhaseEndDate	1/11/2024	5/31/2024
tblConstructionPhase	PhaseEndDate	2/8/2024	8/9/2024
tblConstructionPhase	PhaseEndDate	12/26/2024	1/8/2027
tblConstructionPhase	PhaseEndDate	1/23/2025	3/5/2027
tblConstructionPhase	PhaseStartDate	12/29/2023	3/23/2024
tblConstructionPhase	PhaseStartDate	1/12/2024	6/1/2024
tblConstructionPhase	PhaseStartDate	2/9/2024	8/10/2024
tblConstructionPhase	PhaseStartDate	12/27/2024	1/9/2027

tblGrading	AcresOfGrading	50.00	20.00
tblGrading	AcresOfGrading	75.00	15.00
tblLandUse	LotAcreage	10.90	5.90

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2023	0.0242	0.2259	0.2098	4.2000e-004	1.2500e-003	0.0105	0.0117	3.3000e-004	9.7500e-003	0.0101	0.0000	36.6426	36.6426	0.0100	3.0000e-005	36.9011
2024	0.2576	2.3928	2.3267	5.3500e-003	0.7367	0.1003	0.8370	0.3645	0.0932	0.4576	0.0000	477.4193	477.4193	0.0981	0.0132	483.8056
2025	0.2466	2.1156	2.7468	7.1400e-003	0.2740	0.0725	0.3465	0.0744	0.0682	0.1426	0.0000	646.1926	646.1926	0.0791	0.0325	657.8628
2026	0.2434	2.1094	2.7167	7.0600e-003	0.2740	0.0724	0.3464	0.0744	0.0681	0.1426	0.0000	638.2609	638.2609	0.0787	0.0318	649.6907
2027	2.4874	0.0722	0.1121	2.7000e-004	0.0126	2.7200e-003	0.0154	3.4000e-003	2.6200e-003	6.0200e-003	0.0000	23.8594	23.8594	2.1800e-003	8.2000e-004	24.1576
Maximum	**2.4874**	**2.3928**	**2.7468**	**7.1400e-003**	**0.7367**	**0.1003**	**0.8370**	**0.3645**	**0.0932**	**0.4576**	**0.0000**	**646.1926**	**646.1926**	**0.0981**	**0.0325**	**657.8628**

2.1 Overall Construction

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2023	5.2500e-003	0.0213	0.2480	4.2000e-004	1.2500e-003	6.5000e-004	1.9000e-003	3.3000e-004	6.5000e-004	9.9000e-004	0.0000	36.6426	36.6426	0.0100	3.0000e-005	36.9011
2024	0.0772	0.4377	2.6005	5.3500e-003	0.7367	7.5200e-003	0.7442	0.3645	7.4400e-003	0.3719	0.0000	477.4189	477.4189	0.0981	0.0132	483.8052
2025	0.1110	0.7799	2.9263	7.1400e-003	0.2740	8.9400e-003	0.2830	0.0744	8.7500e-003	0.0832	0.0000	646.1923	646.1923	0.0791	0.0325	657.8625
2026	0.1077	0.7737	2.8962	7.0600e-003	0.2740	8.8900e-003	0.2829	0.0744	8.7000e-003	0.0831	0.0000	638.2605	638.2605	0.0787	0.0318	649.6904
2027	2.4814	0.0212	0.1167	2.7000e-004	0.0126	3.1000e-004	0.0130	3.4000e-003	3.0000e-004	3.7000e-003	0.0000	23.8593	23.8593	2.1800e-003	8.2000e-004	24.1576
Maximum	**2.4814**	**0.7799**	**2.9263**	**7.1400e-003**	**0.7367**	**8.9400e-003**	**0.7442**	**0.3645**	**8.7500e-003**	**0.3719**	**0.0000**	**646.1923**	**646.1923**	**0.0981**	**0.0325**	**657.8625**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**14.62**	**70.59**	**-8.33**	**0.00**	**0.00**	**89.82**	**14.91**	**0.00**	**89.32**	**28.46**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	**Start Date**	**End Date**	**Maximum Unmitigated ROG + NOX (tons/quarter)**	**Maximum Mitigated ROG + NOX (tons/quarter)**
1	**12-1-2023**	**2-29-2024**	0.7026	0.0759
2	**3-1-2024**	**5-31-2024**	0.7477	0.0638
3	**6-1-2024**	**8-31-2024**	0.6190	0.1031
4	**9-1-2024**	**11-30-2024**	0.6274	0.2260
5	**12-1-2024**	**2-28-2025**	0.5990	0.2247
6	**3-1-2025**	**5-31-2025**	0.5935	0.2231
7	**6-1-2025**	**8-31-2025**	0.5906	0.2202

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

8	**9-1-2025**	**11-30-2025**	0.5899	0.2235
9	**12-1-2025**	**2-28-2026**	0.5846	0.2222
10	**3-1-2026**	**5-31-2026**	0.5911	0.2207
11	**6-1-2026**	**8-31-2026**	0.5883	0.2178
12	**9-1-2026**	**11-30-2026**	0.5875	0.2211
13	**12-1-2026**	**2-28-2027**	2.5349	2.3568
14	**3-1-2027**	**5-31-2027**	0.2237	0.2217
		Highest	2.5349	2.3568

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	2.1032	4.0000e-005	4.3500e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	8.4900e-003	8.4900e-003	2.0000e-005	0.0000	9.0400e-003
Energy	9.6800e-003	0.0880	0.0739	5.3000e-004		6.6900e-003	6.6900e-003		6.6900e-003	6.6900e-003	0.0000	523.4365	523.4365	0.0710	0.0101	528.2343
Mobile	0.3764	0.4157	3.8440	8.6700e-003	1.0863	5.7100e-003	1.0920	0.2900	5.3100e-003	0.2953	0.0000	799.4284	799.4284	0.0456	0.0350	811.0077
Waste						0.0000	0.0000		0.0000	0.0000	90.6355	0.0000	90.6355	5.3564	0.0000	224.5455
Water						0.0000	0.0000		0.0000	0.0000	34.8484	54.9929	89.8412	3.5882	0.0856	205.0517
Total	**2.4893**	**0.5037**	**3.9223**	**9.2000e-003**	**1.0863**	**0.0124**	**1.0987**	**0.2900**	**0.0120**	**0.3020**	**125.4838**	**1,377.8662**	**1,503.3500**	**9.0612**	**0.1308**	**1,768.8483**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	2.1032	4.0000e-005	4.3500e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	8.4900e-003	8.4900e-003	2.0000e-005	0.0000	9.0400e-003
Energy	9.6800e-003	0.0880	0.0739	5.3000e-004		6.6900e-003	6.6900e-003		6.6900e-003	6.6900e-003	0.0000	523.4365	523.4365	0.0710	0.0101	528.2343
Mobile	0.3764	0.4157	3.8440	8.6700e-003	1.0863	5.7100e-003	1.0920	0.2900	5.3100e-003	0.2953	0.0000	799.4284	799.4284	0.0456	0.0350	811.0077
Waste						0.0000	0.0000		0.0000	0.0000	90.6355	0.0000	90.6355	5.3564	0.0000	224.5455
Water						0.0000	0.0000		0.0000	0.0000	34.8484	54.9929	89.8412	3.5882	0.0856	205.0517
Total	**2.4893**	**0.5037**	**3.9223**	**9.2000e-003**	**1.0863**	**0.0124**	**1.0987**	**0.2900**	**0.0120**	**0.3020**	**125.4838**	**1,377.8662**	**1,503.3500**	**9.0612**	**0.1308**	**1,768.8483**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	12/1/2023	2/22/2024	5	60	
2	Site Preparation	Site Preparation	3/23/2024	5/31/2024	5	50	
3	Grading	Grading	6/1/2024	8/9/2024	5	50	

4	Building Construction	Building Construction	8/10/2024	1/8/2027	5	630	
5	Architectural Coating	Architectural Coating	1/9/2027	3/5/2027	5	40	

Acres of Grading (Site Preparation Phase): 15

Acres of Grading (Grading Phase): 20

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 712,500; Non-Residential Outdoor: 237,500; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Excavators	3	8.00	158	0.38
Demolition	Rubber Tired Dozers	2	8.00	247	0.40
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	1	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	7	18.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	200.00	78.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	40.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

3.2 Demolition - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0238	0.2256	0.2063	4.1000e-004		0.0105	0.0105		9.7400e-003	9.7400e-003	0.0000	35.6917	35.6917	0.0100	0.0000	35.9416
Total	**0.0238**	**0.2256**	**0.2063**	**4.1000e-004**		**0.0105**	**0.0105**		**9.7400e-003**	**9.7400e-003**	**0.0000**	**35.6917**	**35.6917**	**0.0100**	**0.0000**	**35.9416**

3.2 Demolition - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.9000e-004	2.7000e-004	3.5200e-003	1.0000e-005	1.2500e-003	1.0000e-005	1.2600e-003	3.3000e-004	1.0000e-005	3.4000e-004	0.0000	0.9510	0.9510	3.0000e-005	3.0000e-005	0.9596
Total	**3.9000e-004**	**2.7000e-004**	**3.5200e-003**	**1.0000e-005**	**1.2500e-003**	**1.0000e-005**	**1.2600e-003**	**3.3000e-004**	**1.0000e-005**	**3.4000e-004**	**0.0000**	**0.9510**	**0.9510**	**3.0000e-005**	**3.0000e-005**	**0.9596**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	4.8500e-003	0.0210	0.2444	4.1000e-004		6.5000e-004	6.5000e-004		6.5000e-004	6.5000e-004	0.0000	35.6916	35.6916	0.0100	0.0000	35.9415
Total	**4.8500e-003**	**0.0210**	**0.2444**	**4.1000e-004**		**6.5000e-004**	**6.5000e-004**		**6.5000e-004**	**6.5000e-004**	**0.0000**	**35.6916**	**35.6916**	**0.0100**	**0.0000**	**35.9415**

3.2 Demolition - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.9000e-004	2.7000e-004	3.5200e-003	1.0000e-005	1.2500e-003	1.0000e-005	1.2600e-003	3.3000e-004	1.0000e-005	3.4000e-004	0.0000	0.9510	0.9510	3.0000e-005	3.0000e-005	0.9596
Total	**3.9000e-004**	**2.7000e-004**	**3.5200e-003**	**1.0000e-005**	**1.2500e-003**	**1.0000e-005**	**1.2600e-003**	**3.3000e-004**	**1.0000e-005**	**3.4000e-004**	**0.0000**	**0.9510**	**0.9510**	**3.0000e-005**	**3.0000e-005**	**0.9596**

3.2 Demolition - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0438	0.4071	0.3843	7.6000e-004		0.0187	0.0187		0.0174	0.0174	0.0000	66.2923	66.2923	0.0186	0.0000	66.7560
Total	**0.0438**	**0.4071**	**0.3843**	**7.6000e-004**		**0.0187**	**0.0187**		**0.0174**	**0.0174**	**0.0000**	**66.2923**	**66.2923**	**0.0186**	**0.0000**	**66.7560**

3.2 Demolition - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.9000e-004	4.6000e-004	6.0900e-003	2.0000e-005	2.3200e-003	1.0000e-005	2.3300e-003	6.2000e-004	1.0000e-005	6.3000e-004	0.0000	1.7096	1.7096	5.0000e-005	5.0000e-005	1.7245
Total	**6.9000e-004**	**4.6000e-004**	**6.0900e-003**	**2.0000e-005**	**2.3200e-003**	**1.0000e-005**	**2.3300e-003**	**6.2000e-004**	**1.0000e-005**	**6.3000e-004**	**0.0000**	**1.7096**	**1.7096**	**5.0000e-005**	**5.0000e-005**	**1.7245**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	9.0100e-003	0.0391	0.4540	7.6000e-004		1.2000e-003	1.2000e-003		1.2000e-003	1.2000e-003	0.0000	66.2922	66.2922	0.0186	0.0000	66.7559
Total	**9.0100e-003**	**0.0391**	**0.4540**	**7.6000e-004**		**1.2000e-003**	**1.2000e-003**		**1.2000e-003**	**1.2000e-003**	**0.0000**	**66.2922**	**66.2922**	**0.0186**	**0.0000**	**66.7559**

3.2 Demolition - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.9000e-004	4.6000e-004	6.0900e-003	2.0000e-005	2.3200e-003	1.0000e-005	2.3300e-003	6.2000e-004	1.0000e-005	6.3000e-004	0.0000	1.7096	1.7096	5.0000e-005	5.0000e-005	1.7245
Total	**6.9000e-004**	**4.6000e-004**	**6.0900e-003**	**2.0000e-005**	**2.3200e-003**	**1.0000e-005**	**2.3300e-003**	**6.2000e-004**	**1.0000e-005**	**6.3000e-004**	**0.0000**	**1.7096**	**1.7096**	**5.0000e-005**	**5.0000e-005**	**1.7245**

3.3 Site Preparation - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.4596	0.0000	0.4596	0.2491	0.0000	0.2491	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0665	0.6794	0.4584	9.5000e-004		0.0307	0.0307		0.0283	0.0283	0.0000	83.6427	83.6427	0.0271	0.0000	84.3190
Total	**0.0665**	**0.6794**	**0.4584**	**9.5000e-004**	**0.4596**	**0.0307**	**0.4903**	**0.2491**	**0.0283**	**0.2774**	**0.0000**	**83.6427**	**83.6427**	**0.0271**	**0.0000**	**84.3190**

3.3 Site Preparation - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.0500e-003	7.0000e-004	9.3700e-003	3.0000e-005	3.5700e-003	2.0000e-005	3.5900e-003	9.5000e-004	2.0000e-005	9.6000e-004	0.0000	2.6302	2.6302	7.0000e-005	7.0000e-005	2.6530
Total	**1.0500e-003**	**7.0000e-004**	**9.3700e-003**	**3.0000e-005**	**3.5700e-003**	**2.0000e-005**	**3.5900e-003**	**9.5000e-004**	**2.0000e-005**	**9.6000e-004**	**0.0000**	**2.6302**	**2.6302**	**7.0000e-005**	**7.0000e-005**	**2.6530**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.4596	0.0000	0.4596	0.2491	0.0000	0.2491	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0116	0.0504	0.5217	9.5000e-004		1.5500e-003	1.5500e-003		1.5500e-003	1.5500e-003	0.0000	83.6426	83.6426	0.0271	0.0000	84.3189
Total	**0.0116**	**0.0504**	**0.5217**	**9.5000e-004**	**0.4596**	**1.5500e-003**	**0.4612**	**0.2491**	**1.5500e-003**	**0.2507**	**0.0000**	**83.6426**	**83.6426**	**0.0271**	**0.0000**	**84.3189**

3.3 Site Preparation - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.0500e-003	7.0000e-004	9.3700e-003	3.0000e-005	3.5700e-003	2.0000e-005	3.5900e-003	9.5000e-004	2.0000e-005	9.6000e-004	0.0000	2.6302	2.6302	7.0000e-005	7.0000e-005	2.6530
Total	**1.0500e-003**	**7.0000e-004**	**9.3700e-003**	**3.0000e-005**	**3.5700e-003**	**2.0000e-005**	**3.5900e-003**	**9.5000e-004**	**2.0000e-005**	**9.6000e-004**	**0.0000**	**2.6302**	**2.6302**	**7.0000e-005**	**7.0000e-005**	**2.6530**

3.4 Grading - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1612	0.0000	0.1612	0.0839	0.0000	0.0839	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0415	0.4258	0.3690	7.4000e-004		0.0181	0.0181		0.0167	0.0167	0.0000	65.1598	65.1598	0.0211	0.0000	65.6866
Total	**0.0415**	**0.4258**	**0.3690**	**7.4000e-004**	**0.1612**	**0.0181**	**0.1793**	**0.0839**	**0.0167**	**0.1006**	**0.0000**	**65.1598**	**65.1598**	**0.0211**	**0.0000**	**65.6866**

3.4 Grading - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	8.8000e-004	5.8000e-004	7.8100e-003	2.0000e-005	2.9700e-003	1.0000e-005	2.9900e-003	7.9000e-004	1.0000e-005	8.0000e-004	0.0000	2.1919	2.1919	6.0000e-005	6.0000e-005	2.2109
Total	**8.8000e-004**	**5.8000e-004**	**7.8100e-003**	**2.0000e-005**	**2.9700e-003**	**1.0000e-005**	**2.9900e-003**	**7.9000e-004**	**1.0000e-005**	**8.0000e-004**	**0.0000**	**2.1919**	**2.1919**	**6.0000e-005**	**6.0000e-005**	**2.2109**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1612	0.0000	0.1612	0.0839	0.0000	0.0839	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	9.0800e-003	0.0393	0.4438	7.4000e-004		1.2100e-003	1.2100e-003		1.2100e-003	1.2100e-003	0.0000	65.1597	65.1597	0.0211	0.0000	65.6865
Total	**9.0800e-003**	**0.0393**	**0.4438**	**7.4000e-004**	**0.1612**	**1.2100e-003**	**0.1624**	**0.0839**	**1.2100e-003**	**0.0851**	**0.0000**	**65.1597**	**65.1597**	**0.0211**	**0.0000**	**65.6865**

3.4 Grading - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	8.8000e-004	5.8000e-004	7.8100e-003	2.0000e-005	2.9700e-003	1.0000e-005	2.9900e-003	7.9000e-004	1.0000e-005	8.0000e-004	0.0000	2.1919	2.1919	6.0000e-005	6.0000e-005	2.2109
Total	**8.8000e-004**	**5.8000e-004**	**7.8100e-003**	**2.0000e-005**	**2.9700e-003**	**1.0000e-005**	**2.9900e-003**	**7.9000e-004**	**1.0000e-005**	**8.0000e-004**	**0.0000**	**2.1919**	**2.1919**	**6.0000e-005**	**6.0000e-005**	**2.2109**

3.5 Building Construction - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0751	0.6856	0.8245	1.3700e-003		0.0313	0.0313		0.0294	0.0294	0.0000	118.2430	118.2430	0.0280	0.0000	118.9421
Total	**0.0751**	**0.6856**	**0.8245**	**1.3700e-003**		**0.0313**	**0.0313**		**0.0294**	**0.0294**	**0.0000**	**118.2430**	**118.2430**	**0.0280**	**0.0000**	**118.9421**

3.5 Building Construction - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	4.2500e-003	0.1772	0.0548	8.0000e-004	0.0262	1.0500e-003	0.0272	7.5700e-003	1.0000e-003	8.5800e-003	0.0000	77.9314	77.9314	1.6400e-003	0.0114	81.3782
Worker	0.0239	0.0159	0.2125	6.5000e-004	0.0809	3.8000e-004	0.0813	0.0215	3.5000e-004	0.0219	0.0000	59.6184	59.6184	1.6100e-003	1.6000e-003	60.1355
Total	**0.0281**	**0.1931**	**0.2673**	**1.4500e-003**	**0.1071**	**1.4300e-003**	**0.1085**	**0.0291**	**1.3500e-003**	**0.0305**	**0.0000**	**137.5498**	**137.5498**	**3.2500e-003**	**0.0130**	**141.5136**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0167	0.1140	0.8905	1.3700e-003		2.0800e-003	2.0800e-003		2.0800e-003	2.0800e-003	0.0000	118.2429	118.2429	0.0280	0.0000	118.9419
Total	**0.0167**	**0.1140**	**0.8905**	**1.3700e-003**		**2.0800e-003**	**2.0800e-003**		**2.0800e-003**	**2.0800e-003**	**0.0000**	**118.2429**	**118.2429**	**0.0280**	**0.0000**	**118.9419**

3.5 Building Construction - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	4.2500e-003	0.1772	0.0548	8.0000e-004	0.0262	1.0500e-003	0.0272	7.5700e-003	1.0000e-003	8.5800e-003	0.0000	77.9314	77.9314	1.6400e-003	0.0114	81.3782
Worker	0.0239	0.0159	0.2125	6.5000e-004	0.0809	3.8000e-004	0.0813	0.0215	3.5000e-004	0.0219	0.0000	59.6184	59.6184	1.6100e-003	1.6000e-003	60.1355
Total	**0.0281**	**0.1931**	**0.2673**	**1.4500e-003**	**0.1071**	**1.4300e-003**	**0.1085**	**0.0291**	**1.3500e-003**	**0.0305**	**0.0000**	**137.5498**	**137.5498**	**3.2500e-003**	**0.0130**	**141.5136**

3.5 Building Construction - 2025

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1785	1.6273	2.0991	3.5200e-003		0.0689	0.0689		0.0648	0.0648	0.0000	302.6549	302.6549	0.0711	0.0000	304.4335
Total	**0.1785**	**1.6273**	**2.0991**	**3.5200e-003**		**0.0689**	**0.0689**		**0.0648**	**0.0648**	**0.0000**	**302.6549**	**302.6549**	**0.0711**	**0.0000**	**304.4335**

3.5 Building Construction - 2025

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0106	0.4517	0.1380	2.0100e-003	0.0670	2.6900e-003	0.0697	0.0194	2.5700e-003	0.0220	0.0000	196.0327	196.0327	4.1600e-003	0.0287	204.6858
Worker	0.0576	0.0366	0.5097	1.6100e-003	0.2070	9.3000e-004	0.2079	0.0551	8.6000e-004	0.0559	0.0000	147.5050	147.5050	3.7500e-003	3.8400e-003	148.7435
Total	**0.0682**	**0.4883**	**0.6477**	**3.6200e-003**	**0.2740**	**3.6200e-003**	**0.2776**	**0.0744**	**3.4300e-003**	**0.0779**	**0.0000**	**343.5378**	**343.5378**	**7.9100e-003**	**0.0325**	**353.4293**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0428	0.2916	2.2786	3.5200e-003		5.3200e-003	5.3200e-003		5.3200e-003	5.3200e-003	0.0000	302.6545	302.6545	0.0711	0.0000	304.4331
Total	**0.0428**	**0.2916**	**2.2786**	**3.5200e-003**		**5.3200e-003**	**5.3200e-003**		**5.3200e-003**	**5.3200e-003**	**0.0000**	**302.6545**	**302.6545**	**0.0711**	**0.0000**	**304.4331**

3.5 Building Construction - 2025

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0106	0.4517	0.1380	2.0100e-003	0.0670	2.6900e-003	0.0697	0.0194	2.5700e-003	0.0220	0.0000	196.0327	196.0327	4.1600e-003	0.0287	204.6858
Worker	0.0576	0.0366	0.5097	1.6100e-003	0.2070	9.3000e-004	0.2079	0.0551	8.6000e-004	0.0559	0.0000	147.5050	147.5050	3.7500e-003	3.8400e-003	148.7435
Total	**0.0682**	**0.4883**	**0.6477**	**3.6200e-003**	**0.2740**	**3.6200e-003**	**0.2776**	**0.0744**	**3.4300e-003**	**0.0779**	**0.0000**	**343.5378**	**343.5378**	**7.9100e-003**	**0.0325**	**353.4293**

3.5 Building Construction - 2026

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1785	1.6273	2.0991	3.5200e-003		0.0689	0.0689		0.0648	0.0648	0.0000	302.6549	302.6549	0.0711	0.0000	304.4335
Total	**0.1785**	**1.6273**	**2.0991**	**3.5200e-003**		**0.0689**	**0.0689**		**0.0648**	**0.0648**	**0.0000**	**302.6549**	**302.6549**	**0.0711**	**0.0000**	**304.4335**

3.5 Building Construction - 2026

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0104	0.4487	0.1362	1.9800e-003	0.0670	2.6800e-003	0.0697	0.0194	2.5600e-003	0.0219	0.0000	192.5691	192.5691	4.1100e-003	0.0281	201.0517
Worker	0.0545	0.0334	0.4815	1.5600e-003	0.2070	8.9000e-004	0.2079	0.0551	8.2000e-004	0.0559	0.0000	143.0369	143.0369	3.4300e-003	3.6300e-003	144.2055
Total	**0.0649**	**0.4821**	**0.6177**	**3.5400e-003**	**0.2740**	**3.5700e-003**	**0.2776**	**0.0744**	**3.3800e-003**	**0.0778**	**0.0000**	**335.6060**	**335.6060**	**7.5400e-003**	**0.0318**	**345.2572**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0428	0.2916	2.2786	3.5200e-003		5.3200e-003	5.3200e-003		5.3200e-003	5.3200e-003	0.0000	302.6545	302.6545	0.0711	0.0000	304.4331
Total	**0.0428**	**0.2916**	**2.2786**	**3.5200e-003**		**5.3200e-003**	**5.3200e-003**		**5.3200e-003**	**5.3200e-003**	**0.0000**	**302.6545**	**302.6545**	**0.0711**	**0.0000**	**304.4331**

3.5 Building Construction - 2026

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0104	0.4487	0.1362	1.9800e-003	0.0670	2.6800e-003	0.0697	0.0194	2.5600e-003	0.0219	0.0000	192.5691	192.5691	4.1100e-003	0.0281	201.0517
Worker	0.0545	0.0334	0.4815	1.5600e-003	0.2070	8.9000e-004	0.2079	0.0551	8.2000e-004	0.0559	0.0000	143.0369	143.0369	3.4300e-003	3.6300e-003	144.2055
Total	**0.0649**	**0.4821**	**0.6177**	**3.5400e-003**	**0.2740**	**3.5700e-003**	**0.2776**	**0.0744**	**3.3800e-003**	**0.0778**	**0.0000**	**335.6060**	**335.6060**	**7.5400e-003**	**0.0318**	**345.2572**

3.5 Building Construction - 2027

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	4.1000e-003	0.0374	0.0483	8.0000e-005		1.5800e-003	1.5800e-003		1.4900e-003	1.4900e-003	0.0000	6.9576	6.9576	1.6400e-003	0.0000	6.9985
Total	**4.1000e-003**	**0.0374**	**0.0483**	**8.0000e-005**		**1.5800e-003**	**1.5800e-003**		**1.4900e-003**	**1.4900e-003**	**0.0000**	**6.9576**	**6.9576**	**1.6400e-003**	**0.0000**	**6.9985**

3.5 Building Construction - 2027

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.4000e-004	0.0102	3.0900e-003	4.0000e-005	1.5400e-003	6.0000e-005	1.6000e-003	4.5000e-004	6.0000e-005	5.0000e-004	0.0000	4.3398	4.3398	9.0000e-005	6.3000e-004	4.5307
Worker	1.1900e-003	7.0000e-004	0.0105	3.0000e-005	4.7600e-003	2.0000e-005	4.7800e-003	1.2700e-003	2.0000e-005	1.2800e-003	0.0000	3.1952	3.1952	7.0000e-005	8.0000e-005	3.2207
Total	**1.4300e-003**	**0.0109**	**0.0136**	**7.0000e-005**	**6.3000e-003**	**8.0000e-005**	**6.3800e-003**	**1.7200e-003**	**8.0000e-005**	**1.7800e-003**	**0.0000**	**7.5350**	**7.5350**	**1.6000e-004**	**7.1000e-004**	**7.7514**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	9.8000e-004	6.7000e-003	0.0524	8.0000e-005		1.2000e-004	1.2000e-004		1.2000e-004	1.2000e-004	0.0000	6.9576	6.9576	1.6400e-003	0.0000	6.9985
Total	**9.8000e-004**	**6.7000e-003**	**0.0524**	**8.0000e-005**		**1.2000e-004**	**1.2000e-004**		**1.2000e-004**	**1.2000e-004**	**0.0000**	**6.9576**	**6.9576**	**1.6400e-003**	**0.0000**	**6.9985**

3.5 Building Construction - 2027

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.4000e-004	0.0102	3.0900e-003	4.0000e-005	1.5400e-003	6.0000e-005	1.6000e-003	4.5000e-004	6.0000e-005	5.0000e-004	0.0000	4.3398	4.3398	9.0000e-005	6.3000e-004	4.5307
Worker	1.1900e-003	7.0000e-004	0.0105	3.0000e-005	4.7600e-003	2.0000e-005	4.7800e-003	1.2700e-003	2.0000e-005	1.2800e-003	0.0000	3.1952	3.1952	7.0000e-005	8.0000e-005	3.2207
Total	**1.4300e-003**	**0.0109**	**0.0136**	**7.0000e-005**	**6.3000e-003**	**8.0000e-005**	**6.3800e-003**	**1.7200e-003**	**8.0000e-005**	**1.7800e-003**	**0.0000**	**7.5350**	**7.5350**	**1.6000e-004**	**7.1000e-004**	**7.7514**

3.6 Architectural Coating - 2027

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	2.4768					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.4200e-003	0.0229	0.0362	6.0000e-005		1.0300e-003	1.0300e-003		1.0300e-003	1.0300e-003	0.0000	5.1065	5.1065	2.8000e-004	0.0000	5.1135
Total	**2.4803**	**0.0229**	**0.0362**	**6.0000e-005**		**1.0300e-003**	**1.0300e-003**		**1.0300e-003**	**1.0300e-003**	**0.0000**	**5.1065**	**5.1065**	**2.8000e-004**	**0.0000**	**5.1135**

3.6 Architectural Coating - 2027

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.5900e-003	9.4000e-004	0.0140	5.0000e-005	6.3400e-003	3.0000e-005	6.3700e-003	1.6900e-003	2.0000e-005	1.7100e-003	0.0000	4.2602	4.2602	1.0000e-004	1.1000e-004	4.2943
Total	**1.5900e-003**	**9.4000e-004**	**0.0140**	**5.0000e-005**	**6.3400e-003**	**3.0000e-005**	**6.3700e-003**	**1.6900e-003**	**2.0000e-005**	**1.7100e-003**	**0.0000**	**4.2602**	**4.2602**	**1.0000e-004**	**1.1000e-004**	**4.2943**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	2.4768					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	5.9000e-004	2.5800e-003	0.0367	6.0000e-005		8.0000e-005	8.0000e-005		8.0000e-005	8.0000e-005	0.0000	5.1065	5.1065	2.8000e-004	0.0000	5.1135
Total	**2.4774**	**2.5800e-003**	**0.0367**	**6.0000e-005**		**8.0000e-005**	**8.0000e-005**		**8.0000e-005**	**8.0000e-005**	**0.0000**	**5.1065**	**5.1065**	**2.8000e-004**	**0.0000**	**5.1135**

3.6 Architectural Coating - 2027

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.5900e-003	9.4000e-004	0.0140	5.0000e-005	6.3400e-003	3.0000e-005	6.3700e-003	1.6900e-003	2.0000e-005	1.7100e-003	0.0000	4.2602	4.2602	1.0000e-004	1.1000e-004	4.2943
Total	**1.5900e-003**	**9.4000e-004**	**0.0140**	**5.0000e-005**	**6.3400e-003**	**3.0000e-005**	**6.3700e-003**	**1.6900e-003**	**2.0000e-005**	**1.7100e-003**	**0.0000**	**4.2602**	**4.2602**	**1.0000e-004**	**1.1000e-004**	**4.2943**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.3764	0.4157	3.8440	8.6700e-003	1.0863	5.7100e-003	1.0920	0.2900	5.3100e-003	0.2953	0.0000	799.4284	799.4284	0.0456	0.0350	811.0077
Unmitigated	0.3764	0.4157	3.8440	8.6700e-003	1.0863	5.7100e-003	1.0920	0.2900	5.3100e-003	0.2953	0.0000	799.4284	799.4284	0.0456	0.0350	811.0077

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Refrigerated Warehouse-Rail	1,007.00	1,007.00	1007.00	2,939,948	2,939,948
Total	1,007.00	1,007.00	1,007.00	2,939,948	2,939,948

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Refrigerated Warehouse-Rail	9.50	7.30	7.30	59.00	0.00	41.00	92	5	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Refrigerated Warehouse-Rail	0.576295	0.056490	0.183529	0.114985	0.020137	0.005304	0.008188	0.006136	0.000868	0.000349	0.024273	0.000862	0.002585

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	427.6217	427.6217	0.0692	8.3900e-003	431.8502
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	427.6217	427.6217	0.0692	8.3900e-003	431.8502
NaturalGas Mitigated	9.6800e-003	0.0880	0.0739	5.3000e-004		6.6900e-003	6.6900e-003		6.6900e-003	6.6900e-003	0.0000	95.8147	95.8147	1.8400e-003	1.7600e-003	96.3841
NaturalGas Unmitigated	9.6800e-003	0.0880	0.0739	5.3000e-004		6.6900e-003	6.6900e-003		6.6900e-003	6.6900e-003	0.0000	95.8147	95.8147	1.8400e-003	1.7600e-003	96.3841

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Refrigerated Warehouse-Rail	1.7955e +006	9.6800e-003	0.0880	0.0739	5.3000e-004		6.6900e-003	6.6900e-003		6.6900e-003	6.6900e-003	0.0000	95.8147	95.8147	1.8400e-003	1.7600e-003	96.3841
Total		**9.6800e-003**	**0.0880**	**0.0739**	**5.3000e-004**		**6.6900e-003**	**6.6900e-003**		**6.6900e-003**	**6.6900e-003**	**0.0000**	**95.8147**	**95.8147**	**1.8400e-003**	**1.7600e-003**	**96.3841**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Refrigerated Warehouse-Rail	1.7955e +006	9.6800e-003	0.0880	0.0739	5.3000e-004		6.6900e-003	6.6900e-003		6.6900e-003	6.6900e-003	0.0000	95.8147	95.8147	1.8400e-003	1.7600e-003	96.3841
Total		**9.6800e-003**	**0.0880**	**0.0739**	**5.3000e-004**		**6.6900e-003**	**6.6900e-003**		**6.6900e-003**	**6.6900e-003**	**0.0000**	**95.8147**	**95.8147**	**1.8400e-003**	**1.7600e-003**	**96.3841**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Refrigerated Warehouse-Rail	4.62175e +006	427.6217	0.0692	8.3900e-003	431.8502
Total		**427.6217**	**0.0692**	**8.3900e-003**	**431.8502**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Refrigerated Warehouse-Rail	4.62175e +006	427.6217	0.0692	8.3900e-003	431.8502
Total		**427.6217**	**0.0692**	**8.3900e-003**	**431.8502**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	2.1032	4.0000e-005	4.3500e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	8.4900e-003	8.4900e-003	2.0000e-005	0.0000	9.0400e-003
Unmitigated	2.1032	4.0000e-005	4.3500e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	8.4900e-003	8.4900e-003	2.0000e-005	0.0000	9.0400e-003

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.2477					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	1.8551					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	4.0000e-004	4.0000e-005	4.3500e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	8.4900e-003	8.4900e-003	2.0000e-005	0.0000	9.0400e-003
Total	**2.1032**	**4.0000e-005**	**4.3500e-003**	**0.0000**		**2.0000e-005**	**2.0000e-005**		**2.0000e-005**	**2.0000e-005**	**0.0000**	**8.4900e-003**	**8.4900e-003**	**2.0000e-005**	**0.0000**	**9.0400e-003**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.2477					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	1.8551					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	4.0000e-004	4.0000e-005	4.3500e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	8.4900e-003	8.4900e-003	2.0000e-005	0.0000	9.0400e-003
Total	**2.1032**	**4.0000e-005**	**4.3500e-003**	**0.0000**		**2.0000e-005**	**2.0000e-005**		**2.0000e-005**	**2.0000e-005**	**0.0000**	**8.4900e-003**	**8.4900e-003**	**2.0000e-005**	**0.0000**	**9.0400e-003**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	89.8412	3.5882	0.0856	205.0517
Unmitigated	89.8412	3.5882	0.0856	205.0517

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Refrigerated Warehouse-Rail	109.844 / 0	89.8412	3.5882	0.0856	205.0517
Total		**89.8412**	**3.5882**	**0.0856**	**205.0517**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Refrigerated Warehouse-Rail	109.844 / 0	89.8412	3.5882	0.0856	205.0517
Total		**89.8412**	**3.5882**	**0.0856**	**205.0517**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	90.6355	5.3564	0.0000	224.5455
Unmitigated	90.6355	5.3564	0.0000	224.5455

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Refrigerated Warehouse-Rail	446.5	90.6355	5.3564	0.0000	224.5455
Total		**90.6355**	**5.3564**	**0.0000**	**224.5455**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Refrigerated Warehouse-Rail	446.5	90.6355	5.3564	0.0000	224.5455
Total		**90.6355**	**5.3564**	**0.0000**	**224.5455**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

SJC Terminal B Extension Gates 38-42

Santa Clara County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Refrigerated Warehouse-Rail	268.00	1000sqft	3.30	268,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	58
Climate Zone	4			**Operational Year**	2029
Utility Company	Pacific Gas and Electric Company				
CO2 Intensity (lb/MWhr)	203.98	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - SJC input

Construction Phase - Based on SJC Master Plan schedule

Grading - Based on total area

Construction Off-road Equipment Mitigation - Assume Tier 4 final engines

Table Name	Column Name	Default Value	New Value
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00

tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	6.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	10.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstructionPhase	NumDays	20.00	50.00
tblConstructionPhase	NumDays	5.00	50.00
tblConstructionPhase	NumDays	8.00	50.00
tblConstructionPhase	NumDays	230.00	460.00
tblConstructionPhase	NumDays	18.00	30.00
tblConstructionPhase	PhaseEndDate	9/26/2025	11/28/2025
tblConstructionPhase	PhaseEndDate	10/3/2025	2/6/2026
tblConstructionPhase	PhaseEndDate	10/15/2025	4/17/2026
tblConstructionPhase	PhaseEndDate	9/2/2026	1/21/2028
tblConstructionPhase	PhaseEndDate	9/28/2026	3/3/2028
tblConstructionPhase	PhaseStartDate	9/1/2025	9/21/2025
tblConstructionPhase	PhaseStartDate	9/27/2025	11/29/2025
tblConstructionPhase	PhaseStartDate	10/4/2025	2/7/2026
tblConstructionPhase	PhaseStartDate	10/16/2025	4/18/2026

tblConstructionPhase	PhaseStartDate	9/3/2026	1/22/2028
tblGrading	AcresOfGrading	50.00	8.00
tblGrading	AcresOfGrading	75.00	7.50
tblLandUse	LotAcreage	6.15	3.30

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2025	0.0820	0.7709	0.7028	1.4400e-003	0.2164	0.0338	0.2502	0.1159	0.0313	0.1472	0.0000	126.7704	126.7704	0.0363	9.0000e-005	127.7025
2026	0.2244	2.0633	2.3424	5.1800e-003	0.5167	0.0802	0.5969	0.2486	0.0749	0.3235	0.0000	460.6625	460.6625	0.0889	0.0127	466.6752
2027	0.2134	1.8958	2.4333	5.4700e-003	0.1548	0.0708	0.2256	0.0420	0.0666	0.1087	0.0000	487.6774	487.6774	0.0752	0.0175	494.7660
2028	1.4128	0.1264	0.1721	3.8000e-004	0.0116	4.8500e-003	0.0165	3.1400e-003	4.6100e-003	7.7500e-003	0.0000	33.4101	33.4101	4.5600e-003	1.0200e-003	33.8294
Maximum	**1.4128**	**2.0633**	**2.4333**	**5.4700e-003**	**0.5167**	**0.0802**	**0.5969**	**0.2486**	**0.0749**	**0.3235**	**0.0000**	**487.6774**	**487.6774**	**0.0889**	**0.0175**	**494.7660**

2.1 Overall Construction

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2025	0.0182	0.0741	0.8334	1.4400e-003	0.2164	2.2800e-003	0.2186	0.1159	2.2700e-003	0.1181	0.0000	126.7702	126.7702	0.0363	9.0000e-005	127.7023
2026	0.0727	0.4647	2.5892	5.1800e-003	0.5167	7.2400e-003	0.5239	0.2486	7.1600e-003	0.2558	0.0000	460.6621	460.6621	0.0889	0.0127	466.6748
2027	0.0778	0.5601	2.6129	5.4700e-003	0.1548	7.2900e-003	0.1621	0.0420	7.1900e-003	0.0492	0.0000	487.6771	487.6771	0.0752	0.0175	494.7656
2028	1.4029	0.0343	0.1827	3.8000e-004	0.0116	4.9000e-004	0.0121	3.1400e-003	4.8000e-004	3.6200e-003	0.0000	33.4100	33.4100	4.5600e-003	1.0200e-003	33.8294
Maximum	**1.4029**	**0.5601**	**2.6129**	**5.4700e-003**	**0.5167**	**7.2900e-003**	**0.5239**	**0.2486**	**7.1900e-003**	**0.2558**	**0.0000**	**487.6771**	**487.6771**	**0.0889**	**0.0175**	**494.7656**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**18.69**	**76.66**	**-10.04**	**0.00**	**0.00**	**90.88**	**15.83**	**0.00**	**90.36**	**27.31**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	**Start Date**	**End Date**	**Maximum Unmitigated ROG + NOX (tons/quarter)**	**Maximum Mitigated ROG + NOX (tons/quarter)**
1	**9-1-2025**	**11-30-2025**	0.5459	0.0640
2	**12-1-2025**	**2-28-2026**	0.8073	0.0776
3	**3-1-2026**	**5-31-2026**	0.5431	0.1104
4	**6-1-2026**	**8-31-2026**	0.5301	0.1596
5	**9-1-2026**	**11-30-2026**	0.5275	0.1610
6	**12-1-2026**	**2-28-2027**	0.5223	0.1599
7	**3-1-2027**	**5-31-2027**	0.5303	0.1599
8	**6-1-2027**	**8-31-2027**	0.5288	0.1583

9	**9-1-2027**	**11-30-2027**	0.5261	0.1597
10	**12-1-2027**	**2-29-2028**	1.6183	1.3927
11	**3-1-2028**	**5-31-2028**	0.1013	0.1001
		Highest	1.6183	1.3927

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	1.1867	2.0000e-005	2.4600e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	4.7900e-003	4.7900e-003	1.0000e-005	0.0000	5.1000e-003
Energy	5.4600e-003	0.0497	0.0417	3.0000e-004		3.7700e-003	3.7700e-003		3.7700e-003	3.7700e-003	0.0000	295.3284	295.3284	0.0401	5.7200e-003	298.0353
Mobile	0.2063	0.2257	2.1141	4.7800e-003	0.6129	3.0600e-003	0.6160	0.1636	2.8500e-003	0.1664	0.0000	440.4920	440.4920	0.0250	0.0193	446.8633
Waste						0.0000	0.0000		0.0000	0.0000	51.1375	0.0000	51.1375	3.0221	0.0000	126.6910
Water						0.0000	0.0000		0.0000	0.0000	19.6618	31.0275	50.6894	2.0245	0.0483	115.6923
Total	**1.3984**	**0.2754**	**2.1583**	**5.0800e-003**	**0.6129**	**6.8400e-003**	**0.6197**	**0.1636**	**6.6300e-003**	**0.1702**	**70.7993**	**766.8527**	**837.6520**	**5.1117**	**0.0733**	**987.2870**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	1.1867	2.0000e-005	2.4600e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	4.7900e-003	4.7900e-003	1.0000e-005	0.0000	5.1000e-003
Energy	5.4600e-003	0.0497	0.0417	3.0000e-004		3.7700e-003	3.7700e-003		3.7700e-003	3.7700e-003	0.0000	295.3284	295.3284	0.0401	5.7200e-003	298.0353
Mobile	0.2063	0.2257	2.1141	4.7800e-003	0.6129	3.0600e-003	0.6160	0.1636	2.8500e-003	0.1664	0.0000	440.4920	440.4920	0.0250	0.0193	446.8633
Waste						0.0000	0.0000		0.0000	0.0000	51.1375	0.0000	51.1375	3.0221	0.0000	126.6910
Water						0.0000	0.0000		0.0000	0.0000	19.6618	31.0275	50.6894	2.0245	0.0483	115.6923
Total	**1.3984**	**0.2754**	**2.1583**	**5.0800e-003**	**0.6129**	**6.8400e-003**	**0.6197**	**0.1636**	**6.6300e-003**	**0.1702**	**70.7993**	**766.8527**	**837.6520**	**5.1117**	**0.0733**	**987.2870**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	9/21/2025	11/28/2025	5	50	
2	Site Preparation	Site Preparation	11/29/2025	2/6/2026	5	50	
3	Grading	Grading	2/7/2026	4/17/2026	5	50	

4	Building Construction	Building Construction	4/18/2026	1/21/2028	5	460	
5	Architectural Coating	Architectural Coating	1/22/2028	3/3/2028	5	30	

Acres of Grading (Site Preparation Phase): 7.5

Acres of Grading (Grading Phase): 8

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 402,000; Non-Residential Outdoor: 134,000; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Excavators	3	8.00	158	0.38
Demolition	Rubber Tired Dozers	2	8.00	247	0.40
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	1	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	7	18.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	113.00	44.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	23.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

3.2 Demolition - 2025

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0523	0.4799	0.4855	9.7000e-004		0.0213	0.0213		0.0198	0.0198	0.0000	84.9941	84.9941	0.0237	0.0000	85.5875
Total	**0.0523**	**0.4799**	**0.4855**	**9.7000e-004**		**0.0213**	**0.0213**		**0.0198**	**0.0198**	**0.0000**	**84.9941**	**84.9941**	**0.0237**	**0.0000**	**85.5875**

3.2 Demolition - 2025

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	8.3000e-004	5.3000e-004	7.3200e-003	2.0000e-005	2.9700e-003	1.0000e-005	2.9900e-003	7.9000e-004	1.0000e-005	8.0000e-004	0.0000	2.1193	2.1193	5.0000e-005	6.0000e-005	2.1371
Total	**8.3000e-004**	**5.3000e-004**	**7.3200e-003**	**2.0000e-005**	**2.9700e-003**	**1.0000e-005**	**2.9900e-003**	**7.9000e-004**	**1.0000e-005**	**8.0000e-004**	**0.0000**	**2.1193**	**2.1193**	**5.0000e-005**	**6.0000e-005**	**2.1371**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0116	0.0501	0.5820	9.7000e-004		1.5400e-003	1.5400e-003		1.5400e-003	1.5400e-003	0.0000	84.9940	84.9940	0.0237	0.0000	85.5874
Total	**0.0116**	**0.0501**	**0.5820**	**9.7000e-004**		**1.5400e-003**	**1.5400e-003**		**1.5400e-003**	**1.5400e-003**	**0.0000**	**84.9940**	**84.9940**	**0.0237**	**0.0000**	**85.5874**

3.2 Demolition - 2025

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	8.3000e-004	5.3000e-004	7.3200e-003	2.0000e-005	2.9700e-003	1.0000e-005	2.9900e-003	7.9000e-004	1.0000e-005	8.0000e-004	0.0000	2.1193	2.1193	5.0000e-005	6.0000e-005	2.1371
Total	**8.3000e-004**	**5.3000e-004**	**7.3200e-003**	**2.0000e-005**	**2.9700e-003**	**1.0000e-005**	**2.9900e-003**	**7.9000e-004**	**1.0000e-005**	**8.0000e-004**	**0.0000**	**2.1193**	**2.1193**	**5.0000e-005**	**6.0000e-005**	**2.1371**

3.3 Site Preparation - 2025

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.2117	0.0000	0.2117	0.1146	0.0000	0.1146	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0284	0.2902	0.2060	4.4000e-004		0.0125	0.0125		0.0115	0.0115	0.0000	38.4870	38.4870	0.0125	0.0000	38.7982
Total	**0.0284**	**0.2902**	**0.2060**	**4.4000e-004**	**0.2117**	**0.0125**	**0.2242**	**0.1146**	**0.0115**	**0.1261**	**0.0000**	**38.4870**	**38.4870**	**0.0125**	**0.0000**	**38.7982**

3.3 Site Preparation - 2025

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.6000e-004	2.9000e-004	4.0400e-003	1.0000e-005	1.6400e-003	1.0000e-005	1.6500e-003	4.4000e-004	1.0000e-005	4.4000e-004	0.0000	1.1699	1.1699	3.0000e-005	3.0000e-005	1.1797
Total	**4.6000e-004**	**2.9000e-004**	**4.0400e-003**	**1.0000e-005**	**1.6400e-003**	**1.0000e-005**	**1.6500e-003**	**4.4000e-004**	**1.0000e-005**	**4.4000e-004**	**0.0000**	**1.1699**	**1.1699**	**3.0000e-005**	**3.0000e-005**	**1.1797**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.2117	0.0000	0.2117	0.1146	0.0000	0.1146	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	5.3500e-003	0.0232	0.2400	4.4000e-004		7.1000e-004	7.1000e-004		7.1000e-004	7.1000e-004	0.0000	38.4870	38.4870	0.0125	0.0000	38.7982
Total	**5.3500e-003**	**0.0232**	**0.2400**	**4.4000e-004**	**0.2117**	**7.1000e-004**	**0.2125**	**0.1146**	**7.1000e-004**	**0.1153**	**0.0000**	**38.4870**	**38.4870**	**0.0125**	**0.0000**	**38.7982**

3.3 Site Preparation - 2025

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.6000e-004	2.9000e-004	4.0400e-003	1.0000e-005	1.6400e-003	1.0000e-005	1.6500e-003	4.4000e-004	1.0000e-005	4.4000e-004	0.0000	1.1699	1.1699	3.0000e-005	3.0000e-005	1.1797
Total	**4.6000e-004**	**2.9000e-004**	**4.0400e-003**	**1.0000e-005**	**1.6400e-003**	**1.0000e-005**	**1.6500e-003**	**4.4000e-004**	**1.0000e-005**	**4.4000e-004**	**0.0000**	**1.1699**	**1.1699**	**3.0000e-005**	**3.0000e-005**	**1.1797**

3.3 Site Preparation - 2026

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.2479	0.0000	0.2479	0.1345	0.0000	0.1345	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0334	0.3407	0.2418	5.1000e-004		0.0147	0.0147		0.0135	0.0135	0.0000	45.1804	45.1804	0.0146	0.0000	45.5457
Total	**0.0334**	**0.3407**	**0.2418**	**5.1000e-004**	**0.2479**	**0.0147**	**0.2625**	**0.1345**	**0.0135**	**0.1480**	**0.0000**	**45.1804**	**45.1804**	**0.0146**	**0.0000**	**45.5457**

3.3 Site Preparation - 2026

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.1000e-004	3.1000e-004	4.4800e-003	1.0000e-005	1.9300e-003	1.0000e-005	1.9400e-003	5.1000e-004	1.0000e-005	5.2000e-004	0.0000	1.3317	1.3317	3.0000e-005	3.0000e-005	1.3426
Total	**5.1000e-004**	**3.1000e-004**	**4.4800e-003**	**1.0000e-005**	**1.9300e-003**	**1.0000e-005**	**1.9400e-003**	**5.1000e-004**	**1.0000e-005**	**5.2000e-004**	**0.0000**	**1.3317**	**1.3317**	**3.0000e-005**	**3.0000e-005**	**1.3426**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.2479	0.0000	0.2479	0.1345	0.0000	0.1345	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	6.2900e-003	0.0272	0.2817	5.1000e-004		8.4000e-004	8.4000e-004		8.4000e-004	8.4000e-004	0.0000	45.1804	45.1804	0.0146	0.0000	45.5457
Total	**6.2900e-003**	**0.0272**	**0.2817**	**5.1000e-004**	**0.2479**	**8.4000e-004**	**0.2487**	**0.1345**	**8.4000e-004**	**0.1353**	**0.0000**	**45.1804**	**45.1804**	**0.0146**	**0.0000**	**45.5457**

3.3 Site Preparation - 2026

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.1000e-004	3.1000e-004	4.4800e-003	1.0000e-005	1.9300e-003	1.0000e-005	1.9400e-003	5.1000e-004	1.0000e-005	5.2000e-004	0.0000	1.3317	1.3317	3.0000e-005	3.0000e-005	1.3426
Total	**5.1000e-004**	**3.1000e-004**	**4.4800e-003**	**1.0000e-005**	**1.9300e-003**	**1.0000e-005**	**1.9400e-003**	**5.1000e-004**	**1.0000e-005**	**5.2000e-004**	**0.0000**	**1.3317**	**1.3317**	**3.0000e-005**	**3.0000e-005**	**1.3426**

3.4 Grading - 2026

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1548	0.0000	0.1548	0.0832	0.0000	0.0832	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0381	0.3829	0.3635	7.4000e-004		0.0156	0.0156		0.0143	0.0143	0.0000	65.1745	65.1745	0.0211	0.0000	65.7015
Total	**0.0381**	**0.3829**	**0.3635**	**7.4000e-004**	**0.1548**	**0.0156**	**0.1704**	**0.0832**	**0.0143**	**0.0976**	**0.0000**	**65.1745**	**65.1745**	**0.0211**	**0.0000**	**65.7015**

3.4 Grading - 2026

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	7.8000e-004	4.8000e-004	6.9200e-003	2.0000e-005	2.9700e-003	1.0000e-005	2.9900e-003	7.9000e-004	1.0000e-005	8.0000e-004	0.0000	2.0551	2.0551	5.0000e-005	5.0000e-005	2.0719
Total	**7.8000e-004**	**4.8000e-004**	**6.9200e-003**	**2.0000e-005**	**2.9700e-003**	**1.0000e-005**	**2.9900e-003**	**7.9000e-004**	**1.0000e-005**	**8.0000e-004**	**0.0000**	**2.0551**	**2.0551**	**5.0000e-005**	**5.0000e-005**	**2.0719**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1548	0.0000	0.1548	0.0832	0.0000	0.0832	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	9.0800e-003	0.0393	0.4438	7.4000e-004		1.2100e-003	1.2100e-003		1.2100e-003	1.2100e-003	0.0000	65.1745	65.1745	0.0211	0.0000	65.7014
Total	**9.0800e-003**	**0.0393**	**0.4438**	**7.4000e-004**	**0.1548**	**1.2100e-003**	**0.1560**	**0.0832**	**1.2100e-003**	**0.0844**	**0.0000**	**65.1745**	**65.1745**	**0.0211**	**0.0000**	**65.7014**

3.4 Grading - 2026

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	7.8000e-004	4.8000e-004	6.9200e-003	2.0000e-005	2.9700e-003	1.0000e-005	2.9900e-003	7.9000e-004	1.0000e-005	8.0000e-004	0.0000	2.0551	2.0551	5.0000e-005	5.0000e-005	2.0719
Total	**7.8000e-004**	**4.8000e-004**	**6.9200e-003**	**2.0000e-005**	**2.9700e-003**	**1.0000e-005**	**2.9900e-003**	**7.9000e-004**	**1.0000e-005**	**8.0000e-004**	**0.0000**	**2.0551**	**2.0551**	**5.0000e-005**	**5.0000e-005**	**2.0719**

3.5 Building Construction - 2026

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1258	1.1472	1.4798	2.4800e-003		0.0485	0.0485		0.0457	0.0457	0.0000	213.3659	213.3659	0.0502	0.0000	214.6198
Total	**0.1258**	**1.1472**	**1.4798**	**2.4800e-003**		**0.0485**	**0.0485**		**0.0457**	**0.0457**	**0.0000**	**213.3659**	**213.3659**	**0.0502**	**0.0000**	**214.6198**

3.5 Building Construction - 2026

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	4.1400e-003	0.1785	0.0542	7.9000e-004	0.0267	1.0600e-003	0.0277	7.7000e-003	1.0200e-003	8.7200e-003	0.0000	76.5812	76.5812	1.6300e-003	0.0112	79.9545
Worker	0.0217	0.0133	0.1918	6.2000e-004	0.0825	3.5000e-004	0.0828	0.0219	3.3000e-004	0.0223	0.0000	56.9736	56.9736	1.3700e-003	1.4500e-003	57.4391
Total	**0.0259**	**0.1918**	**0.2459**	**1.4100e-003**	**0.1091**	**1.4100e-003**	**0.1105**	**0.0296**	**1.3500e-003**	**0.0310**	**0.0000**	**133.5548**	**133.5548**	**3.0000e-003**	**0.0126**	**137.3936**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0302	0.2056	1.6063	2.4800e-003		3.7500e-003	3.7500e-003		3.7500e-003	3.7500e-003	0.0000	213.3656	213.3656	0.0502	0.0000	214.6195
Total	**0.0302**	**0.2056**	**1.6063**	**2.4800e-003**		**3.7500e-003**	**3.7500e-003**		**3.7500e-003**	**3.7500e-003**	**0.0000**	**213.3656**	**213.3656**	**0.0502**	**0.0000**	**214.6195**

3.5 Building Construction - 2026

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	4.1400e-003	0.1785	0.0542	7.9000e-004	0.0267	1.0600e-003	0.0277	7.7000e-003	1.0200e-003	8.7200e-003	0.0000	76.5812	76.5812	1.6300e-003	0.0112	79.9545
Worker	0.0217	0.0133	0.1918	6.2000e-004	0.0825	3.5000e-004	0.0828	0.0219	3.3000e-004	0.0223	0.0000	56.9736	56.9736	1.3700e-003	1.4500e-003	57.4391
Total	**0.0259**	**0.1918**	**0.2459**	**1.4100e-003**	**0.1091**	**1.4100e-003**	**0.1105**	**0.0296**	**1.3500e-003**	**0.0310**	**0.0000**	**133.5548**	**133.5548**	**3.0000e-003**	**0.0126**	**137.3936**

3.5 Building Construction - 2027

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1785	1.6273	2.0991	3.5200e-003		0.0689	0.0689		0.0648	0.0648	0.0000	302.6549	302.6549	0.0711	0.0000	304.4335
Total	**0.1785**	**1.6273**	**2.0991**	**3.5200e-003**		**0.0689**	**0.0689**		**0.0648**	**0.0648**	**0.0000**	**302.6549**	**302.6549**	**0.0711**	**0.0000**	**304.4335**

3.5 Building Construction - 2027

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	5.7700e-003	0.2512	0.0759	1.0900e-003	0.0378	1.5000e-003	0.0393	0.0109	1.4300e-003	0.0124	0.0000	106.4931	106.4931	2.2800e-003	0.0155	111.1759
Worker	0.0292	0.0173	0.2584	8.6000e-004	0.1170	4.7000e-004	0.1174	0.0311	4.4000e-004	0.0315	0.0000	78.5295	78.5295	1.7800e-003	1.9500e-003	79.1565
Total	**0.0350**	**0.2685**	**0.3343**	**1.9500e-003**	**0.1548**	**1.9700e-003**	**0.1567**	**0.0420**	**1.8700e-003**	**0.0439**	**0.0000**	**185.0226**	**185.0226**	**4.0600e-003**	**0.0175**	**190.3324**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0428	0.2916	2.2786	3.5200e-003		5.3200e-003	5.3200e-003		5.3200e-003	5.3200e-003	0.0000	302.6545	302.6545	0.0711	0.0000	304.4331
Total	**0.0428**	**0.2916**	**2.2786**	**3.5200e-003**		**5.3200e-003**	**5.3200e-003**		**5.3200e-003**	**5.3200e-003**	**0.0000**	**302.6545**	**302.6545**	**0.0711**	**0.0000**	**304.4331**

3.5 Building Construction - 2027

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	5.7700e-003	0.2512	0.0759	1.0900e-003	0.0378	1.5000e-003	0.0393	0.0109	1.4300e-003	0.0124	0.0000	106.4931	106.4931	2.2800e-003	0.0155	111.1759
Worker	0.0292	0.0173	0.2584	8.6000e-004	0.1170	4.7000e-004	0.1174	0.0311	4.4000e-004	0.0315	0.0000	78.5295	78.5295	1.7800e-003	1.9500e-003	79.1565
Total	**0.0350**	**0.2685**	**0.3343**	**1.9500e-003**	**0.1548**	**1.9700e-003**	**0.1567**	**0.0420**	**1.8700e-003**	**0.0439**	**0.0000**	**185.0226**	**185.0226**	**4.0600e-003**	**0.0175**	**190.3324**

3.5 Building Construction - 2028

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0103	0.0935	0.1206	2.0000e-004		3.9600e-003	3.9600e-003		3.7200e-003	3.7200e-003	0.0000	17.3940	17.3940	4.0900e-003	0.0000	17.4962
Total	**0.0103**	**0.0935**	**0.1206**	**2.0000e-004**		**3.9600e-003**	**3.9600e-003**		**3.7200e-003**	**3.7200e-003**	**0.0000**	**17.3940**	**17.3940**	**4.0900e-003**	**0.0000**	**17.4962**

3.5 Building Construction - 2028

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	3.3000e-004	0.0143	4.3300e-003	6.0000e-005	2.1700e-003	9.0000e-005	2.2600e-003	6.3000e-004	8.0000e-005	7.1000e-004	0.0000	6.0016	6.0016	1.3000e-004	8.7000e-004	6.2650
Worker	1.5900e-003	9.2000e-004	0.0142	5.0000e-005	6.7200e-003	3.0000e-005	6.7500e-003	1.7900e-003	2.0000e-005	1.8100e-003	0.0000	4.3954	4.3954	9.0000e-005	1.1000e-004	4.4298
Total	**1.9200e-003**	**0.0153**	**0.0185**	**1.1000e-004**	**8.8900e-003**	**1.2000e-004**	**9.0100e-003**	**2.4200e-003**	**1.0000e-004**	**2.5200e-003**	**0.0000**	**10.3970**	**10.3970**	**2.2000e-004**	**9.8000e-004**	**10.6948**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	2.4600e-003	0.0168	0.1310	2.0000e-004		3.1000e-004	3.1000e-004		3.1000e-004	3.1000e-004	0.0000	17.3939	17.3939	4.0900e-003	0.0000	17.4962
Total	**2.4600e-003**	**0.0168**	**0.1310**	**2.0000e-004**		**3.1000e-004**	**3.1000e-004**		**3.1000e-004**	**3.1000e-004**	**0.0000**	**17.3939**	**17.3939**	**4.0900e-003**	**0.0000**	**17.4962**

3.5 Building Construction - 2028

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	3.3000e-004	0.0143	4.3300e-003	6.0000e-005	2.1700e-003	9.0000e-005	2.2600e-003	6.3000e-004	8.0000e-005	7.1000e-004	0.0000	6.0016	6.0016	1.3000e-004	8.7000e-004	6.2650
Worker	1.5900e-003	9.2000e-004	0.0142	5.0000e-005	6.7200e-003	3.0000e-005	6.7500e-003	1.7900e-003	2.0000e-005	1.8100e-003	0.0000	4.3954	4.3954	9.0000e-005	1.1000e-004	4.4298
Total	**1.9200e-003**	**0.0153**	**0.0185**	**1.1000e-004**	**8.8900e-003**	**1.2000e-004**	**9.0100e-003**	**2.4200e-003**	**1.0000e-004**	**2.5200e-003**	**0.0000**	**10.3970**	**10.3970**	**2.2000e-004**	**9.8000e-004**	**10.6948**

3.6 Architectural Coating - 2028

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	1.3975					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.5600e-003	0.0172	0.0271	4.0000e-005		7.7000e-004	7.7000e-004		7.7000e-004	7.7000e-004	0.0000	3.8299	3.8299	2.1000e-004	0.0000	3.8351
Total	**1.4000**	**0.0172**	**0.0271**	**4.0000e-005**		**7.7000e-004**	**7.7000e-004**		**7.7000e-004**	**7.7000e-004**	**0.0000**	**3.8299**	**3.8299**	**2.1000e-004**	**0.0000**	**3.8351**

3.6 Architectural Coating - 2028

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.5000e-004	3.8000e-004	5.7800e-003	2.0000e-005	2.7400e-003	1.0000e-005	2.7500e-003	7.3000e-004	1.0000e-005	7.4000e-004	0.0000	1.7893	1.7893	4.0000e-005	4.0000e-005	1.8033
Total	**6.5000e-004**	**3.8000e-004**	**5.7800e-003**	**2.0000e-005**	**2.7400e-003**	**1.0000e-005**	**2.7500e-003**	**7.3000e-004**	**1.0000e-005**	**7.4000e-004**	**0.0000**	**1.7893**	**1.7893**	**4.0000e-005**	**4.0000e-005**	**1.8033**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	1.3975					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	4.5000e-004	1.9300e-003	0.0275	4.0000e-005		6.0000e-005	6.0000e-005		6.0000e-005	6.0000e-005	0.0000	3.8299	3.8299	2.1000e-004	0.0000	3.8351
Total	**1.3979**	**1.9300e-003**	**0.0275**	**4.0000e-005**		**6.0000e-005**	**6.0000e-005**		**6.0000e-005**	**6.0000e-005**	**0.0000**	**3.8299**	**3.8299**	**2.1000e-004**	**0.0000**	**3.8351**

3.6 Architectural Coating - 2028

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.5000e-004	3.8000e-004	5.7800e-003	2.0000e-005	2.7400e-003	1.0000e-005	2.7500e-003	7.3000e-004	1.0000e-005	7.4000e-004	0.0000	1.7893	1.7893	4.0000e-005	4.0000e-005	1.8033
Total	**6.5000e-004**	**3.8000e-004**	**5.7800e-003**	**2.0000e-005**	**2.7400e-003**	**1.0000e-005**	**2.7500e-003**	**7.3000e-004**	**1.0000e-005**	**7.4000e-004**	**0.0000**	**1.7893**	**1.7893**	**4.0000e-005**	**4.0000e-005**	**1.8033**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.2063	0.2257	2.1141	4.7800e-003	0.6129	3.0600e-003	0.6160	0.1636	2.8500e-003	0.1664	0.0000	440.4920	440.4920	0.0250	0.0193	446.8633
Unmitigated	0.2063	0.2257	2.1141	4.7800e-003	0.6129	3.0600e-003	0.6160	0.1636	2.8500e-003	0.1664	0.0000	440.4920	440.4920	0.0250	0.0193	446.8633

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Refrigerated Warehouse-Rail	568.16	568.16	568.16	1,658,749	1,658,749
Total	568.16	568.16	568.16	1,658,749	1,658,749

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Refrigerated Warehouse-Rail	9.50	7.30	7.30	59.00	0.00	41.00	92	5	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Refrigerated Warehouse-Rail	0.576787	0.056660	0.182855	0.114996	0.020142	0.005351	0.008206	0.006159	0.000860	0.000342	0.024243	0.000849	0.002550

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	241.2687	241.2687	0.0390	4.7300e-003	243.6544
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	241.2687	241.2687	0.0390	4.7300e-003	243.6544
NaturalGas Mitigated	5.4600e-003	0.0497	0.0417	3.0000e-004		3.7700e-003	3.7700e-003		3.7700e-003	3.7700e-003	0.0000	54.0597	54.0597	1.0400e-003	9.9000e-004	54.3809
NaturalGas Unmitigated	5.4600e-003	0.0497	0.0417	3.0000e-004		3.7700e-003	3.7700e-003		3.7700e-003	3.7700e-003	0.0000	54.0597	54.0597	1.0400e-003	9.9000e-004	54.3809

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Refrigerated Warehouse-Rail	1.01304e+006	5.4600e-003	0.0497	0.0417	3.0000e-004		3.7700e-003	3.7700e-003		3.7700e-003	3.7700e-003	0.0000	54.0597	54.0597	1.0400e-003	9.9000e-004	54.3809
Total		**5.4600e-003**	**0.0497**	**0.0417**	**3.0000e-004**		**3.7700e-003**	**3.7700e-003**		**3.7700e-003**	**3.7700e-003**	**0.0000**	**54.0597**	**54.0597**	**1.0400e-003**	**9.9000e-004**	**54.3809**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Refrigerated Warehouse-Rail	1.01304e+006	5.4600e-003	0.0497	0.0417	3.0000e-004		3.7700e-003	3.7700e-003		3.7700e-003	3.7700e-003	0.0000	54.0597	54.0597	1.0400e-003	9.9000e-004	54.3809
Total		**5.4600e-003**	**0.0497**	**0.0417**	**3.0000e-004**		**3.7700e-003**	**3.7700e-003**		**3.7700e-003**	**3.7700e-003**	**0.0000**	**54.0597**	**54.0597**	**1.0400e-003**	**9.9000e-004**	**54.3809**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Refrigerated Warehouse-Rail	2.60764e +006	241.2687	0.0390	4.7300e-003	243.6544
Total		**241.2687**	**0.0390**	**4.7300e-003**	**243.6544**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Refrigerated Warehouse-Rail	2.60764e +006	241.2687	0.0390	4.7300e-003	243.6544
Total		**241.2687**	**0.0390**	**4.7300e-003**	**243.6544**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	1.1867	2.0000e-005	2.4600e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	4.7900e-003	4.7900e-003	1.0000e-005	0.0000	5.1000e-003
Unmitigated	1.1867	2.0000e-005	2.4600e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	4.7900e-003	4.7900e-003	1.0000e-005	0.0000	5.1000e-003

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.1398					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	1.0467					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	2.3000e-004	2.0000e-005	2.4600e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	4.7900e-003	4.7900e-003	1.0000e-005	0.0000	5.1000e-003
Total	**1.1867**	**2.0000e-005**	**2.4600e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**	**0.0000**	**4.7900e-003**	**4.7900e-003**	**1.0000e-005**	**0.0000**	**5.1000e-003**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.1398					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	1.0467					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	2.3000e-004	2.0000e-005	2.4600e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	4.7900e-003	4.7900e-003	1.0000e-005	0.0000	5.1000e-003
Total	**1.1867**	**2.0000e-005**	**2.4600e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**	**0.0000**	**4.7900e-003**	**4.7900e-003**	**1.0000e-005**	**0.0000**	**5.1000e-003**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	50.6894	2.0245	0.0483	115.6923
Unmitigated	50.6894	2.0245	0.0483	115.6923

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Refrigerated Warehouse-Rail	61.975 / 0	50.6894	2.0245	0.0483	115.6923
Total		**50.6894**	**2.0245**	**0.0483**	**115.6923**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Refrigerated Warehouse-Rail	61.975 / 0	50.6894	2.0245	0.0483	115.6923
Total		**50.6894**	**2.0245**	**0.0483**	**115.6923**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	51.1375	3.0221	0.0000	126.6910
Unmitigated	51.1375	3.0221	0.0000	126.6910

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Refrigerated Warehouse-Rail	251.92	51.1375	3.0221	0.0000	126.6910
Total		**51.1375**	**3.0221**	**0.0000**	**126.6910**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Refrigerated Warehouse-Rail	251.92	51.1375	3.0221	0.0000	126.6910
Total		**51.1375**	**3.0221**	**0.0000**	**126.6910**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

SJC Apron Phase 4, 5, 6, and 7

Santa Clara County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Refrigerated Warehouse-Rail	420.00	1000sqft	9.64	420,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	58
Climate Zone	4			**Operational Year**	2028
Utility Company	Pacific Gas and Electric Company				
CO2 Intensity (lb/MWhr)	203.98	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use -

Construction Phase - Based on high level construction schedule

Grading -

Construction Off-road Equipment Mitigation - Assume Tier 4 final engines

Off-road Equipment - Based on high level construction schedule

Off-road Equipment - Based on high-level construction schedule

Off-road Equipment - Based on high-level construction schedule

Off-road Equipment - Based on high-level construction schedule

Off-road Equipment - Based on high-level construction schedule

Trips and VMT - Based on high-level construction schedule

Table Name	Column Name	Default Value	New Value
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2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2023	0.1069	0.8807	1.3247	2.2700e-003	0.0113	0.0413	0.0526	3.0000e-003	0.0380	0.0410	0.0000	199.8331	199.8331	0.0620	1.8000e-004	201.4371
2024	0.1653	1.2332	2.3834	3.9500e-003	0.0267	0.0563	0.0830	7.1100e-003	0.0518	0.0589	0.0000	348.4509	348.4509	0.1051	1.5200e-003	351.5318
2025	0.2333	1.6492	3.4130	5.5300e-003	0.0381	0.0796	0.1177	0.0101	0.0733	0.0834	0.0000	487.2742	487.2742	0.1477	1.6300e-003	491.4535
2026	0.2631	1.8265	3.8663	5.9800e-003	0.0383	0.0926	0.1308	0.0102	0.0852	0.0954	0.0000	527.1109	527.1109	0.1607	1.7000e-003	531.6345
2027	0.0485	0.4407	0.5099	1.3200e-003	0.0471	0.0191	0.0661	0.0126	0.0176	0.0302	0.0000	119.7436	119.7436	0.0226	4.9500e-003	121.7816
Maximum	**0.2631**	**1.8265**	**3.8663**	**5.9800e-003**	**0.0471**	**0.0926**	**0.1308**	**0.0126**	**0.0852**	**0.0954**	**0.0000**	**527.1109**	**527.1109**	**0.1607**	**4.9500e-003**	**531.6345**

2.1 Overall Construction

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2023	0.0298	0.1436	1.5637	2.2700e-003	0.0113	3.6300e-003	0.0149	3.0000e-003	3.6300e-003	6.6200e-003	0.0000	199.8329	199.8329	0.0620	1.8000e-004	201.4369
2024	0.0505	0.2169	2.7681	3.9500e-003	0.0267	6.3100e-003	0.0330	7.1100e-003	6.2900e-003	0.0134	0.0000	348.4506	348.4506	0.1051	1.5200e-003	351.5314
2025	0.0729	0.3791	3.8996	5.5300e-003	0.0381	8.8100e-003	0.0469	0.0101	8.7900e-003	0.0189	0.0000	487.2737	487.2737	0.1477	1.6300e-003	491.4529
2026	0.0783	0.4049	4.3350	5.9800e-003	0.0383	9.5800e-003	0.0479	0.0102	9.5600e-003	0.0198	0.0000	527.1104	527.1104	0.1607	1.7000e-003	531.6339
2027	0.0185	0.1904	0.5748	1.3200e-003	0.0471	1.9300e-003	0.0490	0.0126	1.8900e-003	0.0145	0.0000	119.7436	119.7436	0.0226	4.9500e-003	121.7816
Maximum	**0.0783**	**0.4049**	**4.3350**	**5.9800e-003**	**0.0471**	**9.5800e-003**	**0.0490**	**0.0126**	**9.5600e-003**	**0.0198**	**0.0000**	**527.1104**	**527.1104**	**0.1607**	**4.9500e-003**	**531.6339**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**69.39**	**77.86**	**-14.30**	**0.00**	**0.00**	**89.53**	**57.44**	**0.00**	**88.65**	**76.30**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	**11-1-2023**	**1-31-2024**	1.1195	0.1990
2	**2-1-2024**	**4-30-2024**	0.3433	0.0658
3	**5-1-2024**	**7-31-2024**	0.3505	0.0668
4	**8-1-2024**	**10-31-2024**	0.3507	0.0670
5	**11-1-2024**	**1-31-2025**	0.3926	0.0832
6	**2-1-2025**	**4-30-2025**	0.4587	0.1103
7	**5-1-2025**	**7-31-2025**	0.4737	0.1135

8	**8-1-2025**	**10-31-2025**	0.4739	0.1138
9	**11-1-2025**	**1-31-2026**	0.4920	0.1169
10	**2-1-2026**	**4-30-2026**	0.5091	0.1179
11	**5-1-2026**	**7-31-2026**	0.5258	0.1214
12	**8-1-2026**	**10-31-2026**	0.5261	0.1216
13	**11-1-2026**	**1-31-2027**	0.4212	0.1120
14	**2-1-2027**	**4-30-2027**	0.2063	0.0883
15	**5-1-2027**	**7-31-2027**	0.2094	0.0887
		Highest	1.1195	0.1990

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	1.8597	3.0000e-005	3.8500e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	7.5000e-003	7.5000e-003	2.0000e-005	0.0000	7.9900e-003
Energy	8.5600e-003	0.0778	0.0654	4.7000e-004		5.9100e-003	5.9100e-003		5.9100e-003	5.9100e-003	0.0000	462.8280	462.8280	0.0628	8.9700e-003	467.0703
Mobile	0.3328	0.3675	3.3989	7.6600e-003	0.9605	5.0500e-003	0.9656	0.2564	4.7000e-003	0.2611	0.0000	706.8630	706.8630	0.0404	0.0310	717.1016
Waste						0.0000	0.0000		0.0000	0.0000	80.1408	0.0000	80.1408	4.7362	0.0000	198.5455
Water						0.0000	0.0000		0.0000	0.0000	30.8133	48.6253	79.4385	3.1727	0.0757	181.3089
Total	**2.2011**	**0.4454**	**3.4681**	**8.1300e-003**	**0.9605**	**0.0110**	**0.9715**	**0.2564**	**0.0106**	**0.2670**	**110.9541**	**1,218.3238**	**1,329.2779**	**8.0120**	**0.1156**	**1,564.0342**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	1.8597	3.0000e-005	3.8500e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	7.5000e-003	7.5000e-003	2.0000e-005	0.0000	7.9900e-003
Energy	8.5600e-003	0.0778	0.0654	4.7000e-004		5.9100e-003	5.9100e-003		5.9100e-003	5.9100e-003	0.0000	462.8280	462.8280	0.0628	8.9700e-003	467.0703
Mobile	0.3328	0.3675	3.3989	7.6600e-003	0.9605	5.0500e-003	0.9656	0.2564	4.7000e-003	0.2611	0.0000	706.8630	706.8630	0.0404	0.0310	717.1016
Waste						0.0000	0.0000		0.0000	0.0000	80.1408	0.0000	80.1408	4.7362	0.0000	198.5455
Water						0.0000	0.0000		0.0000	0.0000	30.8133	48.6253	79.4385	3.1727	0.0757	181.3089
Total	**2.2011**	**0.4454**	**3.4681**	**8.1300e-003**	**0.9605**	**0.0110**	**0.9715**	**0.2564**	**0.0106**	**0.2670**	**110.9541**	**1,218.3238**	**1,329.2779**	**8.0120**	**0.1156**	**1,564.0342**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	2023	Paving	11/1/2023	12/31/2023	5	43	
2	2024	Paving	1/1/2024	12/31/2024	5	262	
3	2025	Paving	1/1/2025	12/31/2025	5	261	

4	2026	Paving	1/1/2026	12/31/2026	5	261	
5	2027	Paving	1/1/2027	7/30/2027	5	151	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
2023	Cement and Mortar Mixers	1	1.90	81	0.73
2023	Excavators	2	2.30	158	0.38
2023	Rollers	7	1.90	247	0.40
2024	Plate Compactors	1	1.50	247	0.40
2024	Rollers	1	0.50	97	0.37
2025	Cement and Mortar Mixers	1	0.30	158	0.38
2025	Excavators	1	1.40	187	0.41
2025	Pavers	1	0.20	247	0.40
2023	Graders	3	3.70	130	0.42
2025	Plate Compactors	1	1.50	97	0.37
2026	Cement and Mortar Mixers	1	0.30	231	0.29
2026	Excavators	1	1.40	89	0.20
2026	Graders	1	1.80	84	0.74
2026	Rollers	1	2.60	97	0.37
2026	Rubber Tired Dozers	1	0.80	46	0.45
2027	Cement and Mortar Mixers	1	0.50	78	0.48
2024	Excavators	1	0.60	130	0.42
2025	Graders	1	1.80	130	0.42

2026	Off-Highway Trucks	20	2.60	130	0.42
2027	Excavators	1	2.40	130	0.42
2023	Off-Highway Trucks	46	2.30	132	0.36
2024	Off-Highway Trucks	16	2.10	132	0.36
2025	Off-Highway Trucks	20	2.50	132	0.36
2026	Pavers	1	0.20	132	0.36
2027	Graders	1	3.20	132	0.36
2023	Other Construction Equipment	1	0.90	80	0.38
2024	Pavers	1	0.20	80	0.38
2025	Other Construction Equipment	1	0.20	80	0.38
2026	Plate Compactors	1	1.50	80	0.38
2027	Off-Highway Trucks	30	3.10	80	0.38
2023	Rubber Tired Dozers	1	4.70	8	0.43
2023	Rubber Tired Loaders	2	2.30	203	0.36
2023	Sweepers/Scrubbers	1	7.40	64	0.46
2024	Rubber Tired Loaders	1	0.20	247	0.40
2024	Sweepers/Scrubbers	1	2.60	203	0.36
2025	Rollers	1	2.60	80	0.38
2025	Rubber Tired Dozers	1	0.80	247	0.40
2025	Rubber Tired Loaders	1	0.90	203	0.36
2025	Sweepers/Scrubbers	1	3.90	64	0.46
2026	Rubber Tired Loaders	1	0.90	203	0.36
2026	Sweepers/Scrubbers	1	3.90	64	0.46
2026	Other Construction Equipment	1	0.20	172	0.42
2023	Pavers	2	8.00	130	0.42
2023	Paving Equipment	2	8.00	132	0.36
2024	Paving Equipment	2	8.00	132	0.36
2025	Paving Equipment	2	8.00	132	0.36
2026	Paving Equipment	2	8.00	132	0.36

2027	Other Construction Equipment	1	0.30	172	0.42
2027	Pavers	1	0.80	130	0.42
2027	Plate Compactors	1	2.60	8	0.43
2027	Rollers	1	3.00	80	0.38
2027	Rubber Tired Dozers	1	1.30	247	0.40
2027	Rubber Tired Loaders	1	2.10	203	0.36
2027	Sweepers/Scrubbers	1	6.80	64	0.46

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
2023	68	14.30	0.00	0.00	50.00	7.30	40.00	LD_Mix	HDT_Mix	HHDT
2024	24	5.10	0.00	127.00	50.00	7.30	40.00	LD_Mix	HDT_Mix	HHDT
2025	32	7.50	0.00	127.00	50.00	7.30	40.00	LD_Mix	HDT_Mix	HHDT
2026	32	7.50	0.00	141.00	50.00	7.30	40.00	LD_Mix	HDT_Mix	HHDT
2027	40	13.80	0.00	521.00	50.00	7.30	40.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

3.2 2023 - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1045	0.8788	1.2989	2.1800e-003		0.0413	0.0413		0.0380	0.0380	0.0000	191.4293	191.4293	0.0619	0.0000	192.9771
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.1045**	**0.8788**	**1.2989**	**2.1800e-003**		**0.0413**	**0.0413**		**0.0380**	**0.0380**	**0.0000**	**191.4293**	**191.4293**	**0.0619**	**0.0000**	**192.9771**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.3700e-003	1.9400e-003	0.0258	9.0000e-005	0.0113	5.0000e-005	0.0113	3.0000e-003	5.0000e-005	3.0400e-003	0.0000	8.4039	8.4039	1.2000e-004	1.8000e-004	8.4601
Total	**2.3700e-003**	**1.9400e-003**	**0.0258**	**9.0000e-005**	**0.0113**	**5.0000e-005**	**0.0113**	**3.0000e-003**	**5.0000e-005**	**3.0400e-003**	**0.0000**	**8.4039**	**8.4039**	**1.2000e-004**	**1.8000e-004**	**8.4601**

3.2 2023 - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0275	0.1417	1.5379	2.1800e-003		3.5800e-003	3.5800e-003		3.5800e-003	3.5800e-003	0.0000	191.4290	191.4290	0.0619	0.0000	192.9768
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0275**	**0.1417**	**1.5379**	**2.1800e-003**		**3.5800e-003**	**3.5800e-003**		**3.5800e-003**	**3.5800e-003**	**0.0000**	**191.4290**	**191.4290**	**0.0619**	**0.0000**	**192.9768**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.3700e-003	1.9400e-003	0.0258	9.0000e-005	0.0113	5.0000e-005	0.0113	3.0000e-003	5.0000e-005	3.0400e-003	0.0000	8.4039	8.4039	1.2000e-004	1.8000e-004	8.4601
Total	**2.3700e-003**	**1.9400e-003**	**0.0258**	**9.0000e-005**	**0.0113**	**5.0000e-005**	**0.0113**	**3.0000e-003**	**5.0000e-005**	**3.0400e-003**	**0.0000**	**8.4039**	**8.4039**	**1.2000e-004**	**1.8000e-004**	**8.4601**

3.3 2024 - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1602	1.2133	2.3284	3.6800e-003		0.0561	0.0561		0.0516	0.0516	0.0000	323.4391	323.4391	0.1046	0.0000	326.0543
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.1602**	**1.2133**	**2.3284**	**3.6800e-003**		**0.0561**	**0.0561**		**0.0516**	**0.0516**	**0.0000**	**323.4391**	**323.4391**	**0.1046**	**0.0000**	**326.0543**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	2.0000e-004	0.0162	3.1400e-003	7.0000e-005	2.1500e-003	1.4000e-004	2.2900e-003	5.9000e-004	1.3000e-004	7.3000e-004	0.0000	7.3338	7.3338	2.5000e-004	1.1600e-003	7.6866
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.8600e-003	3.7300e-003	0.0519	1.9000e-004	0.0245	1.1000e-004	0.0246	6.5100e-003	1.0000e-004	6.6100e-003	0.0000	17.6781	17.6781	2.4000e-004	3.6000e-004	17.7909
Total	**5.0600e-003**	**0.0199**	**0.0551**	**2.6000e-004**	**0.0267**	**2.5000e-004**	**0.0269**	**7.1000e-003**	**2.3000e-004**	**7.3400e-003**	**0.0000**	**25.0118**	**25.0118**	**4.9000e-004**	**1.5200e-003**	**25.4775**

3.3 2024 - 2024

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0455	0.1971	2.7131	3.6800e-003		6.0600e-003	6.0600e-003		6.0600e-003	6.0600e-003	0.0000	323.4387	323.4387	0.1046	0.0000	326.0539
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0455**	**0.1971**	**2.7131**	**3.6800e-003**		**6.0600e-003**	**6.0600e-003**		**6.0600e-003**	**6.0600e-003**	**0.0000**	**323.4387**	**323.4387**	**0.1046**	**0.0000**	**326.0539**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	2.0000e-004	0.0162	3.1400e-003	7.0000e-005	2.1500e-003	1.4000e-004	2.2900e-003	5.9000e-004	1.3000e-004	7.3000e-004	0.0000	7.3338	7.3338	2.5000e-004	1.1600e-003	7.6866
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.8600e-003	3.7300e-003	0.0519	1.9000e-004	0.0245	1.1000e-004	0.0246	6.5100e-003	1.0000e-004	6.6100e-003	0.0000	17.6781	17.6781	2.4000e-004	3.6000e-004	17.7909
Total	**5.0600e-003**	**0.0199**	**0.0551**	**2.6000e-004**	**0.0267**	**2.5000e-004**	**0.0269**	**7.1000e-003**	**2.3000e-004**	**7.3400e-003**	**0.0000**	**25.0118**	**25.0118**	**4.9000e-004**	**1.5200e-003**	**25.4775**

3.4 2025 - 2025

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2263	1.6282	3.3390	5.1800e-003		0.0794	0.0794		0.0730	0.0730	0.0000	455.0412	455.0412	0.1472	0.0000	458.7204
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.2263**	**1.6282**	**3.3390**	**5.1800e-003**		**0.0794**	**0.0794**		**0.0730**	**0.0730**	**0.0000**	**455.0412**	**455.0412**	**0.1472**	**0.0000**	**458.7204**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	2.0000e-004	0.0161	3.1600e-003	7.0000e-005	2.1500e-003	1.4000e-004	2.2900e-003	5.9000e-004	1.3000e-004	7.3000e-004	0.0000	7.1923	7.1923	2.5000e-004	1.1400e-003	7.5385
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.7700e-003	4.8800e-003	0.0709	2.7000e-004	0.0359	1.5000e-004	0.0361	9.5400e-003	1.4000e-004	9.6800e-003	0.0000	25.0408	25.0408	3.1000e-004	4.9000e-004	25.1946
Total	**6.9700e-003**	**0.0209**	**0.0740**	**3.4000e-004**	**0.0381**	**2.9000e-004**	**0.0383**	**0.0101**	**2.7000e-004**	**0.0104**	**0.0000**	**32.2331**	**32.2331**	**5.6000e-004**	**1.6300e-003**	**32.7331**

3.4 2025 - 2025

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0659	0.3582	3.8256	5.1800e-003		8.5200e-003	8.5200e-003		8.5200e-003	8.5200e-003	0.0000	455.0406	455.0406	0.1472	0.0000	458.7199
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0659**	**0.3582**	**3.8256**	**5.1800e-003**		**8.5200e-003**	**8.5200e-003**		**8.5200e-003**	**8.5200e-003**	**0.0000**	**455.0406**	**455.0406**	**0.1472**	**0.0000**	**458.7199**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	2.0000e-004	0.0161	3.1600e-003	7.0000e-005	2.1500e-003	1.4000e-004	2.2900e-003	5.9000e-004	1.3000e-004	7.3000e-004	0.0000	7.1923	7.1923	2.5000e-004	1.1400e-003	7.5385
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.7700e-003	4.8800e-003	0.0709	2.7000e-004	0.0359	1.5000e-004	0.0361	9.5400e-003	1.4000e-004	9.6800e-003	0.0000	25.0408	25.0408	3.1000e-004	4.9000e-004	25.1946
Total	**6.9700e-003**	**0.0209**	**0.0740**	**3.4000e-004**	**0.0381**	**2.9000e-004**	**0.0383**	**0.0101**	**2.7000e-004**	**0.0104**	**0.0000**	**32.2331**	**32.2331**	**5.6000e-004**	**1.6300e-003**	**32.7331**

3.5 2026 - 2026

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2564	1.8044	3.7962	5.6400e-003		0.0923	0.0923		0.0849	0.0849	0.0000	495.0069	495.0069	0.1601	0.0000	499.0093
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.2564**	**1.8044**	**3.7962**	**5.6400e-003**		**0.0923**	**0.0923**		**0.0849**	**0.0849**	**0.0000**	**495.0069**	**495.0069**	**0.1601**	**0.0000**	**499.0093**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	2.2000e-004	0.0177	3.5200e-003	8.0000e-005	2.3900e-003	1.5000e-004	2.5500e-003	6.6000e-004	1.5000e-004	8.1000e-004	0.0000	7.8215	7.8215	2.8000e-004	1.2400e-003	8.1981
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.4600e-003	4.4100e-003	0.0666	2.6000e-004	0.0359	1.4000e-004	0.0360	9.5400e-003	1.3000e-004	9.6700e-003	0.0000	24.2825	24.2825	2.8000e-004	4.6000e-004	24.4271
Total	**6.6800e-003**	**0.0221**	**0.0701**	**3.4000e-004**	**0.0383**	**2.9000e-004**	**0.0386**	**0.0102**	**2.8000e-004**	**0.0105**	**0.0000**	**32.1040**	**32.1040**	**5.6000e-004**	**1.7000e-003**	**32.6251**

3.5 2026 - 2026

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0716	0.3828	4.2649	5.6400e-003		9.2800e-003	9.2800e-003		9.2800e-003	9.2800e-003	0.0000	495.0063	495.0063	0.1601	0.0000	499.0087
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0716**	**0.3828**	**4.2649**	**5.6400e-003**		**9.2800e-003**	**9.2800e-003**		**9.2800e-003**	**9.2800e-003**	**0.0000**	**495.0063**	**495.0063**	**0.1601**	**0.0000**	**499.0087**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	2.2000e-004	0.0177	3.5200e-003	8.0000e-005	2.3900e-003	1.5000e-004	2.5500e-003	6.6000e-004	1.5000e-004	8.1000e-004	0.0000	7.8215	7.8215	2.8000e-004	1.2400e-003	8.1981
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.4600e-003	4.4100e-003	0.0666	2.6000e-004	0.0359	1.4000e-004	0.0360	9.5400e-003	1.3000e-004	9.6700e-003	0.0000	24.2825	24.2825	2.8000e-004	4.6000e-004	24.4271
Total	**6.6800e-003**	**0.0221**	**0.0701**	**3.4000e-004**	**0.0383**	**2.9000e-004**	**0.0386**	**0.0102**	**2.8000e-004**	**0.0105**	**0.0000**	**32.1040**	**32.1040**	**5.6000e-004**	**1.7000e-003**	**32.6251**

3.6 2027 - 2027

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0411	0.3718	0.4298	7.6000e-004		0.0183	0.0183		0.0169	0.0169	0.0000	66.3841	66.3841	0.0213	0.0000	66.9167
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0411**	**0.3718**	**0.4298**	**7.6000e-004**		**0.0183**	**0.0183**		**0.0169**	**0.0169**	**0.0000**	**66.3841**	**66.3841**	**0.0213**	**0.0000**	**66.9167**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	8.2000e-004	0.0646	0.0130	2.8000e-004	8.8400e-003	5.7000e-004	9.4100e-003	2.4300e-003	5.4000e-004	2.9700e-003	0.0000	28.2412	28.2412	1.0000e-003	4.4800e-003	29.6010
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.5800e-003	4.2800e-003	0.0671	2.7000e-004	0.0382	1.4000e-004	0.0384	0.0102	1.3000e-004	0.0103	0.0000	25.1183	25.1183	2.7000e-004	4.7000e-004	25.2640
Total	**7.4000e-003**	**0.0689**	**0.0801**	**5.5000e-004**	**0.0471**	**7.1000e-004**	**0.0478**	**0.0126**	**6.7000e-004**	**0.0133**	**0.0000**	**53.3595**	**53.3595**	**1.2700e-003**	**4.9500e-003**	**54.8650**

3.6 2027 - 2027

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0111	0.1215	0.4947	7.6000e-004		1.2200e-003	1.2200e-003		1.2200e-003	1.2200e-003	0.0000	66.3841	66.3841	0.0213	0.0000	66.9166
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0111**	**0.1215**	**0.4947**	**7.6000e-004**		**1.2200e-003**	**1.2200e-003**		**1.2200e-003**	**1.2200e-003**	**0.0000**	**66.3841**	**66.3841**	**0.0213**	**0.0000**	**66.9166**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	8.2000e-004	0.0646	0.0130	2.8000e-004	8.8400e-003	5.7000e-004	9.4100e-003	2.4300e-003	5.4000e-004	2.9700e-003	0.0000	28.2412	28.2412	1.0000e-003	4.4800e-003	29.6010
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.5800e-003	4.2800e-003	0.0671	2.7000e-004	0.0382	1.4000e-004	0.0384	0.0102	1.3000e-004	0.0103	0.0000	25.1183	25.1183	2.7000e-004	4.7000e-004	25.2640
Total	**7.4000e-003**	**0.0689**	**0.0801**	**5.5000e-004**	**0.0471**	**7.1000e-004**	**0.0478**	**0.0126**	**6.7000e-004**	**0.0133**	**0.0000**	**53.3595**	**53.3595**	**1.2700e-003**	**4.9500e-003**	**54.8650**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.3328	0.3675	3.3989	7.6600e-003	0.9605	5.0500e-003	0.9656	0.2564	4.7000e-003	0.2611	0.0000	706.8630	706.8630	0.0404	0.0310	717.1016
Unmitigated	0.3328	0.3675	3.3989	7.6600e-003	0.9605	5.0500e-003	0.9656	0.2564	4.7000e-003	0.2611	0.0000	706.8630	706.8630	0.0404	0.0310	717.1016

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Refrigerated Warehouse-Rail	890.40	890.40	890.40	2,599,533	2,599,533
Total	890.40	890.40	890.40	2,599,533	2,599,533

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Refrigerated Warehouse-Rail	9.50	7.30	7.30	59.00	0.00	41.00	92	5	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Refrigerated Warehouse-Rail	0.576295	0.056490	0.183529	0.114985	0.020137	0.005304	0.008188	0.006136	0.000868	0.000349	0.024273	0.000862	0.002585

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	378.1077	378.1077	0.0612	7.4100e-003	381.8465
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	378.1077	378.1077	0.0612	7.4100e-003	381.8465
NaturalGas Mitigated	8.5600e-003	0.0778	0.0654	4.7000e-004		5.9100e-003	5.9100e-003		5.9100e-003	5.9100e-003	0.0000	84.7204	84.7204	1.6200e-003	1.5500e-003	85.2238
NaturalGas Unmitigated	8.5600e-003	0.0778	0.0654	4.7000e-004		5.9100e-003	5.9100e-003		5.9100e-003	5.9100e-003	0.0000	84.7204	84.7204	1.6200e-003	1.5500e-003	85.2238

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Refrigerated Warehouse-Rail	1.5876e+006	8.5600e-003	0.0778	0.0654	4.7000e-004		5.9100e-003	5.9100e-003		5.9100e-003	5.9100e-003	0.0000	84.7204	84.7204	1.6200e-003	1.5500e-003	85.2238
Total		**8.5600e-003**	**0.0778**	**0.0654**	**4.7000e-004**		**5.9100e-003**	**5.9100e-003**		**5.9100e-003**	**5.9100e-003**	**0.0000**	**84.7204**	**84.7204**	**1.6200e-003**	**1.5500e-003**	**85.2238**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Refrigerated Warehouse-Rail	1.5876e+006	8.5600e-003	0.0778	0.0654	4.7000e-004		5.9100e-003	5.9100e-003		5.9100e-003	5.9100e-003	0.0000	84.7204	84.7204	1.6200e-003	1.5500e-003	85.2238
Total		**8.5600e-003**	**0.0778**	**0.0654**	**4.7000e-004**		**5.9100e-003**	**5.9100e-003**		**5.9100e-003**	**5.9100e-003**	**0.0000**	**84.7204**	**84.7204**	**1.6200e-003**	**1.5500e-003**	**85.2238**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Refrigerated Warehouse-Rail	4.0866e+006	378.1077	0.0612	7.4100e-003	381.8465
Total		**378.1077**	**0.0612**	**7.4100e-003**	**381.8465**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Refrigerated Warehouse-Rail	4.0866e+006	378.1077	0.0612	7.4100e-003	381.8465
Total		**378.1077**	**0.0612**	**7.4100e-003**	**381.8465**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	1.8597	3.0000e-005	3.8500e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	7.5000e-003	7.5000e-003	2.0000e-005	0.0000	7.9900e-003
Unmitigated	1.8597	3.0000e-005	3.8500e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	7.5000e-003	7.5000e-003	2.0000e-005	0.0000	7.9900e-003

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.2190					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	1.6403					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	3.5000e-004	3.0000e-005	3.8500e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	7.5000e-003	7.5000e-003	2.0000e-005	0.0000	7.9900e-003
Total	**1.8597**	**3.0000e-005**	**3.8500e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**	**0.0000**	**7.5000e-003**	**7.5000e-003**	**2.0000e-005**	**0.0000**	**7.9900e-003**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.2190					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	1.6403					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	3.5000e-004	3.0000e-005	3.8500e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	7.5000e-003	7.5000e-003	2.0000e-005	0.0000	7.9900e-003
Total	**1.8597**	**3.0000e-005**	**3.8500e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**	**0.0000**	**7.5000e-003**	**7.5000e-003**	**2.0000e-005**	**0.0000**	**7.9900e-003**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	79.4385	3.1727	0.0757	181.3089
Unmitigated	79.4385	3.1727	0.0757	181.3089

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Refrigerated Warehouse-Rail	97.125 / 0	79.4385	3.1727	0.0757	181.3089
Total		**79.4385**	**3.1727**	**0.0757**	**181.3089**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Refrigerated Warehouse-Rail	97.125 / 0	79.4385	3.1727	0.0757	181.3089
Total		**79.4385**	**3.1727**	**0.0757**	**181.3089**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	80.1408	4.7362	0.0000	198.5455
Unmitigated	80.1408	4.7362	0.0000	198.5455

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Refrigerated Warehouse-Rail	394.8	80.1408	4.7362	0.0000	198.5455
Total		**80.1408**	**4.7362**	**0.0000**	**198.5455**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Refrigerated Warehouse-Rail	394.8	80.1408	4.7362	0.0000	198.5455
Total		**80.1408**	**4.7362**	**0.0000**	**198.5455**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

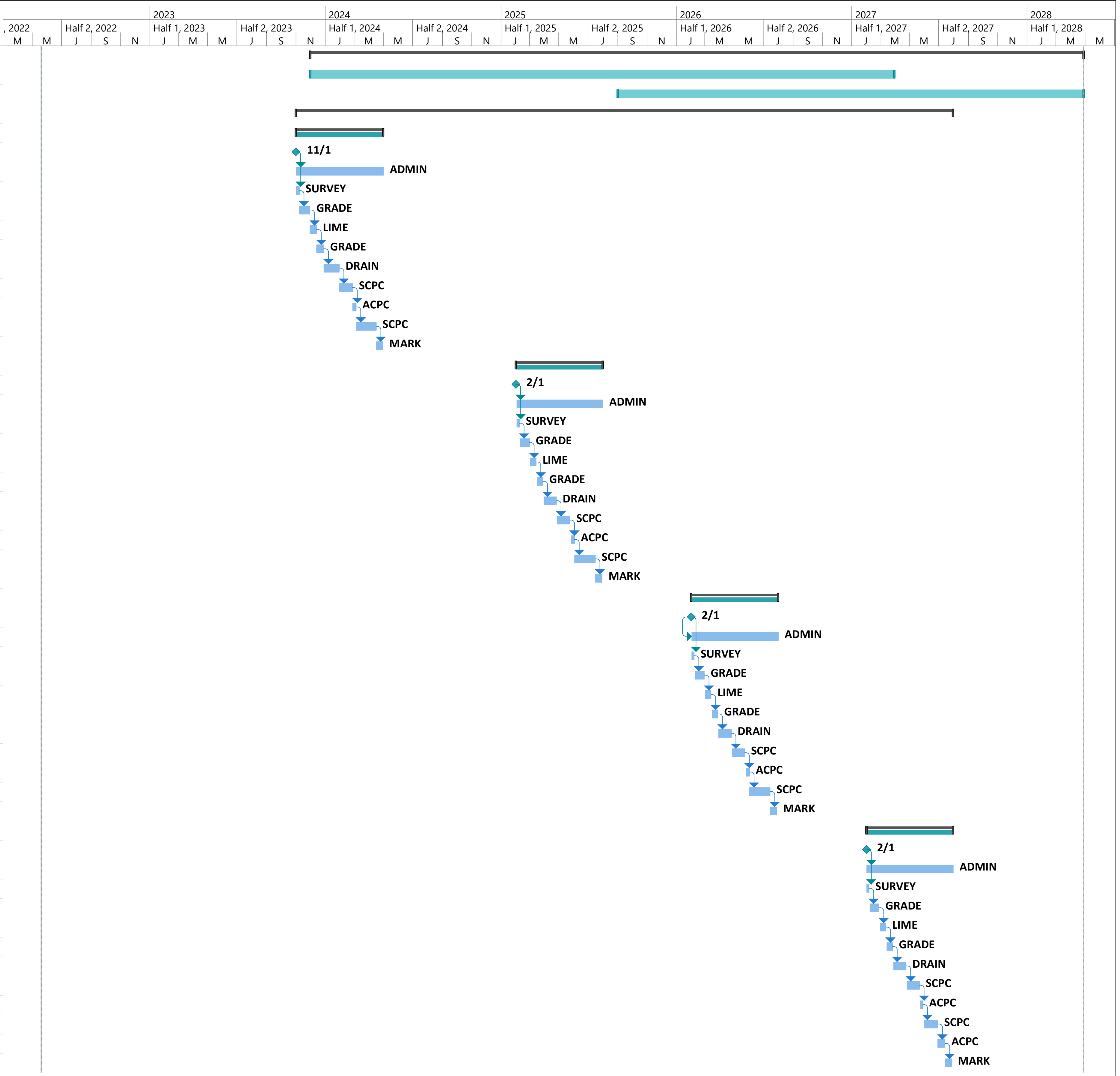
11.0 Vegetation

Attachment 2:

Apron Reconstruction Resource Loaded Construction Schedule

SJC_Construction Schedule_Rev1 Gantt Chart

ID	Task Name	Duration	Start	Finish	Work	Resource Names	Predecessors
1	**Terminal B Expansion**	**1119 days**	**Fri 12/1/23**	**Thu 4/27/28**	**0 hrs**		
2	Gates 29-37	844 days	Fri 12/1/23	Tue 3/30/27	0 hrs		
3	Gate 38-42	676 days	Mon 9/1/25	Thu 4/27/28	0 hrs		
4	**Terminal Apron**	**951 days**	**Wed 11/1/23**	**Fri 7/30/27**	**8,072 hrs**		
5	**Phase 4**	**126 days**	**Wed 11/1/23**	**Tue 4/30/24**	**2,008 hrs**		
6	Phase 4 NTP	0 days	Wed 11/1/23	Wed 11/1/23	0 hrs		
7	Project Management	126 days	Wed 11/1/23	Tue 4/30/24	1,008 hrs	ADMIN	6
8	Pre-Con Survey	5 days	Wed 11/1/23	Tue 11/7/23	40 hrs	SURVEY	6
9	Rough Grading	15 days	Wed 11/8/23	Wed 11/29/23	120 hrs	GRADE	8
10	Lime Treat Subgrade	10 days	Thu 11/30/23	Wed 12/13/23	80 hrs	LIME	9
11	Fine Grading	10 days	Thu 12/14/23	Thu 12/28/23	80 hrs	GRADE	10
12	Install Storm Drain	20 days	Fri 12/29/23	Mon 1/29/24	160 hrs	DRAIN	11
13	Lean Concrete Base	20 days	Tue 1/30/24	Mon 2/26/24	160 hrs	SCPC	12
14	Pave Bond Breaker	5 days	Tue 2/27/24	Mon 3/4/24	40 hrs	ACPC	13
15	Concrete Surface	30 days	Tue 3/5/24	Mon 4/15/24	240 hrs	SCPC	14
16	Apron Marking	10 days	Tue 4/16/24	Mon 4/29/24	80 hrs	MARK	15
17	**Phase 5**	**128 days**	**Sat 2/1/25**	**Thu 7/31/25**	**2,016 hrs**		
18	Phase 5 NTP	0 days	Sat 2/1/25	Sat 2/1/25	0 hrs		
19	Project Management	127 days	Mon 2/3/25	Thu 7/31/25	1,016 hrs	ADMIN	18
20	Pre-Con Survey	5 days	Mon 2/3/25	Fri 2/7/25	40 hrs	SURVEY	18
21	Rough Grading	15 days	Mon 2/10/25	Fri 2/28/25	120 hrs	GRADE	20
22	Lime Treat Subgrade	10 days	Mon 3/3/25	Fri 3/14/25	80 hrs	LIME	21
23	Fine Grading	10 days	Mon 3/17/25	Fri 3/28/25	80 hrs	GRADE	22
24	Install Storm Drain	20 days	Mon 3/31/25	Fri 4/25/25	160 hrs	DRAIN	23
25	Lean Concrete Base	20 days	Mon 4/28/25	Fri 5/23/25	160 hrs	SCPC	24
26	Pave Bond Breaker	5 days	Tue 5/27/25	Mon 6/2/25	40 hrs	ACPC	25
27	Concrete Surface	30 days	Tue 6/3/25	Tue 7/15/25	240 hrs	SCPC	26
28	Apron Marking	10 days	Wed 7/16/25	Tue 7/29/25	80 hrs	MARK	27
29	**Phase 6**	**129 days**	**Sun 2/1/26**	**Fri 7/31/26**	**2,024 hrs**		
30	Phase 6 NTP	0 days	Sun 2/1/26	Sun 2/1/26	0 hrs		
31	Project Management	128 days	Mon 2/2/26	Fri 7/31/26	1,024 hrs	ADMIN	30SS
32	Pre-Con Survey	5 days	Mon 2/2/26	Fri 2/6/26	40 hrs	SURVEY	30
33	Rough Grading	15 days	Mon 2/9/26	Fri 2/27/26	120 hrs	GRADE	32
34	Lime Treat Subgrade	10 days	Mon 3/2/26	Fri 3/13/26	80 hrs	LIME	33
35	Fine Grading	10 days	Mon 3/16/26	Fri 3/27/26	80 hrs	GRADE	34
36	Install Storm Drain	20 days	Mon 3/30/26	Fri 4/24/26	160 hrs	DRAIN	35
37	Lean Concrete Base	20 days	Mon 4/27/26	Fri 5/22/26	160 hrs	SCPC	36
38	Pave Bond Breaker	5 days	Tue 5/26/26	Mon 6/1/26	40 hrs	ACPC	37
39	Concrete Surface	30 days	Tue 6/2/26	Tue 7/14/26	240 hrs	SCPC	38
40	Apron Marking	10 days	Wed 7/15/26	Tue 7/28/26	80 hrs	MARK	39
41	**Phase 7**	**128 days**	**Mon 2/1/27**	**Fri 7/30/27**	**2,024 hrs**		
42	Phase 7 NTP	0 days	Mon 2/1/27	Mon 2/1/27	0 hrs		
43	Project Management	128 days	Mon 2/1/27	Fri 7/30/27	1,024 hrs	ADMIN	42
44	Pre-Con Survey	5 days	Mon 2/1/27	Fri 2/5/27	40 hrs	SURVEY	42
45	Rough Grading	15 days	Mon 2/8/27	Fri 2/26/27	120 hrs	GRADE	44
46	Lime Treat Subgrade	10 days	Mon 3/1/27	Fri 3/12/27	80 hrs	LIME	45
47	Fine Grading	10 days	Mon 3/15/27	Fri 3/26/27	80 hrs	GRADE	46
48	Install Storm Drain	20 days	Mon 3/29/27	Fri 4/23/27	160 hrs	DRAIN	47
49	Lean Concrete Base	20 days	Mon 4/26/27	Fri 5/21/27	160 hrs	SCPC	48
50	Pave Bond Breaker	5 days	Mon 5/24/27	Fri 5/28/27	40 hrs	ACPC	49
51	Concrete Surface	20 days	Tue 6/1/27	Mon 6/28/27	160 hrs	SCPC	50
52	Asphalt Shoulder	10 days	Tue 6/29/27	Tue 7/13/27	80 hrs	ACPC	51
53	Apron Marking	10 days	Wed 7/14/27	Tue 7/27/27	80 hrs	MARK	52



Project: SJC_Construction Schedu
Date: Fri 5/20/22

Task	▬	Project Summary	┌─┐	Manual Task	▬	Start-only	[	Deadline	⇩
Split	┈	Inactive Task	▭	Duration-only	▬	Finish-only	]	Progress	━
Milestone	◆	Inactive Milestone	◇	Manual Summary Rollup	━	External Tasks	▬	Manual Progress	━
Summary	┌─┐	Inactive Summary	┌─┐	Manual Summary	┌─┐	External Milestone	◆		

HNTB Corporation
2900 S Quincy St #600
Arlington, VA 22206

San José International Airport

Terminal B Apron Rehab

Conceptual Construction Schedule

Schedule Narrative
May 2022

HNTB Corporation
2900 S Quincy St #600
Arlington, VA 22206

Introduction

HNTB developed a resource-loaded conceptual construction schedule for the Terminal B Apron Rehab Project at SJC based on a preliminary construction schedule and project quantities (i.e., pavement area and phasing) provided by SJC. The construction schedule anticipates the apron will constructed over four separate phases in conjunction with the terminal construction spanning November of 2023 through June 2027.

Project	Start	Complete	Duration
Terminal B Extension (750,000 SF total)			
Gates 29-37	Dec 2023	March 2027	1,200 days
Gates 38-42	Sep 2025	March 2028	900 days
Terminal Apron			
Phase 4 (100,000 SF)	Nov 2023	April 2024	150 days
Phase 5 (75,000 SF)	Feb 2025	July 2025	150 days
Phase 6 (87,000 SF)	Feb 2026	July 2026	150 days
Phase 7 (130,000 SF)	Feb 2027	July 2027	150 days

The construction schedule was based on assumed equipment and crew hours to complete the expected work within each phase:

- Equipment Hours
    - Projected equipment hours, hauling miles and commuting miles
- Crew Hours
    - Projected manhours

The level of detail of activities was set so that the team could provide a high-level estimate of the overall construction sequence. The list of activities is not all-inclusive. The construction schedule submitted by the successful bidder will contain more activities and a higher level of detail than the herein presented schedule.

The schedule reflects the order and interdependence of activities and sequence for demolition and new construction for typical airfield pavement construction. The schedule assumes an eight-hour workday and five-day work week with no limitations on available materials, equipment or labor. Production rates are based on RS Means Online. The schedule is intended to assist in accurately estimating construction emissions. The schedule reflects only one possible approach for demolition and new construction which may not be the same as that chosen by the successful bidder ultimately awarded the Project.

Assumptions

The schedule development team developed a list of assumptions, upon which this schedule is based:

1. Assumptions were derived utilizing the provided conceptual construction schedule and quantities. As such, quantities will be refined in future and thus durations and schedule data will be subject to change. This is not a detailed construction schedule; in addition, the actual contractor will have their own means and methods. This may result in said contractor having differing crew types/sizes onsite at any given time.
2. The schedule will use days as its unit of time; eight hours per day; five days per week.
3. Production rates were sourced from RS Means.
4. It is assumed that there will be two owner's representatives on site with pick-up trucks for the duration of the work (included within ADMIN crew).
5. Nonhazardous waste from the Airport, such as that generated during construction projects, is typically sent to the Dumbarton Quarry (~20 Miles from SJC), Ox Mountain Landfill (~40 miles from SJC) or Keller Canyon Landfill (~60 miles from SJC) in Contra Costa County. The Haul Route for such materials will be conservatively estimated at 60 miles from the site; 120 miles round trip. The Ox Mountain Landfill accepts non-friable asbestos and soils with petroleum, among other items that are typically generated during Airport construction projects and are included among the regional estimate of available landfill capacity.
6. The Clean Harbors Buttonwillow facility (~220 miles from SJC) in Kern County accepts Class I hazardous waste in California and has a permitted landfill capacity that exceeds 10 million cubic yards. It is assumed that no hazardous waste will be produced by this project.
7. The Graniterock facility (11711 Berryessa Road) is assumed to provide concrete and asphalt to the program (~5 miles from SJC).
8. The Oldcastle Infrastructure Facility (3786 Valley Ave) in Pleasanton CA is assumed to provide reinforced concrete pipe, catch basins and manholes to the program (~30 Miles from SJC)
9. The site will be cleared prior to the start of construction. All existing structures and pavement within the proposed project footprint will be demolished and removed by a prior project and are not considered as part of this project.
10. Access to the project site will be via SJC Vehicle Gate 100 and then via the exiting vehicle service road to the work area. All materials, equipment, crew and traffic associated with the project are assumed to enter and exit the site via this gate.
11. Grades within the project site will not be significantly altered as a result of this project. As such, the only earthwork required will be the excavation for the proposed pavement section and utilities.
12. Proposed pavement section is assumed to be the same as the Terminal B South Ramp Reconstruction, Project Number 8952. 18.5" PCC Pavement (P-501) on a 1" AC (P-403) leveling course on 6" Lean Concrete Base (P-306) on 12" Lime Treated Subgrade (P-155) on prepared subgrade (P-152)

Crew Assumptions:

Administrative Support Team (ADMIN)	
Labor	**Equipment**
1 – Project Manager	2 – SUV
2 – Field Engineers	2 – Pick-ups
1 – Administrative Assistance	1 – Fuel Truck
1 – General Superintendent	1 – Maintenance Vehicle with Crane
1 – Safety Manager	1 – Vacuum Sweeper
1 – Mechanic	
2 – Operators	
9 – TOTAL	

Survey Crew (SRVY)	
Labor	**Equipment**
1 – Instrument Man	1 – Level, Electronic
1 – Rodman/Chainman	1 – Pick-up
2 – TOTAL	

Grading Crew (GRADE)	
Labor	**Equipment**
1 – Foreman	2 – Pick-up Truck
8 – Operators	1 – Crew Truck
2 – Laborer	2 – 30,000 lbs Grader
	2 – Tandem Roller
	1 – 200 H.P. Dozer
	8 – 16 CY/ Dump Truck
	1 – Front End Loader, 2.5 C.Y.
	1 – Water Truck
	1 - Excavator
7 – TOTAL	

Lime Stabilization Crew (LIME)

Labor	Equipment
1 – Foreman	2 – Pick-up Truck
5 – Operators	1 – In-Place Rotomixer
1 – Laborer	2 – Tandem Roller
	1 – 30,000 lbs Grader
	1 – Water Truck
7 – TOTAL	

Drainage Crew (DRAIN)

Labor	Equipment
1 –Foreman	1 - Excavator
4 – Laborer	1 – Flatbed Truck
1 – Equipment Operator	2 – Pick-up Trucks
4 – TOTAL	

Structural Concrete Placement Crew (SCPC)

Labor	Equipment
1 – Labor Foreman	1 – Gas Engine Vibrating Compactor
4 – Laborers	2 – Pick-up Truck
2 – Concrete Finishers	1 – Crew Truck
1 – Equipment Operator	6 – 10CY Agitated Concrete Delivery Trucks
8 – TOTAL	

ACP Paving Crew (ACPC)

Labor	Equipment
1 – Foreman	1 – Asphalt Paver
5 – Equip. Operators	2 – Steel Wheel Rollers
6 – Laborers	1 – Pneumatic Wheel Roller
	2 – Pick-up Truck
	1 – Crew Truck
	8 – 16 CY/ Dump Truck
	1 – Front End Loader, 2.5 C.Y.
12 – TOTAL	

Marking Crew (Mark)	
Labor	**Equipment**
1 –Foreman	2 – Pick-up Truck
2 – Laborers	1 – Marking Truck
1 – Equipment Operator	
4 – TOTAL	

Concrete Surface Miles

Total Concrete Surface (square feet)	Total Concrete (cubic yards)	Total Concrete Trucks	Total Concrete Truck Trips (#)	Distance to Concrete Plant (miles)	Total Concrete Truck (miles)
420,324	8,000	800	1,600	5	8,000

Concrete Crew Hours and Concrete Truck Miles Per Year						
Crew	Year					
	2023	2024	2025	2026	2027	Grand Total
SCPC Hours	-	240	240	240	240	960
Percentage	0%	25%	25%	25%	25%	100%
Concrete Surface Miles Per Year	-	2,000	2,000	2,000	2,000	8,000

Lean Concrete Miles

Total Lean Concrete Base (square feet)	Total Concrete (cubic yards)	Total Concrete Trucks	Total Concrete Truck Trips (#)	Distance to Concrete Plant (miles)	Total Concrete Truck (miles)
420,324	2,595	259	519	5	2,595

Concrete Crew Hours and Concrete Truck Miles Per Year						
Crew	Year					
	2023	2024	2025	2026	2027	Grand Total
Lean Hours	-	160	160	160	160	640
Percentage	0%	25%	25%	25%	25%	100%
Lean Concrete Miles Per Year	-	649	649	649	649	2,595

Asphalt Miles

Total Asphalt (square feet)	Asphalt Thickness (inches)	HMA (tonnage)	Truck Capacity (tonnage)	Total Trucks (#)	Distance to Asphalt Plant (miles)	Total Asphalt Truck (miles)
420,324	1	2,627	16	164	5	1,642
5,000	4	125	16	8	5	78
						1,720

Asphalt Crew Hours and Asphalt Truck Miles Per Year						
Crew	Year					
	2023	2024	2025	2026	2027	Grand Total
ACPC Hours	-	40	40	40	120	240
Percentage	0%	17%	17%	17%	50%	100%
Asphalt Miles Per Year	-	287	287	287	860	1,720

Pipe Miles

Total Pipe (Linear feet)	Weight Per LF	Total Weight (Tons)	Truck Capacity (tonnage)	Total Trucks (#)	Distance to Pre-Cast Plant (miles)	Total Pipe Truck (miles)
640	550	176	20	9	30	528

Drain Crew Hours and Pipe Truck Miles Per Year						
Crew	Year					
	2023	2024	2025	2026	2027	Grand Total
DRAIN Hours	-	160	160	160	160	640
Percentage	0%	25%	25%	25%	25%	100%
Pipe Miles Per Year	-	132	132	132	132	528

Export

Total Excavation Area(square feet)	Total Excavation (cubic yards)	Truck Capacity (tonnage)	Total Export Trucks	Total Export Truck Trips (#)	Distance to Landfill (miles)	Total Concrete Truck (miles)
420,324	16,216	16	1,014	2,027	60	121,622

Rough Grade Crew Hours and Truck Miles Per Year						
Crew	Year					
	2023	2024	2025	2026	2027	Grand Total
Rough Grade Hours	-	120	120	120	120	480
Percentage	0%	25%	25%	25%	25%	100%
Export Miles Per Year	-	2,000	2,000	2,000	2,000	8,000

TOTAL HAULING MILES	2023	2024	2025	2026	2027	Grand Total
	-	5,067	5,067	5,067	5,641	20,843
Total Trips Hauling	0	126.68	126.68	126.68	141.02	521.06
Trip Length	40	40	40	40	40	40

Commuting Miles

Year	2023	2024	2025	2026	2027
Labor Trips	615	1,334	1,958	1,967	2,087

Assumption: 100 mile roundtrip commute, light pick-up trucks, 2 laborers/pickup

Year	2023	2024	2025	2026	2027
Commuting Miles (mi)	30,750	66,700	97,900	98,350	104,350

# Trips Worker (/day)	14.30	5.09	7.50	7.54	13.82
Trip Length	50	50	50	50	50

Crew	2023 Hours	2024 Hours	2025 Hours	2026 Hours	2027 Hours	Equipment	#	2023 Hours	2024 Hours	2025 Hours	2026 Hours	2027 Hours
ACPC	-	40	40	40	120	Asphalt Paver	1	-	40	40	40	120
days	-	5	5	5	15	Steel Wheel Rollers	2	-	80	80	80	240
Labor Trips	-	60	60	60	180	Pneumatic Wheel Roller	1	-	40	40	40	120
Crew Size:	12					Pick-up Truck	2	-	80	80	80	240
						Crew Truck	1	-	40	40	40	120
						16 CY Dump Truck	8	-	320	320	320	960
						Front End Loader, 2.5 CY	1	-	40	40	40	120
ADMIN	320	688	1,016	1,024	1,024	SUV	2	640	1,376	2,032	2,048	2,048
days	40	86	127	128	128	Pick-up Truck	2	640	1,376	2,032	2,048	2,048
Labor Trips	360	774	1,143	1,152	1,152	Fuel Truck	1	320	688	1,016	1,024	1,024
						Maintenance Vehicle with Crane	1	320	688	1,016	1,024	1,024
Crew Size:	9					Vacuum Sweeper	1	320	688	1,016	1,024	1,024
SRVY	40		40	40	40	Level, Electronic	1	40	-	40	40	40
days	5	-	5	5	5	Pick-up Truck	1	40	-	40	40	40
Labor Trips	10	-	10	10	10							
Crew Size	2											
GRADE	200	-	200	200	200	Pick-up Truck	2	400	-	400	400	400
days	25	-	25	25	25	30,000 lbs Grader	2	400	-	400	400	400
Labor Trips	175	-	175	175	175	Tandem Roller	2	400	-	400	400	400
Crew Size	7					200 H.P. Dozer	1	200	-	200	200	200
						Crew Truck	1	200	-	200	200	200
						16 CY Dump Truck	8	1,600	-	1,600	1,600	1,600
						Front End Loader, 2.5 CY	1	200	-	200	200	200
						Water Truck	1	200	-	200	200	200
						Excavator	1	200	-	200	200	200
LIME	80	-	80	80	80	Pick-up Truck	2	160	-	160	160	160
days	10	-	10	10	10	In-Place Rotomixer	1	80	-	80	80	80
Labor Trips	70	-	70	70	70	Tandem Roller	2	160	-	160	160	160
Crew Size	7					30,000 lbs Grader	1	80	-	80	80	80
						Water Truck	1	80	-	80	80	80
MARK	-	80	80	80	80	Pick-up Truck	1	-	80	80	80	80
days	-	10	10	10	10	Marking Truck	1	-	80	80	80	80
Labor Trips	-	20	20	20	20							
Crew Size	4											
DRAIN	-	160	160	160	160	Pick-up Truck	1	-	160	160	160	160
days	-	20	20	20	20	Flat Bed Truck	1	-	160	160	160	160
Labor Trips	-	80	80	80	80	Excavator	1	-	160	160	160	160
Crew Size	4							-	-	-	-	-
SCPC	-	400	400	400	400	Gas Engine Vibrating Compactor	1	-	400	400	400	400
days	-	50	50	50	50	Pick-up Truck	2	-	800	800	800	800
Labor Trips	-	400	400	400	400	Crew Truck	1	-	400	400	400	400
Crew Size	8					Cement Mixer Truck	6	-	2,400	2,400	2,400	2,400
Grand Total (Crew Hours)	**640**	**1,368**	**2,016**	**2,024**	**2,104**	**Grand Total (Equipment Hours)**		**6,680**	**10,096**	**16,832**	**16,888**	**18,168**

Total Work Per Year (hours)

Crew	Year					
	2023	2024	2025	2026	2027	Grand Total
ACPC	-	40	40	40	120	240
ADMIN	320	688	1,016	1,024	1,024	4,072
GRADE	200	-	200	200	200	800
LIME	80	-	80	80	80	320
MARK	-	80	80	80	80	320
DRAIN	-	160	160	160	160	640
SCPC	-	400	400	400	400	1,600
SRVY	40	-	40	40	40	160
Grand Total	**640**	**1,368**	**2,016**	**2,024**	**2,104**	**8,152**

Appendix D

Biological Resources

BIOLOGICAL RESOURCES REPORT

Final Environmental Assessment for Terminal B South Concourse Improvements at Norman Y. Mineta San José International Airport

September 2022

Prepared by:

Rosanna McGuire, B.Sc., M.E.S., Ecologist
HNTB

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ABBREVIATIONS AND ACRONYMS

Airport	Norman Y. Mineta San José International Airport
ACM	Avoidance Conservation Measure
BMP	Best Management Practice
BOMP	Burrowing Owl Management Plan – San José International Airport
CCC	Central California Coast
CDFW	California Department of Fish and Wildlife
CESA	California Endangered Species Act
CFR	Code of Federal Regulations
City	City of San José
CNDDB	California Natural Diversity Database
CNPS	California Native Plant Society
CRPR	California Rare Plant Rank
CSSC	California species of special concern
CWA	Clean Water Act
DPS	Distinct population segment
DSA	Direct Study Area
EFH	Essential Fish Habitat
EO	Executive Order
ESU	Evolutionarily significant units
FAA	Federal Aviation Administration
FESA	Federal Endangered Species Act
FGC	California Fish and Game Code
FMP	Fishery Management Plan
IPaC	Information, Planning, and Conservation

ISA	Indirect Study Area
LSAA	Lake and Streambed Alteration Agreement
MBTA	Migratory Bird Treaty Act
MMPA	Marine Mammal Protection Act
NEPA	National Environmental Policy Act
NMFS	National Marine Fisheries Service
NPDES	National Pollutant Discharge Elimination System
ppt	Parts per thousand
RWQCB	Regional Water Quality Control Board
SF	Square foot
SJC	Norman Y. Mineta San José International Airport
SWRCB	State Water Resources Control Board
U.S.	United States
USACE	U.S. Army Corps of Engineers
U.S.C.	U.S. Code
USDA	U.S. Department of Agriculture
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
Valley Water	Santa Clara Valley Water District
VegCAMP	Vegetation Classification and Mapping Program
VHP	Santa Clara Valley Habitat Plan
VTA	Santa Clara Valley Transportation Authority
WHMP	Wildlife Hazard Management Plan
WOTUS	Waters of the U.S.

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Attachment 1	U.S. Fish and Wildlife Service Official Species List
Attachment 2	National Marine Fisheries Service Species List
Attachment 3	California Natural Diversity Database (CNDDB) Species List
Attachment 4	California Native Plant Society Inventory of Rare and Endangered Plants of California Species List

1 Introduction

This report describes the biological resources that may be affected by the Terminal B South Concourse Improvements at the Norman Y. Mineta San José International Airport (SJC or Airport). This report describes the effects of the Proposed Action; measures to avoid, minimize, or mitigate these impacts under the National Environmental Policy Act (NEPA); presents effect determinations under the Federal Endangered Species Act (FESA); and provides a NEPA analysis for biological resources. This report was prepared to facilitate NEPA review of the Proposed Action by the Federal Aviation Administration (FAA) and to comply with FESA requirements.

1.1 Project Location

The Norman Y. Mineta San José International Airport (Airport or SJC) is located on an approximately 1,000-acre site in San José and Santa Clara, California, and it is generally bounded by United States Highway 101 (U.S. 101) to the north, the Guadalupe River and the Guadalupe Freeway (State Route 87 [SR-87]) to the east, Interstate 880 (I-880) to the south, and Coleman Avenue and De la Cruz Boulevard to the west. The Guadalupe River, which is managed by the Santa Clara Valley Water District (Valley Water), flows south to north along the eastern boundary of the Airport property. Surrounding areas consist of dense urban development in San José and Santa Clara. The Airport is located within the San José West and Milpitas, California 7.5-minute U.S. Geological Survey (USGS) quadrangles.

1.2 Study Area

For the purpose of this report, study areas were delineated to encompass all areas where impacts of the Proposed Action on biological resources could potentially occur. The Direct Study Area (DSA) is the area where the Proposed Action would have direct temporary or permanent impacts. The biological resources Indirect Study Area (ISA) is the area 100 feet from the DSA where resources may be indirectly affected by the Proposed Action. The DSA and ISA are shown in **Figure 1**. Collectively, the DSA and ISA are described in this report as the Study Area.

1.3 Background Information

The City proposes to extend and modernize Terminal B through the construction of a proposed Terminal B South Concourse Improvement Project (Proposed Action) designed to provide an optimum user experience to the existing and projected passengers and airlines using this critical Silicon Valley – South Bay airport. The proposed Terminal B South Concourse would include construction of a 750,000 square foot (SF) terminal building with 16 airline gates designed to accommodate Aircraft Design Group (ADG)-III (e.g., Boeing 737-9 Max).[1] As part of the proposed extension, the existing aircraft parking apron pavement encompassing the area of the proposed new terminal facilities would be reconstructed and strengthened to support aircraft parking.

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[1] ADG-V (e.g., Boeing 787-900) aircraft may also be accommodated with the use of two boarding positions.

Norman Y. Mineta San José International Airport Proposed Terminal B South Concourse Improvements Environmental Assessment

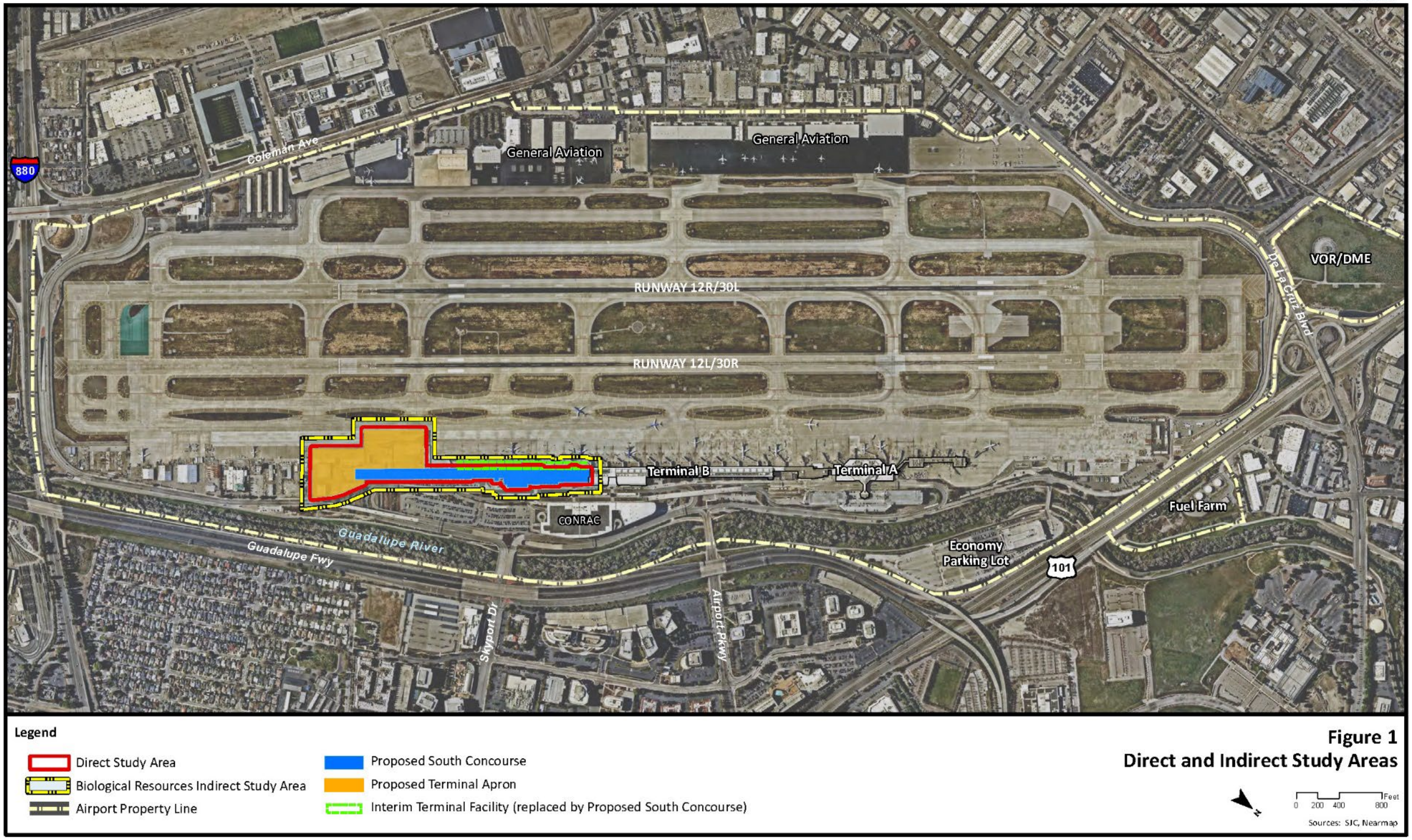

Figure 1
Direct and Indirect Study Areas

Sources: SJC, Nearmap

1.4 Proposed Action Alternative

The primary components of the Proposed Action Alternative (shown in **Figure 2**) are: (1) extending Terminal B through construction of the proposed South Concourse, including construction of 16 airline gates with jet bridges and up to 750,000 square feet (SF) of terminal building space;[2,3] and (2) reconstruction and strengthening up to 392,000 SF of deteriorated airfield apron at the south end of the proposed Terminal B South Concourse to support aircraft terminal parking.

1.5 No Action Alternative

The only other alternative carried forward for detailed evaluation in this EA is the No Action Alternative. For this alternative, none of the proposed improvements identified in **Section 1.4** would be implemented.

2 Methods

2.1 Background Review

HNTB reviewed the following data sources:

1. Aerial photos and topographic maps;
2. Official species list from U.S. Fish and Wildlife Service (USFWS) Information, Planning, and Conservation (IPaC) online system (**Attachment 1**);
3. National Marine Fisheries Service (NMFS) unofficial species list (**Attachment 2**);
4. Previous biological resources reports on the Airport;
5. The California Department of Fish and Wildlife's (CDFW) California Natural Diversity Database (CNDDB, **Attachment 3**);[4]
6. California Native Plant Society's (CNPS) Inventory of Rare and Endangered Plants of California (**Attachment 4**)[5] for the nine USGS quadrangles surrounding the Study Area (Mountain View, Milpitas, Calaveras Reservoir, Castle Rock Ridge, Los Gatos, Santa Teresa Hills, Cupertino, San José West, San José East); and
7. Other relevant scientific literature and technical databases.

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[2] Eight (8) gates currently exist as part of the interim facilities and two (2) gates are existing gates that would be relocated from their current locations existing terminals; thus the net increase would be six gates. Gates to be relocated are Gate 1 to be relocated due to its difficult location on the back (east side) of Terminal A as ADG III aircraft cannot safely taxi to the parking position. Gate 17 will be relocated as it is shut down each time a wide body ADG V parks at Gates 16 and 18.

[3] Airline gate needs and terminal square footage requirements are based on *SJC Runway Incursion Mitigation/Airfield Design Standards Analysis: Draft Technical Memorandum: Updated Airport Capacity and Facility Requirements Analysis*, September 13, 2017.

[4] CDFW. 2022. CNDDB. RareFind 5.0. Accessed May. 2022. https://apps.wildlife.ca.gov/rarefind/view/RareFind.aspx

[5] CNPS, Rare Plant Program. 2022. Inventory of Rare and Endangered Plants of California (online edition, v9-01 1.0). Accessed May 18, 2022 from https://rareplants.cnps.org/.

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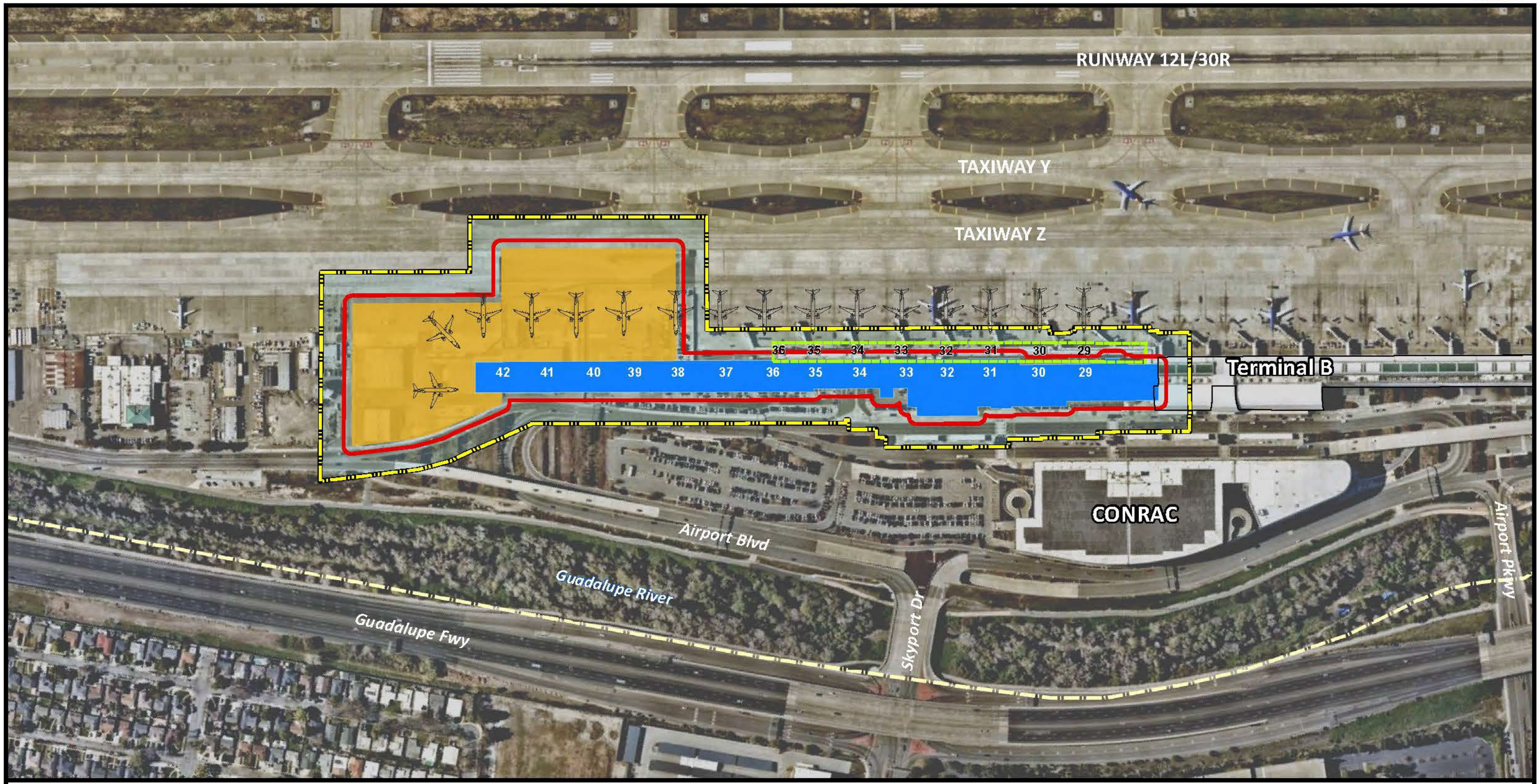

Legend

- 🟥 Direct Study Area
- 🟨 Biological Resources Indirect Study Area
- ▬ Airport Property Line
- 🟦 Proposed South Concourse
- # Proposed South Concourse Gate Number
- 🟧 Proposed Terminal Apron
- 🟩 Interim Terminal Facility (replaced by Proposed South Concourse)
- # Interim Terminal Facility Gate Number

Figure 2
Proposed Action Alternative – Terminal Area

Sources: SJC, Nearmap

Based on these sources, the potential for special-status plants and animals to occur within the Study Area was determined. Species with the potential to occur were then evaluated against the Proposed Action to determine if significant impacts could occur.

2.2 Site Visit

Site visits were conducted by H.T. Harvey & Associates in January, February, and March of 2019 as part of the *Norman Y. Mineta San José International Airport 2019 Master Plan Amendment Biological Resources Report*. These site visits were done to document existing biological conditions at the Airport, including habitat types and distribution and plant and wildlife species.

3 Regulatory Setting

3.1 Federal Regulations

3.1.1 Clean Water Act

The Clean Water Act (CWA) functions to maintain and restore the physical, chemical, and biological integrity of waters of the U.S. (WOTUS), which include, but are not limited to, tributaries to traditionally navigable waters currently or historically used for interstate or foreign commerce, and adjacent wetlands. Historically, in non-tidal waters, the U.S. Army Corps of Engineers' (USACE) jurisdiction extends to the ordinary high water mark, which is defined in Title 33, Code of Federal Regulations (CFR), Part 328.3. If there are wetlands adjacent to jurisdictional waters, the limits of USACE's jurisdiction extends beyond the ordinary high water mark to the outer edges of the wetlands. Wetlands that are not adjacent to WOTUS are termed "isolated wetlands" and, depending on the circumstances, may be subject to USACE's jurisdiction. In tidal waters, USACE's jurisdiction extends to the landward extent of vegetation associated with salt or brackish water or the high tide line. The high tide line is defined in 33 CFR Part 328.3 as "the line of intersection of the land with the water's surface at the maximum height reached by a rising tide." If there are wetlands adjacent to jurisdictional waters, the limits of USACE's jurisdiction extends beyond the ordinary high water mark or high tide line to the outer edges of the wetlands.

Construction activities within jurisdictional waters are regulated by the USACE. The placement of fill into such waters must comply with USACE's permit requirements. No USACE permit will be effective in the absence of Section 401 Water Quality Certification. The State Water Resources Control Board (SWRCB) is the state agency (together with the Regional Water Quality Control Boards [RWQCB]) charged with implementing water quality certification in California.

<u>Action Applicability</u>: There are no WOTUS within the Study Area. Therefore, a permit from the USACE would not be required for the Proposed Action Alternative.

3.1.2 Rivers and Harbors Act

Section 10 of the Rivers and Harbors Act of 1899 prohibits the creation of any obstruction to the navigable capacity of WOTUS, including the discharge of fill and the building of any wharfs, piers, jetties, and other structures without Congressional approval or authorization by the Chief of Engineers and Secretary of the Army (33 U.S. Code [U.S.C.] 403).

Navigable WOTUS, which are defined in 33 CFR, Part 329.4, include all waters subject to the ebb and flow of the tide and/or those that are presently or have historically been used to transport commerce. The shoreward jurisdictional limit of tidal waters is further defined in 33 CFR, Part 329.12 as “the line on the shore reached by the plane of the mean (average) high water.” It is important to understand that the USACE does not regulate wetlands under Section 10, only the aquatic or open waters component, and that there is overlap between Section 10 jurisdiction and Section 404 jurisdiction. According to 33 CFR, Part 329.9, a waterbody that was once navigable in its natural or improved state retains its character as “navigable in law” even though it is not presently used for commerce as a result of changed conditions and/or the presence of obstructions. Historical Section 10 waters may occur behind levees in areas that are not currently exposed to tidal or muted-tidal influence, and they meet the following criteria: (1) the area is presently at or below the mean high water line; (2) the area was historically at or below mean high water in its “unobstructed, natural state;” and (3) there is no evidence that the area was ever above mean high water.

As mentioned above, Section 404 of the CWA authorizes the USACE to issue permits to regulate the discharge of dredged or fill material into WOTUS. If an action also proposes to discharge dredged or fill material and/or introduce other potential obstructions in navigable WOTUS, a Letter of Permission authorizing these impacts must be obtained from the USACE under Section 10 of the Rivers and Harbors Act.

Action Applicability: No current or historical Section 10 traditional navigable waters are present within the Study Area. Therefore, a Letter of Permission from the USACE is not required.

3.1.3 Federal Endangered Species Act

FESA protects federally listed wildlife species from harm or take, which is broadly defined as “to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, collect, or attempt to engage in any such conduct.” Take can also include habitat modification or degradation that directly results in death or injury of a listed wildlife species, even if it is unintentional or accidental. Listed plant species are provided less protection than listed wildlife species, and they are legally protected from take under FESA only if they occur on federal lands.

The USFWS and the NMFS have jurisdiction over federally listed, threatened, and endangered species under FESA. The USFWS also maintains lists of proposed and candidate species. Species on these lists are not legally protected under FESA, but they may become listed in the near future and are often included in USFWS’ review of an action.

Action Applicability: No federally listed species or critical habitat occurs within the Study Area. No federally listed species or critical habitat will be affected by the Proposed Action Alternative.

3.1.4 Magnuson-Stevens Fishery Conservation and Management Act

The Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act) governs all fishery management activities that occur in federal waters within the U.S.’

200-nautical-mile limit. The Magnuson-Stevens Act establishes eight regional fishery management councils responsible for the preparation of fishery management plans (FMP) to achieve the optimum yield from U.S. fisheries in their regions. These councils, with assistance from the NMFS, establish an Essential Fish Habitat (EFH) in FMPs for all managed species. Federal agencies that fund, permit, or implement activities that may adversely affect an EFH are required to consult with the NMFS regarding potential adverse effects of their actions on an EFH, and they must respond in writing to recommendations by the NMFS.

Action Applicability: There is no EFH located within the Study Area.[6] EFH would not be affected by the Proposed Action Alternative.

3.1.5 Fish and Wildlife Coordination Act

16 U.S.C. Sections 661-667d requires that federal agencies consult with the USFWS, NMFS, and appropriate state fish and wildlife agencies regarding the conservation of wildlife resources when proposed federal actions may result in control or modification of any stream or other water body.

Action Applicability: The USFWS was consulted via IPaC on May 19, 2022. An unofficial NMFS list was obtained from their website in November 2021. The FAA obtained an official species lists from USFWS and NMFS in 2020, however the Study Area has been subsequently reduced. The Proposed Action Alternative would not affect listed species or critical habitat.

3.1.6 Federal Migratory Bird Treaty Act

The federal Migratory Bird Treaty Act (MBTA), 16 U.S.C. Section 703, prohibits killing, possessing, or trading of migratory birds except in accordance with regulations prescribed by the Secretary of the Interior. The MBTA protects whole birds, parts of birds, and bird eggs and nests, and it prohibits the possession of all protected bird species' nests whether they are active or inactive. An active nest is defined as having eggs or young, as described by the Department of the Interior in its April 16, 2003, Migratory Bird Permit Memorandum. Nest starts (nests that are under construction and do not yet contain eggs) are not protected from destruction. Solicitor's Opinion M-37050 *The Migratory Bird Treaty Act Does Not Prohibit Incidental Take* (December 22, 2017) reversed previous interpretations of the MBTA and stated that incidental take was not prohibited. Opinion M-37050 was struck down by the Southern District of New York on August 11, 2020. The USFWS issued a proposed rule to this effect, which is currently undergoing NEPA review.

Action Applicability: All native bird species that occur at the Airport are protected under the MBTA and incidental take is currently prohibited under federal law. Non-native species, such as the European starling (*Sturnus vulgaris*), house sparrow (*Passer domesticus*), and rock pigeon (*Columbia livia*) are not protected.

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[6] Pacific Fishery Management Council. 2019. Pacific Coast Salmon Fishery Management Plan as Amended Through Amendment 19. https://www.pcouncil.org/fishery-management-plan-and-amendments-3/

3.1.7 Executive Order (EO) 13186, Responsibilities of Federal Agencies to Protect Migratory Birds

66 Federal Register 3853 (January 17, 2001) directs federal agencies to take action to further implement the MBTA.

Action Applicability: All native bird species that occur at the Airport are protected under the MBTA.

3.1.8 Bald and Golden Eagle Protection Act

16 U.S.C. § 668 et seq and 50 CFR part 22 protects bald and golden eagles from the unauthorized capture, purchase, or transportation of birds, their nests, or their eggs.

Action Applicability: Neither bald nor golden eagles have the potential to nest in the Study Area although they both may occasionally forage over or near the ISA. The Airport holds a Bald and Golden Eagle Depredation Permit to harass them off the airfield.

3.1.9 Marine Mammal Protection Act

The Marine Mammal Protection Act (MMPA), 16 U.S.C. § 1361 et seq. and 50 CFR parts 18 and 216, protects all marine mammals and prohibits, with certain exceptions, the take of marine mammals in U.S. waters and by U.S. citizens on the high seas.

Action Applicability: No suitable habitat exists for marine mammals within the Study Area. Therefore, the MMPA does not apply to the Proposed Action Alternative.

3.1.10 EO 13112, Invasive Species

EO 13112 (64 Federal Register 6183, February 8, 1999) directs federal agencies, whose actions may affect the status of invasive species, to use relevant programs and authorities to the extent practicable (subject to available resources), to prevent the introduction of invasive species, and to provide for the restoration of native species and habitat conditions in ecosystems that have been invaded. Agencies are directed not to carry out actions they believe are likely to cause or promote the introduction or spread of invasive species unless the benefits of such actions clearly outweigh the potential harm and all feasible and prudent measures to minimize risk of harm are taken.

Action Applicability: Construction of the Proposed Action Alternative could result in propagation of invasive species.

3.1.11 EO 13751, Safeguarding the Nation from the Impacts of Invasive Species

81 Federal Register 88609 (December 8, 2016) amends EO 13112 to strengthen coordinated, cost-efficient federal prevention and to control efforts related to invasive species.

Action Applicability: Construction of the Proposed Action Alternative could result in propagation of invasive species.

3.2 State Regulations

3.2.1 Porter-Cologne Water Quality Control Act

The Porter-Cologne Water Quality Control Act is described in the Environmental Assessment *Appendix I, Water Resources*.

Action Applicability: There are no Waters of the State or riparian habitats within the Study Area that meet the state wetland definition.

3.2.2 California Endangered Species Act

The California Endangered Species Act (CESA) and California Fish and Game Code [FGC], Chapter 1.5, Sections 2050- 2116 prohibits the take of any plant or animal listed or proposed for listing as rare (plants only), threatened, or endangered. In accordance with CESA, the CDFW has jurisdiction over state-listed species (FGC Section 2070). The CDFW regulates activities that may result in the take of individuals (i.e., "hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill"). Habitat degradation or modification is not expressly included in the definition of take under the California FGC. However, the CDFW has interpreted take to include the "killing of a member of a species which is the proximate result of habitat modification."

Action Applicability: A very small area of suitable foraging habitat (ruderal grassland) for one state-listed species (the tricolored blackbird), occurs within the ISA. No other state-listed plants or animals are expected to occur within the Study Area.

3.2.3 California FGC

The California FGC regulates multiple types of biological resources, including streams, birds, and bats. Ephemeral and intermittent streams, rivers, creeks, dry washes, sloughs, blue line streams on USGS maps, and watercourses with subsurface flows fall under CDFW's jurisdiction. Where riparian habitat is present, the outer edge of riparian vegetation is generally used as the line of demarcation between riparian and upland habitats. Pursuant to FGC Section 1603, the CDFW regulates any action proposed by any person that will "substantially divert or obstruct the natural flow or substantially change the bed, channel, or bank of any river, stream, or lake designated by the department, or use any material from the streambeds." FGC Section 1602 requires an entity to notify the CDFW of any proposed activity that may modify a river, stream, or lake and may require the preparation of a Lake and Streambed Alteration Agreement (LSAA).

FGC Sections 3503, 3513, and 3800 (and other sections) protect native birds such as raptors, including their nests and eggs, from all forms of take. Disturbance that causes nest abandonment and/or loss of reproductive effort is considered take by the CDFW.

Bats and other non-game mammals are protected by FGC Section 4150, which states that all non-game mammals or parts thereof may not be taken or possessed except as provided otherwise in the code or in accordance with regulations adopted by the California Fish and Game Commission. Activities resulting in the mortality of non-game mammals (e.g., destruction of an occupied bat roost resulting in the death of bats) or disturbances that cause the loss of a maternity colony of bats (resulting in the death of young) may be considered take by the CDFW.

Action Applicability: There are no streams or riparian areas within the Study Area; therefore, an LSAA would not be required. Most native bird, mammal, and other wildlife species that occur in the Study Area and vicinity are protected by the California FGC.

3.2.4 California Migratory Bird Protection Act

The California Migratory Bird Protection Act modifies Section 3514 of the FGC to specify that "it is unlawful to take or possess any migratory nongame bird as designated in the federal MBTA (16 U.S.C. Sec. 703 et seq.) before January 1, 2017." This protects migratory birds in California from incidental take as January 1, 2017, was prior to the issuance of Solicitor's Opinion M-37050 *The Migratory Bird Treaty Act Does Not Prohibit Incidental Take* (December 22, 2017).

Action Applicability: All native birds found within the Study Area are protected from incidental take.

3.3 Local Regulations

3.3.1 City Tree Ordinance

The City promotes health, safety, and welfare by regulating the planting, removal, and maintenance of trees. The City provides tree protection under Municipal Code Section 13.28 (street trees, hedges, and shrubs), 13.32 (tree removal controls), and 13.44.220 (damaging park property). The Municipal Code details permit requirements for tree-related work, including removal, pruning, and planting. Tree removal within the street right-of-way is subject to tree removal permitting by the City. Street trees are located in the public right-of-way between the curb and the sidewalk. Pruning or removal of street trees is illegal without a City permit. Replacement trees are required for the removal of ordinance-size street trees. A single trunk tree qualifies as an ordinance-size tree if it measures 38 inches or more in circumference at 4.5 feet above ground (approximately 12 inches diameter at breast height). A multi-trunk tree qualifies as ordinance-size if the combined measurement of each trunk circumference (at 4.5 feet above ground) adds up to 38 inches or more. As part of the permit application, it is required to contact the planning division with regard to the replacement of ordinance-size trees.

Removal of trees on private property, commercial, and industrial properties are also subject to City tree removal permitting, which requires a permit to remove a tree of "any size" from a commercial or industrial property. A separate "permit adjustment application" is required for non-ordinance-size trees that will be removed from commercial or industrial properties. As part of the permit application, it is required to contact the City's planning division with regard to the replacement of trees on private, commercial, or industrial properties.

Action Applicability: Landscape trees on the east side of the Interim Terminal facility may be removed to construct the South Concourse extension. While a permit from the City will not be required for removal of these trees (as they will be removed by the City on City property), if any tree removal is needed, the Airport will follow the City's tree replacement guidelines and policies.

3.3.2 City Riparian Corridor Protection and Bird-Safe Design Policy

Measures to protect riparian corridors are provided in the City's *Riparian Corridor Policy Study*,[7] which was incorporated into the City's *Envision San José 2040 General Plan*;[8] the Zoning Code (Title 20 of the San José Municipal Code); and the City Council-adopted Santa Clara Valley Habitat Plan (VHP), specifically Condition 11. The term riparian corridor, as defined by the City, means any defined stream channel, including the area up to the bank full-flow line as well as all characteristic streamside vegetation in contiguous adjacent uplands.

In 2016, the City released Council Policy 6-34 to provide guidance on the implementation of riparian corridor protection that is consistent with all City policies and requirements that provide riparian protection. Council Policy 6-34 indicates that riparian setbacks should be measured from the outside edges of riparian habitat or the top of bank, whichever is greater, and that development of new buildings and roads generally should be set back 100 feet from the riparian corridor. However, Council Policy 6-34 also indicates that a reduced setback may be considered under limited circumstances, including the existence of legal uses within the minimum setback and the installation or replacement of utility or equipment that involves no significant disturbance to the riparian corridor during construction and operation and that generates only incidental human activity.

Action Applicability: There are no riparian corridors within the Study Area.

3.3.3 Santa Clara VHP

The VHP[9] provides a framework for promoting the protection and recovery of natural resources, including endangered and threatened species, while streamlining the permitting process for planned development, infrastructure, and maintenance activities. Rather than separately permitting and mitigating individual actions, the VHP comprehensively evaluates natural-resource impacts and mitigation requirements in a way that is more efficient and effective for at-risk species and their essential habitats. In addition to strengthening local control over land use and species protection, the VHP provides a more efficient process for protecting natural resources by creating new habitat reserves that will be larger in scale, more ecologically valuable, and easier to manage than the individual mitigation sites created under the current approach.

The VHP allows the County of Santa Clara, Valley Water, VTA, and the cities of Gilroy, Morgan Hill, and San José (collectively referred to as the Local Partners or Permittees) to receive endangered species permits for activities and actions they conduct and those under the Permittees jurisdiction.

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[7] City of San José. 1999. Riparian Corridor Policy Study. Prepared with The Habitat Restoration Group and Jones and Stokes Associates, Inc.

[8] City of San José. 2020. Envision San José General Plan. As Amended on March 16, 2020. https://www.sanjoseca.gov/home/showdocument?id=22359

[9] ICF International. 2012. Final Santa Clara Valley Habitat Plan. August. Prepared for the City of Gilroy, City of Morgan Hill, City of San José, County of Santa Clara, Santa Clara Valley Transportation Authority (VTA), and Valley Water.

Action Applicability: Airport actions are explicitly excluded from VHP coverage; therefore, they are not considered covered activities under the VHP and are not required to comply with VHP conditions.[10]

4 Environmental Setting

4.1 General Project Area Description

The Study Area is located in urbanized San José, with U.S. 101 to the north, Guadalupe River and SR 87 to the east, and I-880 to the south. The Study Area receives approximately 14.96 inches of annual precipitation and has a mean temperature range of 49.9°–69.2°F.[11] Elevations within the Study Area range from approximately 23 feet to 89 feet above sea level. The Study Area is underlain by one soil type, Urbanland-Campbell complex, 0 to 2% slopes.[12]

Two habitat types were identified in the Study Area: developed/landscaped and ruderal grassland. These habitats are shown in **Figure 3**. The DSA is entirely composed of developed/landscaped habitat (18.8 acres). The ISA contains 31 acres of developed/landscaped habitat and less than 0.01 acres of ruderal grassland. Plant species observed by H.T. Harvey & Associates during the reconnaissance-level survey are listed in *Appendix D1, Plants Observed*.[13]

4.1.1 Developed/Landscaped

Vegetation. All of the DSA and the majority of the ISA consists of developed and landscaped habitat. Hardscape areas at the Airport include runways and taxiways, terminal buildings, outbuildings, hangars, and associated parking structures. Along the east side of the terminal buildings there is little vegetation, with the exception of minimal landscaped areas that are mown and maintained by Airport staff. These landscaped areas support few trees and minimal vegetation to minimize attracting wildlife to the airfield. There is no vegetation present within the DSA.

Wildlife. For aircraft safety, wildlife species are discouraged from using the airfield. Current management practices to minimize wildlife intrusion include trash removal, nest removal, anti-perching spike installation, trapping, hazardous wildlife harassment, lethal control, and

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[10] ICF International. 2012. Final Santa Clara Valley Habitat Plan. August. Prepared for the City of Gilroy, City of Morgan Hill, City of San José, County of Santa Clara, VTA, and Valley Water.

[11] H.T. Harvey & Associates. 2019. Norman Y. Mineta San José International Airport 2019 Master Plan Amendment Biological Resources Report.

[12] Natural Resources Conservation Service. 2021. SSURGO Database (Survey Area: Version 10, Sep 9, 2021, Tabular: Version 10, Sep 9, 2021, Spatial: Version 3, Sep 16, 2019), Santa Clara Area, California, Western Part (wss_SSA_CA641_soildb_US_2003_[2021-09-09].zip). https://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm. Accessed Nov. 2021.

[13] H.T. Harvey & Associates. 2019. Norman Y. Mineta San José International Airport 2019 Master Plan Amendment Biological Resources Report.

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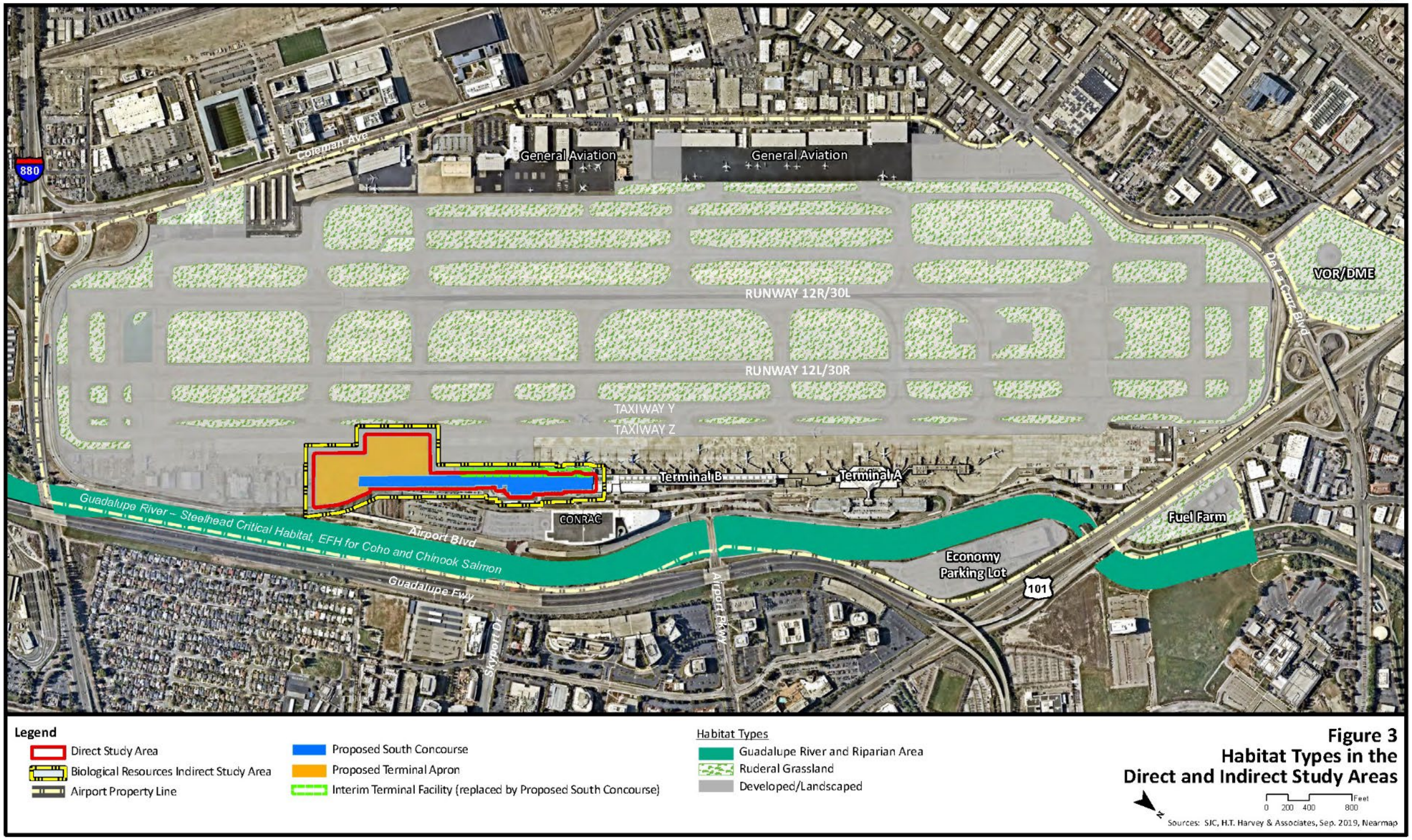

Figure 3
Habitat Types in the Direct and Indirect Study Areas

Sources: SJC, H.T. Harvey & Associates, Sep. 2019, Nearmap removal of perching structures.[14] Developed portions of the Study Area support little to no vegetation, with the exception of a few small, landscaped areas along the terminal buildings as described above. Nevertheless, common wildlife species that are associated with urban areas and are tolerant of high levels of human disturbance occur within developed portions of the Study Area. As documented in the Wildlife Hazard Management Plan (WHMP), the following species have been observed in the Study Area: non-native European starling (*Sturnus vulgaris*), house sparrow (*Passer domesticus*), house mouse (*Mus musculus*), black rat (*Rattus rattus*), native western fence lizard (*Sceloporus occidentalis*), raccoon (*Procyon lotor*), and a variety of birds, including Anna's hummingbird (*Calypte anna*), house finch (*Haemorhous mexicanus*), mourning dove (*Zenaida macroura*), and northern mockingbird (*Mimus polyglottos*). The buildings in the Study Area may be attractive to certain bird species in the area that nest on buildings, such as the black phoebe (*Sayornis nigricans*) and house finch (*Haemorhous mexicanus*).[15]

The larger buildings in the ISA (such as the Interim Terminal) provide potential nesting and roosting sites for barn owls (*Tyto alba*) and potential roosting habitat for bats, such as the Mexican free-tailed bat (*Tadarida brasiliensis*). Bats feed on insects that are attracted to the Airport's night lighting. The Airport takes measures to exclude birds from nesting in structures by closing hangars and installing netting and air curtains. However, the buildings within the DSA and ISA may be attractive to nesting birds and roosting bats.

4.1.2 Ruderal Grassland

Vegetation. Ruderal grasslands are present between the runways, taxiways, and other paved/developed areas on the active airfield. A very small area (less than 0.01 acres) of ruderal grassland is present within the ISA, which is located on the west side of Taxiway Z. Grassland extents are as shown in **Figure 3**. These areas are mown frequently to maintain a vegetation height of less than 12 inches to discourage wildlife use and maintain visibility. Herbicide is used around signs and taxiways in and near the infields.[16] Dominant plants occurring in these areas are well adapted to such frequent disturbance. Based on surveys conducted by H.T. Harvey (2019), this ruderal grassland is dominated by non-native, annual grasses, such as ripgut brome (*Bromus diandrus*), Italian ryegrass (*Lolium multiflorum*), and wild oats (*Avena* sp.). Common forbs observed include non-native species, such as black mustard (*Brassica nigra*), Russian thistle (*Salsola tragus*), and bull mallow (*Malva nicaeensis*). Trees have all been removed in and near the airport infield as they can be attractive perching structures for bird species.

Wildlife. The areas of ruderal grassland habitat within the airfield are managed to discourage wildlife species, and these areas are also regularly disturbed by mowing. Due to this intensive management, the grassland habitat within the airfield provides limited habitat for wildlife species. Nevertheless, in addition to the wildlife species found in developed/landscaped habitat, moderate numbers of California ground squirrels (*Otospermophilus beecheyi*), Botta's pocket gophers

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[14] U.S. Department of Agriculture (USDA). 2017. Norman Y. Mineta San José International Airport Wildlife Hazard Management Plan (WHMP).

[15] USDA. 2017. Norman Y. Mineta San Jose International Airport WHMP.

[16] USDA. 2017. Norman Y. Mineta San Jose International Airport WHMP.

(*Thomomys bottae*), and other rodent prey species are present throughout the ruderal grassland areas within the airfield. Grey foxes also have been known to use the airport infield grasslands. Ground squirrel burrows provide nest sites for burrowing owls. Burrowing owls (*Athene cunicularia*) have inhabited these grassland areas for decades and their presence year-round in the airport infield has been observed by Airport staff biologists; however, they have not been documented in the ISA (**Figure 4**). The WHMP also identifies that wintering grassland birds, such as the red-winged blackbird (*Agelaius tricolor*) and Say's phoebe (*Sayornis saya*) forage in these grasslands. Few grassland-nesting birds breed in these areas, but small numbers of western meadowlarks (*Sturnella neglecta*) may nest around the airfield and forage here year-round. Aerial foragers, such as the black phoebe, swallows, and Mexican free-tailed bat, will forage aerially over this habitat for insects. Diurnal raptors, such as red-tailed hawks, (*Buteo jamaicensis*) forage for small mammals over grasslands during the day, and at night nocturnal raptors, such as barn owls, will forage for nocturnal rodents, such as deer mice (*Peromyscus maniculatus*). The WHMP identifies the most common birds of prey at the Airport, including red-tailed hawks, American kestrel (*Falco sparverius*), golden eagles (*Aquila chrysaetos*), peregrine falcons (*Falco peregrinus*), barn owls, burrowing owls, and turkey vultures.[17]

Medium-sized mammal species, such as the native striped skunk (*Mephitis mephitis*), raccoon, and feral cat (*Felis catus*) are known to utilize grasslands near the ISA for foraging. Reptiles, such as western fence lizards, western skinks (*Plestiodon skiltonianus*), western terrestrial garter snakes (*Thamnophis elegans*), and southern alligator lizards (*Elgaria multicarinata*), frequent grassland habitats and may occur in the ISA.

Current wildlife management practices within developed and grassland habitats include nest removal on light fixtures, buildings, and jetways; swallow nest removal on bridges near the Airport; anti-perching spike installation on current runway and taxiway signs and airfield light posts; wildlife population reduction (e.g., trapping, netting, lethal control); wildlife hazard control, such as exclusion devices and harassment (e.g., pyrotechnics, vehicle dispersal, sound devices, visual devices); lethal control of pigeons in hangar buildings; and perching structure removal on the airfield.[18]

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[17] USDA. 2017. Norman Y. Mineta San Jose International Airport WHMP.

[18] USDA. 2017. Norman Y. Mineta San Jose International Airport WHMP.

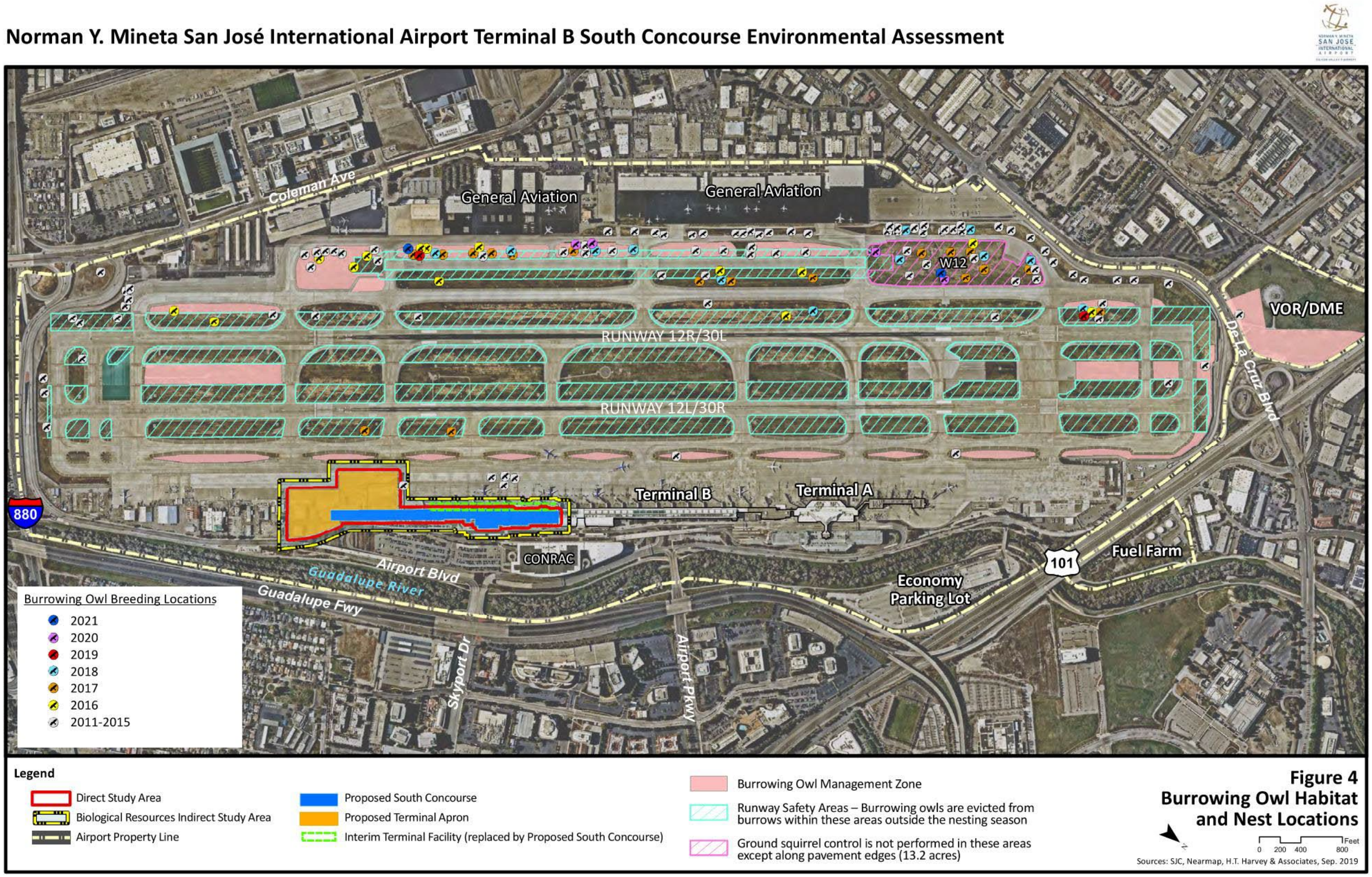

Figure 4
Burrowing Owl Habitat and Nest Locations

Sources: SJC, Nearmap, H.T. Harvey & Associates, Sep. 2019

4.1.3 Invasive Species

Transportation facilities provide ample opportunities for invasive species to establish and spread. Invasive species can be transported by vehicles or moved site to site during spraying and mowing operations. Seeds can be introduced inadvertently during construction from contaminated equipment or construction materials (e.g., mulch, imported soil or gravel, sod). In erosion control or landscaping, some invasive plant species might be planted deliberately.

The California Invasive Plant Council Invasive Plant Inventory is based on information submitted by members, land managers, botanists, and researchers throughout the state as well as published sources.[19] The inventory highlights non-native plants in California that are serious problems in wildlands (i.e., natural areas that support native ecosystems). The Invasive Plant Inventory categorizes plants as high, moderate, or limited based on the species' negative ecological impact. Plants categorized as "high" have severe ecological impacts, "moderate" have substantial and apparent but generally not severe ecological impacts, and "limited" are invasive but their ecological impacts are minor.

Eleven non-native invasive plant species were identified within the ISA as having moderate- or high-risk impacts on native plant populations. Four species observed during field surveys are ranked as having high (severe) impacts: jubata grass, English ivy, yellow star thistle (*Centaurea solstitialis*), and Italian ryegrass. Fennel, Mexican fan palm, black mustard, wild oats, ripgut brome, common velvet grass (*Holcus lanatus*), and barley species (*Hordeum* sp.) are ranked as moderate risk.[20]

European starlings, house sparrows, and feral cats were observed during field surveys; no other invasive animal species were observed. However, other invasive animal species are common in urbanized areas of the City.

5 Special-status Species and Sensitive Habitats

NEPA requires assessment of the effects of an action on threatened or endangered species that are protected by the federal government. Impacts on these species are regulated by some of the federal laws described in *Section 3.1, Federal Regulations*.

5.1 Federally Protected Species

For the purposes of this analysis, "special-status" plants and animals are those that are listed under FESA as threatened, endangered, proposed threatened, proposed endangered, or a candidate species.

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[19] California Invasive Plant Council. 2020. California Invasive Plant Inventory. https://www.cal-ipc.org/plants/inventory/# Accessed September 20, 2020.

[20] H.T. Harvey & Associates. 2019. Norman Y. Mineta San José International Airport 2019 Master Plan Amendment Biological Resources Report.

5.2 State Protected Species and Habitats

For purposes of this analysis, “special-status” plants are considered plant species that are:

- Listed under CESA as threatened, endangered, rare, or a candidate species.

For purposes of this analysis, “special-status” animals are considered animal species that are:

- Listed under CESA as threatened, endangered, or a candidate threatened or endangered species;
- Designated by the CDFW as a California species of special concern (CSSC); and
- Listed in the California FGC as a fully protected species (fully protected birds are provided in Section 3511, mammals in Section 4700, reptiles and amphibians in Section 5050, and fish in Section 5515).

The CNPS, a non-governmental conservation organization, has developed California Rare Plant Rank (CRPR) for plant species of concern in California in the CNPS Inventory of Rare and Endangered Plants. The CRPRs include lichens and vascular and non-vascular plants, and they are defined as follows:

- CRPR 1A - Plants considered extinct
- CRPR 1B - Plants that are rare, threatened, or endangered in California and elsewhere
- CRPR 2A - Plants considered extinct in California but more common elsewhere
- CRPR 2B - Plants that are rare, threatened, or endangered in California but more common elsewhere
- CRPR 3 - Plants about which more information is needed - review list
- CRPR 4 - Plants of limited distribution - watch list

The CRPRs are further described by the following threat code extensions:

- .1—seriously endangered in California
- .2—fairly endangered in California
- .3—not very endangered in California

Although the CNPS is not a regulatory agency and plants on these lists have no formal regulatory protection, plants appearing as CRPR 1B or 2B are at risk for significant impacts based on FAA’s impact factors to consider in accordance with FAA Order 1050.1F, where the intensity of the impact is high. Impacts on plants that are listed by the CNPS on CRPR 3 or 4 would require a greater impact intensity for the action to have a significant impact because these species are not as rare as those of CRPR 1B or 2B.

Vegetation types of “special concern” are tracked in the CNDDB[21] and the Inventory of Rare and Endangered Plants of California.[22] Further, the CDFW ranks sensitive vegetation alliances based

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[21] CDFW. 2022. CNDDB. RareFind 5.0. Accessed May 2022. https://apps.wildlife.ca.gov/rarefind/view/RareFind.aspx

[22] CNPS, Rare Plant Program. 2022. Inventory of Rare and Endangered Plants of California (online edition, v9-01 1.0). Accessed May 18, 2022. https://rareplants.cnps.org/.

on their global (G) and state (S) rankings analogous to those provided in the CNDDB. Global rankings (G1–G5) of natural communities reflect the overall condition (rarity and endangerment) of a habitat throughout its range, whereas S rankings are a reflection of the condition of a habitat within California. If an alliance is marked as G1–G3, all of the associations within it would also be of high priority. The CDFW provides the Vegetation Classification and Mapping Program's (VegCAMP) currently accepted list of vegetation alliances and associations.[23] Adverse impacts to rare vegetation types or natural communities of sufficient intensity could be considered a significant impact in accordance with FAA Order 1050.1F.

Information concerning threatened, endangered, and other special-status species that potentially occur in the Study Area was collected from several sources and reviewed by HNTB as described in *Section 2.1*. The following sections describe the potential for special-status species and habitats to occur.

5.3 Special-status Plant Species

As part of Section 7 consultation, the USFWS provided a list of special-status species for consideration of the effects of the Proposed Action Alternative (**Attachment 1**). One species was identified (robust spineflower) by USFWS; the CNDDB list also included observations of Contra Costa goldfields. Neither robust spineflower nor Contra Costa goldfields have the potential to occur within the Study Area. USFWS (**Attachment 1**), H.T. Harvey & Associates,[24] the CNDDB (**Attachment 3**), and the CNPS Rare Plant Inventory (**Attachment 4**) identified 86 special-status or rare plant species as potentially occurring in at least one of the nine USGS quadrangles containing or surrounding the ISA (***Appendix D2, Special-Status Plants Considered for Potential Occurrence***). ***Appendix D2*** lists these plants along with the basis for the determination of absence. Of the 86 species identified in database searches, all were determined to be absent from the Study Area for at least one of the following reasons: (1) lack of suitable habitat types; (2) absence of specific microhabitat or edaphic requirements, such as serpentine soils; (3) elevation range of the species is outside of the range within the Study Area; and/or (4) the species is considered extirpated from the vicinity. H.T. Harvey & Associates conducted a survey for Congdon's tarplant in October 2020 and confirmed that it is absent from the Airport infield.[25] Federally listed species from these lists are included in **Table 1**. State-listed species are addressed in ***Appendix D2***.

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[23] CDFW. 2020. VegCAMP List of California Vegetation Alliances and Rarity Ranking. Accessed Sept. 20, 2020. https://wildlife.ca.gov/data/vegcamp/natural-communities

[24] H.T. Harvey & Associates. 2019. Norman Y. Mineta San José International Airport 2019 Master Plan Amendment Biological Resources Report.

[25] H.T. Harvey & Associates. 2020. San José International Airport – Congdon's Tarplant Survey Report.

Table 1. Special-status Plant Species, their Listing Status, Critical or Essential Habitat, and Potential Occurrence in the Study Area

Name	Listing Status*	Habitat	Potential for Occurrence in the Study Area
Federal Endangered, Threatened, or Candidate Species and Critical Habitat			
Ben Lomond spineflower *(Chorizanthe pungens var. hartwegiana)*	FE	Lower montane coniferous forest (maritime ponderosa pine sandhills)	**Absent.** Occurrences included in CNDDB list; however, there is no suitable habitat, edaphic conditions, or elevation for this species in the Study Area.
California seablite *(Suaeda californica)*	FE	Coastal salt marshes and swamps	**Absent.** Occurrences included in CNDDB list; however, there is no suitable habitat or elevation for this species in the Study Area.
Contra Costa Goldfields *(Lasthenia conjugens)*	FE	Cismontane woodland, alkaline playas, valley and foothill grassland, vernal pools	**Absent.** No suitable habitat for this species in the Study Area.
Metcalf Canyon jewelflower *(Streptanthus albidus ssp. albidus)*	FE	Serpentine valley and foothill grasslands	**Absent.** Occurrences included in CNDDB list; however, there is no suitable habitat, edaphic conditions, or elevation for this species in the Study Area. It has also been extirpated from the vicinity.
Robust spineflower *(Chorizanthe robusta var. robusta)*	FE	Chaparral (maritime), openings in cismontane woodland, coastal dunes, and coastal scrub	**Absent.** No suitable habitat for this species in the Study Area.
Santa Clara Valley dudleya *(Dudleya abramsii ssp. setchellii)*	FE	Cismontane woodland, valley, and foothill grasslands	**Absent.** Occurrences included in CNDDB list; however, there is no suitable habitat, edaphic conditions, or elevation for this species in the Study Area. It has also been extirpated from the vicinity.
White-rayed pentachaeta *(Pentachaeta bellidiflora)*	FE/SE	Cismontane woodland, valley, and foothill grasslands	**Absent.** Occurrences included in CNDDB list; however, there is no suitable habitat, edaphic conditions, or elevation for this species in the Study Area.

***Key to Abbreviations:**

Status: Federally Endangered (FE), State Endangered (SE)

5.4 Special-status Animal Species

As part of Section 7 consultation, the USFWS and NMFS provided a list of special-status species for consideration of impacts to biological resources as a result of the Proposed Action Alternative (**Attachments 1 and 2).** The legal status and likelihood of occurrence of special-status animal species in the Study Area are presented in **Table 2**. The list of species, listing status, habitat type, and potential to occur were based on the USFWS species list, NMFS species list, CNDDB search (**Attachment 3**), CNPS list (**Attachment 4**), H.T. Harvey & Associates,[26] CDFW Special Animals List,[27] and available research and literature. Most of the special-status species listed in Table 2 are not expected to occur in the Study Area because it lacks suitable habitat, is outside the known range of the species, and/or is isolated from the nearest known extant populations by development or otherwise unsuitable habitat. Ten species (the tricolored blackbird, burrowing owl, Bryant's savannah sparrow, loggerhead shrike, grasshopper sparrow, pallid bat, peregrine falcon, bald eagle, golden eagle, and white-tailed kite) have the potential to occur in the Study Area and are described further below.

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[26] H.T. Harvey & Associates. 2019. Norman Y. Mineta San José International Airport 2019 Master Plan Amendment Biological Resources Report.

[27] CDFW. 2022. Special Animals List, April 2022. Accessed May 2022. https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=109406&inline.

Table 2. Special-status Wildlife Species, their Listing Status, Critical or Essential Habitat, and Potential Occurrence in the Study Area

Name	Listing Status*	Habitat	Potential for Occurrence in the Study Area
Federal Endangered, Threatened, or Candidate Species and Critical Habitat			
Alameda whipsnake (=striped Racer) (*Masticophis lateralis euryxanthus*)	FT, ST	Typically found in chaparral and scrub habitats but will also use adjacent grassland, oak savanna, and woodland habitats.	**Absent.** No suitable habitat for this species in the Study Area.
Bay checkerspot butterfly *(Euphydryas editha bayensis)*	FT	Restricted to native grasslands on outcrops of serpentine soil in the vicinity of the San Francisco Bay.	**Absent.** Occurrences documented in CNDDB in the San José East and Santa Teresa Hills quadrangles; however, there is no suitable habitat for this species in the Study Area.
California least tern (*Sterna antillarum browni*, also known as *Sternula antillarum*)	FE	Colonial breeder on bare or sparsely vegetated, flat substrates: sand beaches, alkali flats, landfills, or paved areas.	**Absent.** No suitable habitat for this species in the Study Area.
California red-legged frog (*Rana draytonii*)	FT, CSSC	Streams, freshwater pools, and ponds with emergent or overhanging vegetation.	**Absent.** This species has been extirpated from the vicinity of the ISA, including the entire urbanized Santa Clara Valley floor, due to development, the alteration of hydrology of its aquatic habitats, and the introduction of non-native predators such as non-native fishes and bullfrogs.[28]
California Ridgeway's rail (*Rallus obsoletus obsoletus,* formerly known as California clapper rail, *Rallus longirostris obsoletus*)	FE	Salt water and brackish marshes traversed by tidal sloughs in the vicinity of the San Francisco Bay.	**Absent.** No suitable habitat for this species in the Study Area.

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[28] H.T. Harvey & Associates. 2019. Norman Y. Mineta San José International Airport 2019 Master Plan Amendment Biological Resources Report.

Name	Listing Status*	Habitat	Potential for Occurrence in the Study Area
California tiger salamander (*Ambystoma californiense*)	FT, ST	Vernal or temporary pools in annual grasslands or open woodlands.	**Absent.** Populations located on the Santa Clara Valley floor have been extirpated due to habitat loss, and the species is now considered absent from the majority of the valley floor, including the Study Area. No recent records of California tiger salamanders are located anywhere in the vicinity of the ISA.[29]
Chinook salmon – California Coast Evolutionarily Significant Unit (ESU) (*Oncorhynchus tshawytscha*)	FT	Coastal watersheds from Redwood Creek (Humboldt County) to the Russian River (Sonoma County).	**Absent.** Outside of known range.[30]
Chinook salmon – Sacramento River Winter-Run ESU (*Oncorhynchus tshawytscha*)	FE, SE	Sacramento River to the Pit and McCloud rivers.	**Absent.** Outside of known range.[31]
Coho salmon – Central California Coast (CCC) ESU (*Oncorhynchus kisutch*)	FE, SE	Freshwater streams with a hydrologic connection to the Pacific Ocean between Punta Gorda and the San Lorenzo River.	**Absent.** No suitable habitat within the Study Area.
Coho salmon – Southern Oregon/Northern California ESU (*Oncorhynchus kisutch*)	FT, ST	West coast from the Mattole and Eel rivers is northern California to the Elk and Rogue rivers in Oregon.	**Absent.** Outside of known range.[32]

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[29] CDFW. 2022. CNDDB. RareFind 5.0. Accessed May 2022. https://apps.wildlife.ca.gov/rarefind/view/RareFind.aspx

[30] NMFS. 2013. California Coastal Chinook Salmon Evolutionarily Significant Unit. Accessed November 2021. https://media.fisheries.noaa.gov/dam-migration/ckcac_2013.pdf

[31] NMFS. 2013. Sacramento River Winter-run Chinook Salmon Evolutionarily Significant Unit. Accessed November 2021. https://media.fisheries.noaa.gov/dam-migration/cksac_2013.pdf

[32] NMFS. 2013. Southern Oregon/Northern California Coast Coho Salmon Evolutionarily Significant Unit. Accessed November 2021. https://media.fisheries.noaa.gov/dam-migration/cosnc_2013.pdf

Name	Listing Status*	Habitat	Potential for Occurrence in the Study Area
Conservancy fairy shrimp (*Branchinecta conservation*)	FE	Endemic to the grasslands of the northern two-thirds of the Central Valley; found in large, turbid pools.	**Absent.** No suitable habitat for this species in the Study Area.
Delta smelt *(Hypomesus transpacificus)*	FT	Sacramento-San Joaquin Delta; seasonally in Suisun Bay, Carquinez Strait, and San Pablo Bay; seldom found at salinities greater than 10 parts per thousand (ppt); most often at salinities less than 2 ppt.	**Absent.** No suitable habitat for this species in the Study Area.
Eulachon – Southern Distinct Population Segment (DPS) (*Thaloeichthys pacificus*)	FT	Rivers south of the Nass River in British Columbia, Canada to, and including, the Mad River in California.[33]	**Absent.** Outside of known range.
Green sturgeon, Southern DPS	FT	Found in the Sacramento and San Joaquin rivers and Delta; primarily spawn in the upper mainstem of the Sacramento River, although some spawning activity has recently been documented in the Feather and Yuba rivers; frequently enter large coastal bays and estuaries, including the San Francisco Bay estuary.	**Absent.** No suitable habitat in the Study Area.

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[33] NMFS. 2011. Critical Habitat for the Southern Distinct Population Segment of the Eulachon, Final Biological Report. Accessed Nov. 17, 2021. https://repository.library.noaa.gov/view/noaa/18679

Name	Listing Status*	Habitat	Potential for Occurrence in the Study Area
Green sturgeon southern DPS Critical Habitat	N/A	Coastal marine waters within 60 fathoms depth from Monterey Bay north to Cape Flattery; the Sacramento River, lower Feather River, and lower Yuba River; the Sacramento-San Joaquin Delta and Suisun, San Pablo, and San Francisco bays; the lower Columbia River estuary; and some coastal bays and estuaries in California (Humboldt Bay).	**Absent.** There is no critical habitat within the Study Area.
Longfin smelt *(Spirinchus thaleichthys)*	FC/ST	Capable of adapting/tolerating a wide range of salinities; found in open waters of estuaries; prefers salinities of 15-30 ppt but can be found in completely freshwater to almost pure saltwater.	**Absent.** CNDDB documents occurrences in the Mountain View and Milpitas quadrangles, however, no suitable habitat for this species in the Study Area.
Monarch butterfly (*Danaus plexippus*)	FC	Winter roost sites extend along the coast from northern Mendocino to Baja California and Mexico; roosts located in wind-protected tree groves with nectar and water sources nearby; larval host plant is milkweed (*Asclepias* sp.).	**Absent.** Both ruderal grasslands and landscape vegetation can provide foraging habitat; however, neither monarchs nor milkweed have been documented during previous surveys of the airport property.[34]
Salt-marsh harvest mouse (*Reithrodontomys raviventris*)	FE/SE	Only in the saline emergent wetlands of San Francisco Bay and its tributaries. Pickleweed is primary habitat. Does not burrow, builds loosely organized nests. Requires higher areas for flood escape.	**Absent.** No suitable habitat for this species in the Study Area.

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[34] Kleponis, Nicole. 2022. Personal conversation, April 7, 2022.

Name	Listing Status*	Habitat	Potential for Occurrence in the Study Area
San Joaquin kit fox *(Vulpes macrotis mutica)*	FE	Annual grasslands or grassy open stages with scattered shrubby vegetation.	**Absent.** Outside of known range.
Steelhead – CCC ESU *(Oncorhynchus mykiss irideus)*	FT	Cool streams with suitable spawning habitat and conditions allowing migration between spawning and marine habitats.	**Absent.** No suitable habitat within the Study Area.
Steelhead – CCC ESU Critical Habitat	N/A	Critical habitat includes all river reaches and estuarine areas accessible to listed steelhead in coastal river basins from the Russian River to Aptos Creek, California, and the drainages of San Francisco and San Pablo Bays.	**Absent.** No critical habitat within the Study Area.
Steelhead – California Central Valley ESU *(Oncorhynchus mykiss irideus)*	FT	Sacramento and San Joaquin rivers and their tributaries.	**Absent.** Outside of known range.[35]
Steelhead – Northern California ESU *(Oncorhynchus mykiss irideus)*	FT	California coastal creeks and rivers from Gualala River north to Redwood Creek.	**Absent.** Outside of known range.[36]
Steelhead – South-CCC ESU *(Oncorhynchus mykiss irideus)*	FT	California coastal rivers and creeks from Arroyo Grande Creek north to the Pajaro River.	**Absent.** Outside of known range.[37]

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[35] NMFS. 2013. California Central Valley Steelhead Distinct Population Segment. Accessed Nov. 2021. https://media.fisheries.noaa.gov/dam-migration/stccv_2013.pdf

[36] NMFS. 2013. Northern California Steelhead Distinct Population Segment. Accessed Nov. 2021. https://media.fisheries.noaa.gov/dam-migration/stnca_2013.pdf.

[37] NMFS. 2013. South-Central California Steelhead Distinct Population Segment. Accessed Nov. 2021. https://media.fisheries.noaa.gov/dam-migration/stscc_2013.pdf.

Name	Listing Status*	Habitat	Potential for Occurrence in the Study Area
Steelhead – Southern California ESU *(Oncorhynchus mykiss irideus)*	FE	From the Cuyama and Sisquoc River near Santa Maria, south to the U.S. border with Mexico.	**Absent.** Outside of known range.[38]
Vernal pool tadpole shrimp (*Lepidurus packardi*)	FE	Inhabits vernal pools and swales in the Sacramento Valley containing clear to highly turbid water; pools commonly found in grass-bottomed swales of unplowed grasslands; some pools are mud-bottomed and highly turbid.	**Absent.** No suitable habitat for this species in the Study Area.
Western snowy plover (Charadrius nivosus nivosus, formerly Charadrius alexandrinus nivosus)	FT	Sandy beaches, salt pond levees, and shores of large alkali lakes; needs sandy, gravelly, or friable soils for nesting.	**Absent.** No suitable habitat for this species in the Study Area.
Yellow-billed Cuckoo (*Coccyzus americanu*s)	FT/SE	Riparian forest nester, along the broad, lower flood-bottoms of larger river systems.	**Absent.** Extirpated.
Zayante band-winged grasshopper (*Trimerotropis infantilis*)	FE	Isolated sandstone deposits in the Santa Cruz Mountains (the Zayante Sand Hills ecosystem).	**Absent.** No suitable habitat for this species in the Study Area.

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[38] NMFS. 2013. Southern California Steelhead Distinct Population Segment. Accessed Nov. 2021. https://media.fisheries.noaa.gov/dam-migration/stsca_2013.pdf.

Name	Listing Status*	Habitat	Potential for Occurrence in the Study Area
Essential Fish Habitat			
Coastal pelagic fish EFH	N/A	Marine and estuarine waters from the shoreline along the coasts of California, Oregon, and Washington offshore to the limits of the Exclusive Economic Zone and above the thermocline where sea surface temperatures range between 10°C to 26°C.	**Absent.** No EFH is mapped within the Study Area.[39]
Coho salmon EFH *(Oncorhynchus kisutch)*	N/A	Coho salmon EFH includes all habitats currently or historically occupied within Washington, Oregon, and California.	**Absent.** No suitable aquatic habitat within the Study Area.
Chinook salmon EFH *(Oncorhynchus tshawytshca)*	N/A	Chinook salmon EFH includes all habitat currently or historically occupied within Washington, Oregon, Idaho, and California.	**Absent.** No suitable aquatic habitat within the Study Area.

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[39] Pacific Fishery Management Council. 2019. Coastal Pelagic Species Fishery Management Plan as Amended Through Amendment 17. https://www.pcouncil.org/documents/2019/06/cps-fmp-as-amended-through-amendment-17.pdf/

Name	Listing Status*	Habitat	Potential for Occurrence in the Study Area
Groundfish EFH	N/A	All waters and substrate within the following areas: • Depths less than or equal to 11,500 feet to mean higher high water level or the upriver extent of saltwater intrusion, defined as upstream and landward to where ocean-derived salts measure less than 0.5 ppt during the period of average annual low flow • Seamounts in depths greater than 11,500 feet • Habitat areas of particular concern.	**Absent.** No suitable aquatic habitat within the Study Area.[40]
State Endangered, Threatened, or Candidate Species and Critical Habitat			
Bald eagle *(Haliaeetus leucocephalus)*	SE, SP	Occurs mainly along seacoasts, rivers, and lakes; nests in tall trees or in cliffs, occasionally on electrical towers; feeds mostly on fish.	**Absent as Breeder.** Bald eagles are known to occur at the Airport. The ruderal grasslands within the Airport infield function as hunting grounds. No nesting habitat is present within the Study Area. Nevertheless, this species may occur in the Study Area as an occasional forager, primarily during migration and winter.
Crotch bumble bee (*Bombus crotchii*)	Candidate SE	Coastal California east to the Sierra-Cascade crest and south into Mexico. Food plant genera include Antirrhinum, Phacelia, Clarkia, Dendromecon, Eschscholzia, and Eriogonum.	**Absent.** Food plants are not present within the Study Area.

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[40] Pacific Fishery Management Council. 2020. Pacific Coast Groundfish Fishery Management Plan, Amended in August 2020. https://www.pcouncil.org/documents/2016/08/pacific-coast-groundfish-fishery-management-plan.pdf/

Name	Listing Status*	Habitat	Potential for Occurrence in the Study Area
Foothill yellow-legged frog (*Rana boylii*)	SE	Partially shaded shallow streams and riffles with a rocky substrate. Occurs in a variety of habitats in coast ranges.	**Absent.** The VHP maps the Guadalupe River adjacent to the site as secondary habitat for foothill yellow-legged frogs.[41] However, this species has been extirpated from Valley floor areas of Santa Clara County, and it is no longer known to occur along the County's streams below major reservoirs, including Calero and Almaden Reservoirs, which are located upstream of the ISA. Thus, yellow-legged frogs are absent from the Study Area and adjacent areas.
Swainson's hawk (*Buteo swainsoni*)	ST	Breeds in grasslands with scattered trees, juniper-sage flats, riparian areas, savannahs, and agricultural or ranch lands with groves or lines of trees; requires adjacent suitable foraging areas, such as grasslands, alfalfa, or grain fields supporting rodent populations.	**Absent.** Although grasslands are present within the ISA, ground squirrel control, mowing, and bird deterrents within the Airport infield makes the habitat unsuitable for Swainson's hawks. The only CNDDB record was historical, pre-1900 (**Attachment 3**). Determined to be absent.

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[41] H.T. Harvey & Associates. 2019. Norman Y. Mineta San José International Airport 2019 Master Plan Amendment Biological Resources Report.

Name	Listing Status*	Habitat	Potential for Occurrence in the Study Area
Tricolored blackbird (*Agelaius tricolor*)	ST/SSC	Nests near fresh water in dense emergent vegetation.	**Absent as Breeder.** In the County of Santa Clara it has bred in only a few scattered locations, and it is absent from, or occurs only as a nonbreeder in most of the county.[42] Typically, it nests in extensive stands of tall emergent herbaceous vegetation in non-tidal freshwater marshes and ponds. No suitable nesting habitat is present along the Guadalupe River. This species (whose colonies are loud and conspicuous) has never been recorded nesting within or adjacent to the ISA, and high levels of adjacent disturbance likely preclude nesting by this species. This species has a low potential to occur in the ISA as a nonbreeding forager.
Western bumble bee (*Bombus occidentalis*)	Candidate SE	Meadows and grasslands with abundant floral resources.	**Absent.** Although grasslands are suitable habitat, Western bumble bees are unlikely to occur within the Study Area. Western bumble bees are largely confined to high elevation sites and there are only a small number of records on the northern California coast.[43]
CSSC			
Alameda song sparrow *(Melospiza melodia pusillula)*	CSSC	Resident of salt marshes bordering the south arm of the San Francisco Bay.	**Absent.** No suitable habitat for this species in the Study Area.

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[42] H.T. Harvey & Associates. 2019. Norman Y. Mineta San José International Airport 2019 Master Plan Amendment Biological Resources Report.

[43] CDFW. 2018. A petition to the state of California Fish and Game Commission to list: The Crotch bumble bee (*Bombus crotchii*), Franklin's bumble bee (*Bombus franklini*), Suckley cuckoo bumble bee (*Bombus suckleyi*), and Western bumble bee (*Bombus occidentalis occidentalis*) as endangered under CESA. https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=161902&inline

Name	Listing Status*	Habitat	Potential for Occurrence in the Study Area
American badger (*Taxidea taxus*)	CSSC	Burrows in grasslands and occasionally in infrequently disked agricultural areas.	**Absent.** Known to occur in the region primarily in extensive grasslands and agricultural habitats, mostly in the foothills. Suitably extensive grasslands or agricultural habitats are not present within or near the ISA, and the grasslands within the study areas are isolated from more extensive grasslands in the foothills to the east by high-density urban development. Determined to be absent.
Black skimmer (*Rynchops niger*)	CSSC	Nests on gravel bars, low islets, and sandy beaches, and in unvegetated sites; nesting colonies usually less than 200 pairs.	**Absent.** No suitable habitat for this species in the Study Area.
Black swift *(Cypseloides niger)*	CSSC	Coastal belt of Santa Cruz and Monterey counties, central and southern Sierra Nevada, and San Bernardino and San Jacinto mountains; breeds in small colonies on cliffs behind or adjacent to waterfalls in deep canyons and sea bluffs above the surf; forages widely.	**Absent.** No suitable habitat for this species in the Study Area.

Name	Listing Status*	Habitat	Potential for Occurrence in the Study Area
Burrowing owl *(Athene cunicularia)*	CSSC	Nests and roosts in open grasslands and ruderal habitats with suitable burrows, usually those made by California ground squirrels.	**Unlikely Breeder, Present as a Forager.** Burrowing owls have been known to nest, roost, and forage within the grassland portions of the Airport's airfield for decades,[44] and they continue to be present in these areas year-round. However, there have been no documented nests in or adjacent to the ISA based on annual survey data from 2011-2021.
Bryant's savannah sparrow *(Passerculus sandwichensis alaudinus)*	CSSC	Nests in pickleweed dominant salt marshes and adjacent ruderal habitats.	**Absent as Breeder.** In the South San Francisco Bay, it nests primarily in short pickleweed-dominated portions of diked/muted tidal salt marsh habitat and in adjacent ruderal habitats. No suitable nesting habitat occurs in the Study Area. Individuals of several savannah sparrow subspecies, including *alaudinus*, may forage within the ISA during migration and winter.
California giant salamander (*Dicamptodon ensatus*)	CSSC	Known from wet coastal forests near streams and seeps from Mendocino County south to Monterey County and east to Napa County.	**Absent.** No occurrences near the ISA.[45] CNDDB records are restricted to the Santa Cruz Mountains. There are no occurrences within the Guadalupe River.
Chinook salmon - Central Valley fall-run ESU (*Oncorhynchus tshawytscha*)	CSSC	Cool rivers and large streams that reach the ocean and that have shallow, partly shaded pools, riffles, and runs.	**Absent.** No suitable habitat within the Study Area.

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[44] Albion Environmental, Inc. 1997. Burrowing Owl Management Plan – San José International Airport. Final Report.

[45] CDFW. 2022. CNDDB. RareFind 5.0. Accessed May 2022. https://apps.wildlife.ca.gov/rarefind/view/RareFind.aspx.

Name	Listing Status*	Habitat	Potential for Occurrence in the Study Area
Coast horned lizard (*Phrysonoma blainvillii*)	CSSC	Frequents a wide variety of habitats, including riparian and grassland; most common in lowlands along sandy washes with scattered low bushes.	**Absent.** No record of this species in urbanized San José.[46]
Grasshopper sparrow (*Ammodramus savannarum*)	CSSC (nesting)	Nests and forages in grasslands, meadows, fallow fields, and pastures.	**Absent as Breeder.** Known to occur in the region primarily in grasslands and less frequently disturbed agricultural habitats, mostly in the foothills. This species does not breed on grassland on the Santa Clara Valley floor. Small numbers of individuals may forage in grasslands in the ISA during migration.
Loggerhead shrike (*Lanius ludovicianus*)	CSSC (nesting)	Nests in tall shrubs and dense trees; forages in grasslands, marshes, and ruderal habitats.	**Absent as Breeder.** Although the airport infield includes grasslands, regular mowing ensures that there are no scattered brush, chaparral, or trees to provide perches and nesting sites.[47] Nonbreeding individuals may forage in low numbers in grasslands in and adjacent to the ISA year-round; however, potential to occur as a forager is low due to mowing of the airport infield.
Northern California legless lizard (*Anniella pulchra*)	CSSC	Sandy or loose loamy soils under sparse vegetation in chaparral, coastal dunes, or coastal scrub.	**Absent.** No suitable habitat for this species in the Study Area.

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[46] CDFW. 2022. CNDDB. RareFind 5.0. Accessed May 2022. https://apps.wildlife.ca.gov/rarefind/view/RareFind.aspx.

[47] H.T. Harvey & Associates. 2019. Norman Y. Mineta San José International Airport 2019 Master Plan Amendment Biological Resources Report.

Name	Listing Status*	Habitat	Potential for Occurrence in the Study Area
Northern harrier (*Circus hudsonius*)	CSSC	Coastal salt and freshwater marsh; nest and forage in grasslands; from salt grass in desert sink to mountain cienagas.	**Absent.** No documented occurrences near the Study Area.[48]
Pallid bat *(Antrozous pallidus)*	CSSC	Forages over many habitats; roosts in caves, rock outcrops, buildings, and hollow trees.	**Absent as Breeder.** Historically, pallid bats were likely present in several locations throughout the region, but their populations have declined in recent decades. This species has been extirpated as a breeder from urban areas close to the San Francisco Bay, as is the case in the Study Area. No high-quality roosting habitat is present in the Study Area, and no known maternity colonies of this species are present within or adjacent to the ISA. There is a very low probability that the species occurs in the site vicinity due to urbanization; however, individuals from more remote colonies could potentially forage in the Study Area over open habitats on rare occasions.
Purple martin (*Progne subis*)	CSSC	Inhabits woodlands, low elevation coniferous forest of Douglas-fir, ponderosa pine, and Monterey pine.	**Absent.** No suitable habitat for this species in the Study Area.
Salt-marsh wandering shrew (*Sorex vagrans halicoetes*)	CSSC	Salt marshes of the south arm of the San Francisco Bay.	**Absent.** No suitable habitat for this species in the Study Area.
San Francisco common yellowthroat *(Geothlypis trichas sinuosa)*	CSSC	Nests in herbaceous vegetation, usually in wetlands or moist floodplains.	**Absent.** No suitable habitat for this species in the Study Area.

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[48] CDFW. 2022. CNDDB. RareFind 5.0. Accessed May 2022. https://apps.wildlife.ca.gov/rarefind/view/RareFind.aspx

Name	Listing Status*	Habitat	Potential for Occurrence in the Study Area
San Francisco dusky-footed woodrat *(Neotoma fuscipes annectens)*	CSSC	Nests in a variety of habitats, including riparian areas, oak woodlands, and scrub.	**Absent.** No suitable habitat for this species in the Study Area.
Santa Cruz black salamander (*Aneides niger*)	CSSC	Mixed deciduous and coniferous woodlands and coastal grasslands in San Mateo, Santa Cruz, and Santa Clara counties.	**Absent.** No suitable habitat for this species in the Study Area.
Townsend's big-eared bat (*Corynorhinus townsendii*)	CSSC	Roosts in caves and mine tunnels, and occasionally in deep crevices in trees, such as redwoods or in abandoned buildings; found in a variety of habitats.	**Absent.** No known extant populations of the Townsend's big-eared bat occur on the Santa Clara Valley floor. Suitable breeding habitat is not present in the Study Area, and no colonies are known from the site vicinity. Determined to be absent.
Western pond turtle (*Actinemys marmorata*, also known as *Emys marmorata marmorata*)	CSSC	Permanent or nearly permanent water in a variety of habitats.	**Absent.** No suitable habitat for this species in the Study Area.
Yellow rail *(Coturnicops noveboracensis)*	CSSC	Freshwater marshlands.	**Absent.** No suitable habitat for this species in the Study Area.
Yellow warbler *(Setophaga petechia)*	CSSC (nesting)	Nests in riparian woodlands.	**Absent.** No suitable habitat for this species in the Study Area.
State Fully Protected Species			
American peregrine falcon (*Falco peregrinus anatum*)	SP	Forages in many habitats; nests on cliffs, tall bridges, and buildings.	**Absent as Breeder.** Peregrine falcons are known to nest on City Hall in downtown San José, but they are not known or expected to nest in the Study Area due to a lack of suitable habitat. Nevertheless, the peregrine falcon may occur in the Study Area as an occasional forager, primarily during migration and winter.

Name	Listing Status*	Habitat	Potential for Occurrence in the Study Area
California black rail (Laterallus jamaicensis coturniculus)	ST/SP	Inhabits freshwater marshes, wet meadows and shallow margins of saltwater marshes bordering larger bays.	**Absent.** No suitable habitat for this species in the Study Area.
Golden eagle *(Aquila chrysaetos)*	SP	Breeds on cliffs or in large trees (rarely on electrical towers); forages in open areas.	**Absent as Breeder.** WHMP indicates that golden eagles are known to occur at the Airport. The ruderal grasslands within the Airport infield function as hunting grounds. No nesting habitat is present within the Study Area. Nevertheless, this species may occur in the Study Area as an occasional forager, primarily during migration and winter.
White-tailed kite (*Elanus leucurus*)	SP	Nests in tall shrubs and trees; forages in grasslands, marshes, and ruderal habitats.	**Absent as Breeder.** No suitable nesting trees occur within the Study Area. White-tailed kites may occur in and adjacent to the ISA as occasional foragers year-round.

***Key to Abbreviations:**

Status: Federally Endangered (FE), Federally Threatened (FT), Federal Candidate (FC), State Endangered (SE), State Threatened (ST), State Fully Protected (SP), California Species of Special Concern (CSSC)

There are 10 protected species or habitats that have the potential to occur within the Study Area: two state listed species (the bald eagle and tricolored blackbird), five CSSC (burrowing owl, Bryant's savannah sparrow, loggerhead shrike, grasshopper sparrow, pallid bat), and three state fully protected species (peregrine falcon, golden eagle, and white-tailed kite). No federally listed species have the potential to occur in the Study Area. There is no critical habitat or EFH within the Study Area.

A number of special-status bird and mammal species can occasionally occur in the Study Area as nonbreeding foragers (i.e., they do not nest in the Study Area). These are the Bryant's savannah sparrow, loggerhead shrike, white-tailed kite, peregrine falcon, bald eagle, and golden eagle. The pallid bat, a CSSC, may also forage aerially over habitats in the Study Area. These species are not expected to nest, roost, or breed in or immediately adjacent to the Study Area. In addition, the grasshopper sparrow, a CSSC only when it is nesting, may occur occasionally in grasslands within the Study Area as a nonbreeding transient, forager, or migrant, but no suitable nesting habitat for this species occurs in the Study Area. Because this species is only considered a CSSC when nesting, it is not a "special-status species" when it occurs as a nonbreeding visitor to the Study Area. Tricolored blackbirds have not been recorded nesting in the vicinity of the ISA, and the species does not nest in the types of habitats that occur on and adjacent to the site. Therefore, this species is not expected to breed within or immediately adjacent to the ISA, and at most it occurs as an uncommon and irregular forager on the site during the nonbreeding period.

The burrowing owl is addressed in greater detail below because it is known to occur within the airport infield.

Burrowing Owl (*Athene cunicularia*).
Federal Listing Status: None; State Listing Status: CSSC

Burrowing owls are small, terrestrial owls that live in open grasslands. These owls inhabit annual and perennial grasslands, typically with sparse or nonexistent tree or shrub canopies. In California, burrowing owls are found in close association with California ground squirrels as the owls use the abandoned burrows of ground squirrels for shelter and nesting. The nesting season, as recognized by the CDFW, extends from February 1 through August 31.[49] After nesting is completed, adult owls may remain in their nesting burrows or in nearby burrows, or they may disperse to a new area. Young birds disperse across the landscape distances of 0.1 to 35 miles from their natal burrows.[50] Burrowing owl populations have declined substantially in the San Francisco Bay Area in recent years, with declines estimated at 4–6% annually.[51]

Burrowing owls occur year-round in the Santa Clara Valley, and they are commonly present in open, agricultural, or grassland areas within active burrows of California ground squirrels. They exhibit strong site fidelity, and they may return to a nesting site and attempt to nest even after the

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[49] CDFW. 2012. Staff Report on Burrowing Owl Mitigation. March 7, 2012.

[50] H.T. Harvey & Associates. 2019. Norman Y. Mineta San José International Airport 2019 Master Plan Amendment Biological Resources Report.

[51] H.T. Harvey & Associates. 2019. Norman Y. Mineta San José International Airport 2019 Master Plan Amendment Biological Resources Report.

site has been developed. However, burrowing owls are increasingly disappearing from locations on the urban Santa Clara Valley floor.

A population of burrowing owls has been present year-round at the Airport for decades. In 1997, the City developed the *Burrowing Owl Management Plan – San José International Airport* (BOMP) with the goals of reducing the potential burrowing owl collisions with aircraft, mitigating impacts of Airport construction projects on burrowing owls, and providing for the long-term maintenance of a stable population of burrowing owls at the Airport.[52] The burrowing owl population at the Airport continues to be managed according to the BOMP, although some changes to the management regime have been implemented since 1997. The 1997 BOMP designated management areas where the presence of burrowing owls is encouraged (**Figure 4**). Current airfield management practices related to burrowing owls are as follows:

- Burrowing owls are evicted from occupied burrows (using one-way doors) within the Runway Safety Areas outside the nesting season to minimize collisions with aircraft, but owls are allowed to remain in other portions of the airfield (or within the Runway Safety Areas, if they are detected during the nesting season). Burrows of California ground squirrels that are not occupied by owls are periodically closed within Runway Safety Areas to minimize the potential for owls to occupy those areas.
- Lethal control of California ground squirrels is implemented in all portions of the airfield, including the burrowing owl management areas, with the exception of infield W12 (**Figure 4**). Within this area, the control of ground squirrels is limited to pavement edges to prevent damage to pavement resulting from burrows.
- Infield areas are mown regularly, and vegetation height is maintained below 12 inches.

California ground squirrels were known to have been more abundant within the airport infields prior to the implementation of the Airport's rodent control program.[53] Ground squirrel management activities have not eliminated ground squirrels from the airfield (including burrowing owl management areas), but the management activities are of sufficient intensity to: (1) ensure that numbers of California ground squirrels on the airfield remain relatively low in order to minimize the attraction of predators to the airfield (and potential collisions of predators with aircraft), and (2) minimize the establishment of burrows in areas where they would result in damage to airfield infrastructure (e.g., at runway and taxiway edges).[54] The number of burrows on the airfield appears to be relatively stable from year to year, suggesting that management has simply been maintaining lower numbers of squirrels throughout the airfield rather than continually reducing the population. For example, although the interior of infield W12 is the only area where ground squirrel management is not implemented, ground squirrels continue to be present in a number of other infields southwest of Runway 12R-30L (**Figure 4**).

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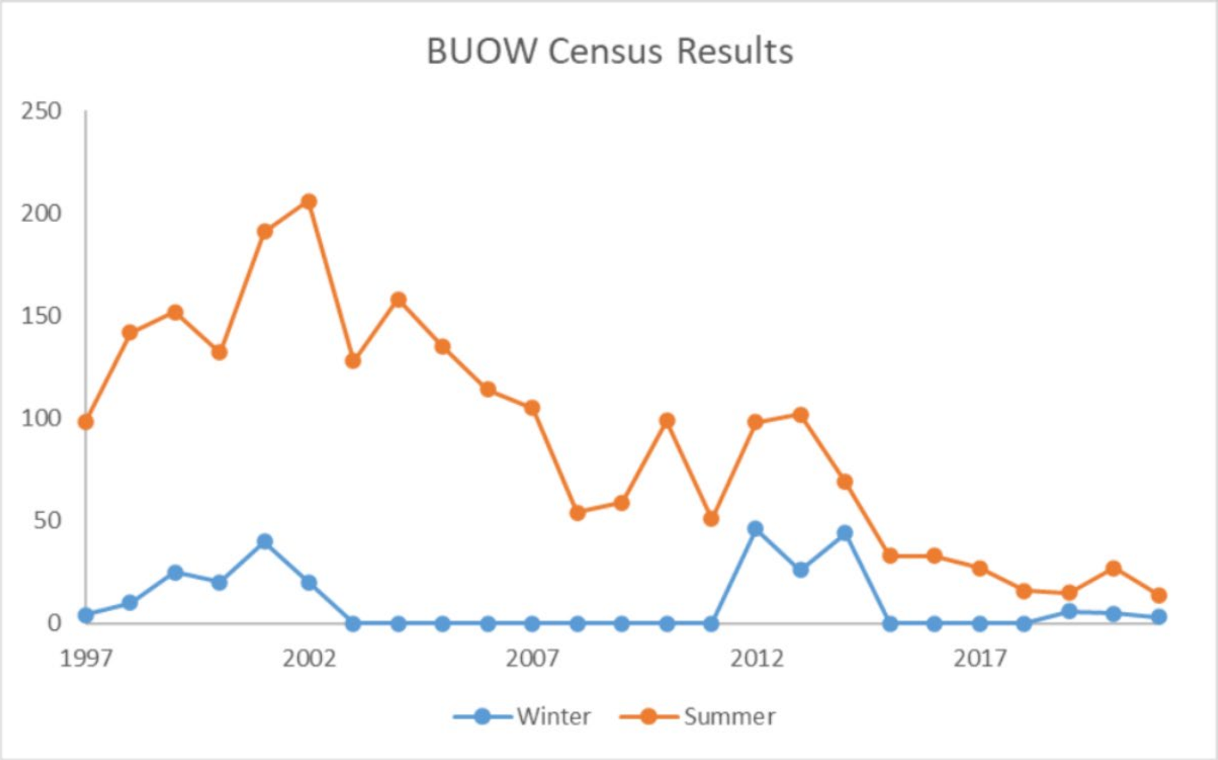
[52] Albion Environmental, Inc. 1997. BOMP – San José International Airport. Final Report.

[53] Albion Environmental, Inc. 1997. BOMP – San José International Airport. Final Report.

[54] H.T. Harvey & Associates. 2019. Norman Y. Mineta San José International Airport 2019 Master Plan Amendment Biological Resources Report.

The Airport has monitored the owl population since 1989 as part of general monitoring of the numbers of wildlife species that occur on the airfield. This monitoring consists of year-round bi-monthly point-count surveys and two burrowing owl censuses each year, one during the nesting and one during the non-nesting seasons. A summary of the monitoring results is provided in **Figure 5**. Numbers of owls at the Airport appear to have increased initially between 1997 and 2002 when the BOMP was first implemented. Since then, numbers have fluctuated considerably, but there has been a gradual, overall decline in owl numbers since the early 2000s. Nesting populations over the past three years have been lower than previously recorded. Based on various estimates by USDA staff managing owls at the Airport and surveys conducted by the USGS, numbers of nesting pairs at the Airport were approximately five in 2020 and two in 2021.

Figure 5. Summary of Burrowing Owl (BUOW) Monitoring Results at the Airport from 1997 to 2021



Source: H.T. Harvey 2021

The reasons for the decline in owl numbers at the Airport are not fully known. A portion of the owls' population decline can be attributed to the regional decline in burrowing owl numbers that has occurred throughout the South Bay.[55] The BOMP anticipated that burrowing owls at the Airport were likely to decline in future years due to a reduction in available burrows from ground squirrel control efforts. Such ground squirrel control efforts are likely responsible for the low numbers of burrowing owls present in the smaller patches of grassland in the central and

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[55] H.T. Harvey & Associates. 2019. Norman Y. Mineta San José International Airport 2019 Master Plan Amendment Biological Resources Report.

northeastern portions of the airfield (i.e., northeast of Runway 12R-30L). However, based on the relatively high availability of suitable burrows observed in portions of the airfield southwest of Runway 12R-30L in January 2019 compared to the low numbers of owls documented in recent years, limited burrow availability does not appear to be the sole explanation for the small numbers of owls that currently inhabit the airfield. Other potential factors may include reduced food availability, predation, and/or habitat loss.

Suitable nesting, roosting, and foraging habitats for burrowing owls is present within grassland infield areas at the airfield, and the airfield has been the primary focus of burrowing owl management and monitoring activities at the Airport since 1997.[56] Categories of burrowing owl habitat are defined as follows:

- *Nesting habitat* includes areas of grasslands with burrows of California ground squirrels or suitable artificial burrows that may be used for nesting by owls during the nesting season (between February 1 and August 31).
- *Roosting habitat* encompasses the same areas of grasslands with burrows of California ground squirrels or suitable artificial burrows, which may be used by owls for roosting during either the nesting season (as defined above) or the non-nesting season (between September 1 and January 31).
- *Foraging habitat* includes all areas of grasslands where owls can potentially forage for prey (e.g., invertebrates and small mammals and reptiles). No burrows are required to be considered a foraging habitat.

The grassland infields are regularly mown and subject to relatively low levels of direct disturbance from humans and predators (avian and mammal predators are actively discouraged on the airfield), and, as a result, the infields provide attractive habitat year-round for the Airport’s resident population of burrowing owls. Although there is no habitat within the DSA, within the ISA there are less than 0.01 acres of grassland foraging habitat for burrowing owls. However, there is additional grassland foraging habitat adjacent to the ISA. Suitable nesting and roosting habitat is only present outside of the ISA, primarily southwest of Runway 12R-30L. Owls predominantly occur southwest of Runway 12R-30L where burrows of California ground squirrels are present.[57] Owls were previously known to nest and occur regularly in natural burrows located northeast of Runway 12R-30L, but California ground squirrel activity in this area has been limited in recent years, and the infields northeast of Runway 12R-30L currently support few, if any, burrows of California ground squirrels. Owls that inhabit the airfield appear to be acclimated to current levels of aircraft traffic.

The majority of occupied breeding-season burrowing owl burrows in recent years (2016 to 2021) have been located southwest of Runway 12R-30L, and all but two pairs of owls nested southwest of Runway 12R- 30L between 2016 and 2021. Recent California ground squirrel activity on the

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[56] City of San José. 2010. Norman Y. Mineta San José International Airport Master Plan Update Project – Eighth Addendum to the Environmental Impact Report. City of San José Public Project File No. PP 10-024. February 10, 2010.

[57] H.T. Harvey & Associates. 2019. Norman Y. Mineta San José International Airport 2019 Master Plan Amendment Biological Resources Report.

airfield has also been concentrated southwest of Runway 12R-30L with few squirrels remaining northeast of Runway 12R-30L to establish burrow complexes. Based on this information, H.T. Harvey considered all grassland habitat located southwest of Runway 12R-30L as suitable nesting, roosting, and foraging habitat for burrowing owls, and all remaining portions of the airfield northeast of Runway 12R-30L, including the grassland portion of the ISA, as foraging habitat only.

5.5 Other Sensitive Habitats

Natural communities have been considered part of the Natural Heritage Conservation triad, along with plants and animals of conservation significance since the state inception of the Natural Heritage Program in 1979. CDFW determines the level of rarity and imperilment of vegetation types and tracks sensitive communities in its Rarefind database.[58] Global rankings (G) of natural communities reflect the overall condition (rarity and endangerment) of a habitat throughout its range, whereas state (S) rankings are a reflection of the condition of a habitat within California. Natural communities are defined using NatureServe's standard heritage program methodology as follows:[59]

G1/S1:	Critically imperiled
G2/S2:	Imperiled
G3/S3:	Vulnerable
G4/S4:	Apparently secure
G5/S4:	Secure

In addition to tracking sensitive natural communities, CDFW also ranks vegetation alliances, defined by repeating patterns of plants across a landscape that reflect climate, soil, water, disturbance, and other environmental factors.[60] If an alliance is marked G1-G3, all of the vegetation associations within it will also be of high priority. CDFW provides VegCAMP's currently accepted list of vegetation alliances and associations.[61]

Impacts on CDFW sensitive natural communities, vegetation alliances/associations, or any such community identified in local or regional plans, policies, and regulations needs to be assessed for significant impacts based on FAA Order 1050.1F. Furthermore, aquatic, wetland, and riparian habitats are also protected under applicable federal, state, or local regulations, and they are

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[58] CDFW. 2021. CNDDB. RareFind 5.0. Accessed Nov. 2021. https://apps.wildlife.ca.gov/rarefind/view/RareFind.aspx

[59] Faber-Langendoen, D., J. Nichols, L. Master, K. Snow, A. Tomaino, R. Bittman, G. Hammerson, B. Heidel, L. Ramsay, A. Teucher, and B. Young. 2012. NatureServe Conservation Status Assessments: Methodology for Assigning Ranks. NatureServe, Arlington, Virginia.

[60] Sawyer, J.O., T. Keeler-Wolf, and J. M. Evens. 2009. A Manual of California Vegetation, Second Edition. California Native Plant Society, Sacramento, CA. 1300 pp. Smith, J. J. 2013. Northern Santa Clara County Fish Resources. 20 pp.

[61] California Department of Fish and Game. 2020. VegCAMP List of California Vegetation Alliances and Rarity Ranking. Accessed September 20, 2020. https://www.wildlife.ca.gov/data/vegcamp/natural-communities.

generally subject to regulation, protection, or consideration by the USACE, SWRCB, RWQCB, CDFW, and/or the USFWS.

A query of sensitive habitats in Rarefind (**Attachment 3,** CDFW 2021) identified three sensitive habitats as occurring within the nine USGS quadrangles containing or surrounding the Airport: serpentine bunchgrass (Rank G2/S2), north central coast drainage Sacramento sucker/roach river (Unranked), and northern coastal salt marsh (Rank G3/S3). None of these habitats occur within or adjacent to the Study Area. Serpentine bunchgrass occurs only on serpentine soils, which does not occur in the Study Area. North central coast drainage Sacramento sucker/roach river occurs within the San Lorenzo River and its tributaries, which is located on the west side of the Santa Cruz Mountains in Santa Cruz County and does not occur in the Study Area. The last sensitive habitat type, northern coastal salt marsh, is characterized by Holland[62] as occurring along sheltered inland margins of bays, often co-dominated by pickleweed (*Salicornia* spp.), California cordgrass (*Spartina foliosa*), and sometimes saltgrass (*Distichlis spicata*). None of these species and no saltmarsh habitats were observed in the Study Area. No other sensitive vegetation alliances were identified within the Study Area. No WOTUS or Waters of the State, including riparian habitat, were identified within the Study Area.

6 Impacts and Mitigation Measures

Potential impacts on existing biological resources were evaluated by comparing the quantity and quality of habitats present in the Study Area in the affected environment to the anticipated conditions after implementation of the Proposed Action Alternative and No Action Alternative. Potential direct and indirect impacts on special-status species, their habitat, and sensitive natural communities were assessed based on the potential for the species, their habitat, or the natural community in question to be disturbed or enhanced following proposed implementation of the Proposed Action Alternative.

Exhibit 4-1 of FAA Order 1050.1F provides the FAA's significance threshold for biological resources (including fish, wildlife, and plants). A significant impact to biological resources would occur when the USFWS or the NMFS determines that the action would likely jeopardize the continued existence of a federally listed threatened or endangered species, or it would result in the destruction or adverse modification of federally designated critical habitat. The FAA has not established a significance threshold for non-listed species.

In addition to the threshold above, Exhibit 4-1 of FAA Order 1050.1F provides additional factors to consider in evaluating the context and intensity of potential environmental impacts for biological resources. These factors are not thresholds. If these factors exist, there is not necessarily a significant impact, rather the FAA must evaluate these factors in light of context and intensity to determine if there are significant impacts. Factors to consider that may be applicable to biological

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[62] Holland, R. F. 1986. Preliminary descriptions of the terrestrial natural communities of California. Unpublished report. California Department of Fish and Game, Natural Heritage Division, Sacramento, CA.

resources include, but are not limited to, situations in which the Proposed Action Alternative would have the potential for:

- A long-term or permanent loss of unlisted plant or wildlife species, (i.e., extirpation of the species from a large project area, such as a new commercial service airport);
- Adverse impacts to special status species (e.g., CSSC, species proposed for listing, migratory birds, bald and golden eagles) or their habitats;
- Substantial loss, reduction, degradation, disturbance, or fragmentation of native species' habitats or their populations; or
- Adverse impacts on a species' reproductive success rates, natural mortality rates, non-natural mortality (e.g., road kills and hunting), or ability to sustain the minimum population levels required for population maintenance.

6.1 Direct and Indirect Impacts of the Proposed Action Alternative

6.1.1 Impacts on Upland Habitats and Associated Common Plants, Wildlife and Habitats (No Impact)

Construction activities related to the Proposed Action Alternative would permanently impact up to 18.8 acres of developed area in the DSA. No grassland habitat would be directly impacted by construction of the Proposed Action Alternative. Permanent impacts to developed areas would occur due to reconstruction of the airfield apron and construction of the South Concourse Improvements. The plant species observed in the Study Area during the reconnaissance-level survey by H.T. Harvey & Associates (***Appendix B***) are not regulated under state or federal laws and are not listed as rare by the CNPS. All native plant species found or with any potential to occur within the developed/landscaped areas are regionally abundant and common in California.

As discussed previously, the Study Area currently supports a number of common wildlife species, many of which are non-native. Due to its largely developed nature, the Study Area provides relatively low-quality habitat for most species and thus supports relatively small numbers of individuals of any one species. Furthermore, the airfield is actively managed to control and discourage wildlife populations in order to maintain aviation safety. The common wildlife species that occur in these habitats are regionally abundant, are present in widely available habitats in the region, and will continue to be present following construction. The developed habitat that would be directly impacted is abundant and widespread regionally and is not sensitive or valuable from the perspective of providing important plant or wildlife habitat. Both the No Action and Proposed Action Alternatives would not result in a long-term or permanent loss of unlisted plant or wildlife species or a substantial reduction, degradation, disturbance, or fragmentation of native species' habitats or their populations. Both alternatives would have no impact on common native species' reproductive success rates, natural mortality rates, non-natural mortality, or ability to sustain minimum population levels required for population maintenance. Therefore, both the No Action and Proposed Action Alternatives would have no impact on common (non-sensitive) species and habitats.

6.1.2 Impacts on Special-status Fish and Their Habitat (No Impact)

The Study Area does not contain habitat types required to support special-status fish, nor do they contain critical habitat for special-status fish or EFH. The new South Concourse, reconstructed airfield apron, and associated construction activities would be located more than 100 feet from the Guadalupe River riparian area on the other side of Airport Boulevard.

The Proposed Action and the No Action Alternatives would have no indirect impacts on water quality. Construction projects causing land disturbances that are equal to 1 acre or greater must comply with state requirements to control the discharge of stormwater pollutants under the National Pollutant Discharge Elimination System (NPDES) *General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities* (Construction General Permit; Water Board Order No. 2009-0009-DWQ). Prior to the start of construction or demolition, a Notice of Intent must be filed with the State Water Board describing the action. A Stormwater Pollution Prevention Plan (SWPPP) must be developed and maintained during construction, and it must include the use of best management practices (BMP) to protect water quality until the site is stabilized. Any fuel leaks or spills during construction would be contained within the DSA and measures would be implemented to prevent groundwater contamination or release of pollutants into drainage inlets. Indirect impacts on water quality from construction would be avoided by implementing erosion, sediment, and water quality control BMPs. Standard permit conditions require that the applicant utilize various measures, including on-site sediment control BMPs, street sweeping, temporary cover of disturbed land surfaces to control erosion during construction, watering disturbed soil areas to control airborne dust, and protecting drainage inlets. The Airport operates under an industrial NPDES Permit (CAS000001), and it would maintain compliance with this existing permit under both the Proposed Action and No Action Alternatives.

Compliance with construction and industrial NPDES permits would avoid indirect impacts to water quality; therefore, both the Proposed Action and No Action Alternatives would have no impact on special-status fish or their habitat. Effect determinations are provided in **Table 3** in *Section 6.3***.**

6.1.3 Impacts on Nonbreeding Special-status Birds and Mammals (No Impact)

Several special-status bird and mammal species occur in the Study Area as nonbreeding migrants, transients, or foragers, but they are not known or expected to breed or occur in large numbers within or near the Study Area. These are the tricolored blackbird, Bryant's savannah sparrow, loggerhead shrike, white-tailed kite, grasshopper sparrow, American peregrine falcon, bald eagle, golden eagle, and pallid bat.

The tricolored blackbird (a state threatened species) is not expected to occur in the Study Area as a breeder due to the absence of suitable breeding habitat, but individuals may occur occasionally as foragers during the nonbreeding season. Bryant's savannah sparrow (CSSC) breeds in marshes along the San Francisco Bay to the north, and individuals may forage in ruderal grassland in the Study Area during the nonbreeding season. Similarly, the grasshopper sparrow (CSSC) breeds in expansive grassland habitats in the foothills, and individuals may occasionally forage in grasslands in the ISA during migration. The American peregrine falcon and golden eagle (state fully protected species) and bald eagles (state endangered) are not expected to breed in the Study Area due to a lack of suitable nesting habitat. Individuals of these species occasionally forage in the ISA in small numbers. The pallid bat (CSSC) may be present in the ISA as an occasional forager, but it is not expected to breed there due to a lack of suitable habitat. There are no known maternity colonies on or adjacent to the site. Nevertheless, individuals from more remote colonies could potentially forage over the open grasslands on the site on rare occasions. Loggerhead shrikes (CSSC) may forage in low numbers in grasslands in and adjacent to the ISA year-round; however, potential to occur as a forager is low due to mowing of the airport infield.

Although the Proposed Action Alternative would not directly affect foraging habitat, activities would have some potential to indirectly impact foraging habitats and/or individuals of these species. Construction activities may result in a temporary impact through the alteration of foraging patterns (e.g., avoidance of work sites due to increased noise and activity levels) but would not result in the loss of individuals, as individuals of these species would fly away from any construction areas or equipment before they could be injured or killed. Larger birds, such as American peregrine falcons, bald eagles, and golden eagles, are discouraged from occupying the airfield (and are removed by the USDA, if deemed necessary). Further, the regular mowing of vegetation on the airfield and controlling California ground squirrels reduces available small mammal prey for bald and golden eagles; invertebrate prey for tricolored blackbirds, loggerhead shrikes, Bryant’s savannah sparrows, grasshopper sparrows, and pallid bats; and avian prey for American peregrine falcons as the airfield thus does not provide high-quality foraging habitat for any of these species. As a result, limited numbers of these species are expected to occur on the airfield over the long-term.

The Study Area does not provide important foraging habitat that is used regularly or by large numbers of individuals of any of these species. Furthermore, nonbreeding birds and mammals in the Study Area are acclimated to a high level of human disturbance. The Proposed Action Alternative is not expected to result in substantial additional visual and auditory disturbance to nonbreeding species beyond existing levels. Given the regional context and intensity of the impacts, the Proposed Action Alternative would not have adverse impacts to special-status species. Therefore, the Proposed Action Alternative would have no impact on non-breeding special status birds and mammals. Similarly, the No Action Alternative would have no impact on nonbreeding special-status birds and mammals.

6.1.4 Impacts on Migratory Birds (No Impact)

Although migratory birds may be present within the Study Area, construction activities have limited potential to disturb active bird nests of native migratory birds (including common and special-status species). Incidental take permits are not issued under the MBTA; therefore, the Proposed Action Alternative must avoid the “taking” of native birds, nests, or eggs. A take of a bird, active bird nest, eggs, or dependent juveniles would be a violation of the federal MBTA. Birds nest in a variety of places, including trees, shrubs, man-made structures, and the ground. The Proposed Action Alternative may include the removal of several landscape trees on the east side of the Interim Terminal facility where the South Concourse Improvements are proposed. Modifications to the existing Interim Terminal is also part of the proposed federal action being evaluated. Implementing Avoidance Conservation Measure (ACM) 1 would avoid violations of the MBTA in the event that active nests were present in any trees that needed to be removed or structures that need to be modified. Furthermore, the Proposed Action Alternative could not disturb any ground-nesting birds as there is no potential for birds to nest on the ground within the DSA, which is almost exclusively paved and subject to high ongoing levels of human and mechanical activity. Any bird nests within the ISA, including the grasslands on the west side of Taxiway Z, would be acclimated to high levels of disturbance within the active airfield, and they would not be affected by the Proposed Action Alternative. The FAA has not established significance thresholds for non-listed species. With implementation of ACM 1, the intensity of the impact would be non-existent. Therefore, the Proposed Action Alternative would have no impact on migratory birds protected by the MBTA. The No Action Alternative would also have no impact on migratory birds.

There are no mitigation measures required related to impacts on migratory birds; ACMs are provided below:

ACM 1. Pre-construction nesting bird surveys. Pre-construction surveys for nesting birds will be conducted by a qualified biologist no more than 48 hours prior to starting construction activities during the nesting season (February 1-September 30). Surveys will cover any potential nesting sites within 300 feet of construction activity. Active nest sites will be designated as environmentally sensitive areas and identified with appropriate markers for the duration eggs or juvenile birds are nest dependent. A qualified biologist will develop buffer recommendations that are site specific and at an appropriate distance that will protect normal bird behavior to prevent nesting failure or abandonment. Buffers will be in place for the duration eggs or juvenile birds are nest dependent. The qualified biologist will monitor the behavior of the birds (adults and young when present) at the nest site to ensure they are not disturbed by project construction. Nest monitoring will continue during construction until the biologist has confirmed the young have fully fledged (have completely left the nest site and are no longer dependent on the parents). If it is necessary to prevent birds from nesting at a specific location within the construction area, a nesting bird exclusion plan will be prepared by the contractor. It will specify what exclusion measures can be used under what conditions. The exclusion plan will be approved by the FAA prior to implementation.

6.1.5 Impacts on Breeding Special-status Birds (No Impact)

No special-status birds are known to breed within the Study Area. Therefore, the Proposed Action and No Action Alternatives would have no impact on the breeding of special-status birds.

6.1.6 Impacts on Common Species of Roosting Bats (No Impact)

Common bats are known to occur within the Airport in limited numbers as they prey on insects that are attracted to the airfield lights. Although no targeted bat surveys have been conducted, personal observations from the SJC Biologist have observed no more than 10 bats in flight over the airfield within the past year. No roosts have been documented within airport property, however common bat species, such as the Mexican free-tailed bat, could potentially roost in buildings or trees within the Study Area. Given the observed level of bat activity at the Airport, it is unlikely for a large bat roost to be present within the DSA. The existing Interim Terminal could support bat roosts which would be removed as part of the Proposed Action Alternative. The Proposed Action Alternative would not remove any trees that have the potential to support bat roosts. Although the FAA has not established significance thresholds for non-listed species, a substantial loss (i.e. loss of a large roost) is an impact factor to consider. Pre-activity surveys (ACM 2) would be conducted to confirm absence of bat roosts prior to structural modifications to these buildings. If roosts are found during the pre-activity survey, implementation of ACMs 3 through 5 would avoid adverse effects on regional populations of native bat species.

There are no mitigation measures required related to impacts on roosting bats; ACMs are provided below:

ACM 2. Conduct Pre-activity Surveys for Roosting Bats. A pre-activity survey for roosting bats will be conducted prior to the removal or renovation of buildings with metal siding or buildings with closed areas, such as an attic space, particularly those that are unoccupied. No pre-activity survey is required for buildings without attics or metal siding. The survey will be conducted by a qualified bat biologist. If no active roosts are found, then no further action is warranted. If a roost is present, a qualified bat biologist will determine the species and number of individuals present.

ACM 3. Avoid Disturbance of Active Roosts. If an occupied roost is found in a structure that will be disturbed or removed by proposed activities, the Airport will evaluate the feasibility of avoiding the roost. If the roost is unoccupied at the time of the survey, the Airport may choose to install bat exclusion devices to prevent bats from taking up occupancy of the structure prior to the onset of the Proposed Action Alternative. If avoidance is not feasible, ACMs 4 and 5 will be implemented.

ACM 4. Avoid Disturbance of Maternity Roosts. If an active maternity roost is present within the building to be modified or demolished and the Proposed Action Alternative cannot be redesigned to avoid removal or disturbance of the occupied roost, disturbance will not take place during the maternity season (as determined by the qualified bat biologist, but approximately March 15 to August 31), and an appropriate disturbance-free buffer zone (also determined by the qualified bat biologist) will be observed during this period to avoid disturbing the roosting bats.

ACM 5. Exclude Bats Prior to Disturbance. If disturbance of an active non-breeding roost cannot be avoided, best management practices will be used including safely evicting individuals outside of the maternity season (as determined by the qualified bat biologist), between approximately August 1 and March 15. Bats may be evicted through exclusion. Exclusion methods may include the installation of one-way doors and/or use of ultrasonic deterrence devices. One-way doors and/or deterrence devices should be left in place for a minimum of two weeks and a minimum of five fair-weather nights with no rainfall and temperatures no colder than 50°F.

The Proposed Action Alternative is not expected to indirectly affect any nearby bat roosts through noise, vibration, or visual disturbance due to the high level of existing noise, vibration, and human activity at the Airport. Any existing bat roosts are assumed to be acclimated to the existing high levels of disturbance at the Airport. Implementation of ACMs 2 through 5 will avoid adverse impacts to common bats' roosts. Therefore, the Proposed Action Alternative would have no impact on common species of roosting bats. The No Action Alternative would have no impact on common species of roosting bats.

6.1.7 Impacts on the Burrowing Owl (No Impact)

The Proposed Action Alternative would not result in the loss of suitable nesting, roosting, and foraging habitat for burrowing owls at the airfield. Due to the DSA being entirely paved with limited ornamental landscaping, there is no potential for burrowing owls or their nests to be directly impacted during construction or operation of the Proposed Action Alternative. Breeding owls were documented between 2011-2015 on the east side of the Airport near the South Concourse extension improvements. However, this area no longer functions as foraging, roosting, or breeding habitat. The Proposed Action Alternative would have no direct impacts to nesting, roosting, or foraging habitat. Impacts of the Proposed Action Alternative would be limited to developed areas that are unsuitable for nesting, roosting, and foraging **(Figure 4)**. Indirect impacts as a result of auditory and visual disturbance are not expected as burrowing owl nests are concentrated on the opposite side of the Airport as the Proposed Action Alternative, foraging habitat within the ISA is limited to less than 0.01 acres, and the owls are acclimated to high levels of existing disturbance on the active airfield.

The Airport currently implements measures to minimize owl-aircraft collisions as described in the WHMP and the BOMP. The Proposed Action and the No Action Alternatives would not result in an increase in burrowing owl populations at the airport, nor would they result in an increase in burrowing owl collisions with aircraft. Aircraft operations are expected to increase under both the Proposed Action and the No Action Alternatives. These forecasted increases in aircraft operations could increase disturbance to owls by aircraft and airfield operations. It could also contribute to increased owl mortality as a result of collisions with aircraft as Airport growth continues. As these increases in activity would occur with or without the Proposed Action Alternative, it would have no effect on burrowing owls as a result of an increase in aircraft operations.

Due to the lack of any burrowing habitat within the DSA, and the very small amount of suitable foraging habitat within the ISA, the Proposed Action Alternative would have no impact on burrowing owls. Under both alternatives, existing burrowing owl management practices would be maintained and existing nesting, foraging, and roosting habitat would remain unchanged. Therefore, the No Action Alternative would also have no impact on burrowing owls.

6.1.8 Impacts Due to Bird Collisions (No Impact)

Under existing conditions, terrestrial land uses and habitat conditions in the Study Area and surrounding areas consist primarily of developed areas. Vegetation in the Study Area is absent or very limited in extent and consists primarily of non-native landscaped trees and shrubs and disturbed grasslands. Non-native vegetation typically supports fewer of the resources (such as food and nest components) required by native birds than native vegetation. The structural simplicity of the vegetation, such as landscape (ornamental) trees (without well-developed ground cover, understory, and canopy layers) further limits resources available to birds.[63] Therefore, although a number of bird species will regularly use the vegetation in developed portions of the

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[63] H.T. Harvey & Associates. 2019. Norman Y. Mineta San José International Airport 2019 Master Plan Amendment Biological Resources Report.

Study Area, they typically do so in low numbers. As a result, the number of individual birds that inhabit and regularly use vegetation within developed areas at any given time is relatively low under existing conditions.

The extent and species of future landscape vegetation to be installed as part of the Proposed Action Alternative would be consistent with the existing terminals' built environment. Additionally, because the Proposed Action Alternative is located on Airport property (where birds are generally discouraged due to the potential for collisions with airplanes and landscaped vegetation is accordingly minimal), any trees and landscaped areas that will be planted in the future are expected to provide similar (i.e., minimal) habitat structure and foraging opportunities for birds compared to existing conditions. Birds that would occur on the site and in the vicinity would be attracted to any trees and landscaped areas that are planted, and some will make use of newly developed structures. These birds will move between the Airport and habitats in the surrounding vicinity. No substantive changes in the number of songbirds inhabiting developed portions of the Study Area are expected to result from the Proposed Action Alternative.

The proposed South Concourse improvements are expected to incorporate glazing on the building façades consistent with the existing terminal buildings. It has been well documented that glass windows and building façades can result in injury or mortality of birds due to birds' collisions with these surfaces. As birds do not perceive glass as an obstruction the way humans do, they may collide with it when reflecting the sky or vegetation (i.e., they see the glass as sky or vegetated areas); when transparent windows allow birds to perceive an unobstructed flight route through the glass (such as at corners); and when the combination of transparent glass and interior vegetation (such as in planted atria) results in attempts by birds to fly through the glass to reach the vegetation. The greatest risk of avian collisions with buildings occurs in the area within 40–60 feet off the ground because this is where most bird activity occurs.[64] Very tall buildings (buildings 500 feet or more) may pose a threat to birds that are migrating through the area, particularly to nocturnal migrants that may not see the buildings or that may be attracted to lights on the buildings. The Proposed Action Alternative does not contain buildings taller than 500 feet. The proposed South Concourse would be an extension of Terminal B, and it would be two stories tall. This is expected to be under the height of most avian collisions, assuming each story is approximately 20 feet high. No other buildings or structures are proposed.

Under the Proposed Action Alternative, it is possible that trees and other landscaping will be present immediately adjacent to the building's glass façades. Such vegetation is expected to attract birds. Once birds are using that vegetation, they may not perceive the glass as a solid structure. The vegetation may reflect in the building's glass façades, potentially causing birds to attempt to fly in to the reflected "vegetation" and strike the glass. As a result, some birds that are attracted to the trees and other landscaping that is adjacent to the glass façades are expected to collide with the glass. The landscaping adjacent to the proposed South Concourse improvements would be consistent with the existing terminal buildings and therefore would not substantially change existing conditions.

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[64] San Francisco Planning Department. 2011. Standards for Bird-Safe Buildings. Planning Department. July 14, 2011.

Night lighting has the potential to disorient birds, especially during inclement weather when night migrating birds descend to lower altitudes. There is existing night lighting in the DSA as part of the active airfield and terminal. Any new lighting related to the Proposed Action Alternative would be consistent with existing lighting and would not cause a noticeable change compared to the No Action Alternative. The No Action Alternative would not result in additional night lighting.

The proposed South Concourse extension would be similar in height, lighting, and surrounding landscaping in relation to the existing terminal facilities. As such, the proposed South Concourse improvements are not expected to result in substantial additional bird collisions and the Proposed Action Alternative would therefore have no impact with respect to bird collisions. The No Action Alternative would not change existing conditions; therefore, it would have no impact on bird collisions.

6.1.9 Impacts on Wildlife Movement (No Impact)

For many species, the landscape is a mosaic of suitable and unsuitable habitat types. Wildlife movement corridors are segments of land that provide a link between these different habitats while also providing cover. Development that fragments natural habitats (i.e., breaks them into smaller, disjunct pieces) can have a two-fold impact on wildlife: first, as habitat patches become smaller, they are unable to support as many individuals (patch size); and second, the area between habitat patches may be unsuitable for wildlife species to traverse (connectivity). The Study Area does not provide wildlife movement corridors. The extent of existing development limits wildlife movement. Both the Proposed Action and No Action Alternatives would not affect wildlife movement in the ISA or DSA. Therefore, both alternatives would have no impact on wildlife movement.

6.1.10 Impacts on Waters and Wetlands (No Impact)

There are no WOTUS (including wetlands) protected by the CWA within the Study Area. The Proposed Action Alternative would have no impact, directly or indirectly, on WOTUS. Indirect impacts will be avoided by implementing stormwater pollution BMPs and complying with NPDES permits as described in *Section 6.1.3*. The Proposed Action Alternative would have no impact on wetlands. The No Action Alternative would also have no impact on waters or wetlands as existing NPDES permits conditions would have already been implemented.

6.1.11 Impacts Due to the Spread of Invasive Species (No Impact)

Plant and animal invasive species are found within the Study Area and could be introduced or spread during construction of the Proposed Action Alternative. As part of erosion control measures and to prevent impacts to water quality (described in *Section 6.1.3*), fugitive dust emissions will be controlled. This will prevent wind from transporting invasive species seeds and pollen outside of the construction area. Best Management Practices will be implemented to limit the spread of invasive species as a result of the Proposed Action Alternative and in accordance with EOs 13112 and 13751.

There are no mitigation measures required related to impacts due to the spread of invasive species.

6.1.12 Impacts Due to Encroachment into the Stream/Riparian Buffer (No Impact)

There is no stream or riparian habitat within the Study Area. As the Proposed Action would not encroach into a stream or riparian buffer, the Proposed Action Alternative would have no impact on stream or riparian buffers.

6.1.13 Impact due to Conflicts with an Adopted Habitat Conservation Plan (No Impact)

All portions of the Study Area fall within the VHP permit area.[65] However, Airport projects (actions) were excluded from the VHP impact analysis, and projects at the Airport are not "covered projects" under the VHP. Therefore, Airport projects are not required to comply with VHP conditions. Thus, the Proposed Action Alternative does not conflict with the VHP. The Proposed Action and No Action Alternatives would have no impact with regard to consistency with the VHP.

6.2 Cumulative Impacts

Cumulative impacts arise due to linking past, current, and reasonably foreseeable future impacts from actions in the region. The Proposed Action Alternative would have no impact on common plants, wildlife, and habitats; special-status fish and their habitat; nonbreeding special-status birds and mammals; migratory birds; breeding special-status birds; roosting bats; burrowing owls; bird collisions; wildlife movement; waters and wetlands; invasive species; stream and riparian buffers; and adopted habitat conservation plans. The Proposed Action Alternative would implement ACMs to avoid impacts to migratory birds, bats, as well as invasive species. With implementation of these ACMs, the Proposed Action Alternative would not contribute to a cumulative impact on biological resources. Other projects, such as the removal of the Belly Cargo Building, would similarly implement ACMs that avoid impacts to these same resources.

6.3 Effect Determinations

Federally regulated species and designated critical habitats require effect determinations, which are provided in **Table 3**. It was determined that the Proposed Action Alternative would have no impact on all applicable species listed under FESA, their critical habitat, EFH, or species regulated under the MMPA. This report recommends a No Effect determination for all federally listed species as well as no further consultation with the USFWS or NMFS.

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[65] ICF International. 2012. Final Santa Clara Valley Habitat Plan. Prepared for the City of Gilroy, City of Morgan Hill, City of San José, County of Santa Clara, VTA, and Valley Water.

Table 3. Effect Determinations for Federally Regulated Species and Habitat

Species or Habitat	Federal Status	Effect Determination
Mammals		
Salt marsh harvest mouse	Endangered	No Effect
San Joaquin kit fox	Endangered	No Effect
Pinnipeds	MMPA	No Effect
Birds		
California least tern	Endangered	No Effect
California Ridgeway’s rail	Endangered	No Effect
Western snowy plover	Threatened	No Effect
Yellow-billed cuckoo	Threatened	No Effect
Reptiles		
Alameda whipsnake	Threatened	No Effect
Amphibians		
California red-legged frog	Threatened	No Effect
California tiger salamander	Threatened	No Effect
Fishes		
Chinook salmon – California coast	Threatened	No Effect
Chinook salmon – Sacramento River winter-run	Endangered	No Effect
Coho salmon – CCC	Endangered	No Effect
Coho salmon – southern Oregon/northern California	Threatened	No Effect
Delta smelt	Threatened	No Effect
Eulachon	Threatened	No Effect
Green sturgeon, southern DPS	Threatened	No Effect
Longfin smelt	Candidate	No Effect
Steelhead – California Central Valley	Threatened	No Effect
Steelhead – CCC	Threatened	No Effect
Steelhead – Northern California	Threatened	No Effect
Steelhead – South-central California coast	Threatened	No Effect
Steelhead – Southern California	Endangered	No Effect

Insects		
Bay checkerspot butterfly	Threatened	No Effect
Monarch butterfly	Candidate	No Effect
San Bruno elfin butterfly	Endangered	No Effect
Zayante band-winged grasshopper	Endangered	No Effect
Crustaceans		
Conservancy fairy shrimp	Endangered	No Effect
Vernal pool tadpole shrimp	Endangered	No Effect
Flowering Plants		
California seablite	Endangered	No Effect
Contra Costa goldfields	Endangered	No Effect
Robust spineflower	Endangered	No Effect
Habitat		
CCC steelhead critical habitat	Critical Habitat	No Effect
Bay checkerspot critical habitat	Critical Habitat	No Effect
Green sturgeon southern DPS critical habitat	Critical Habitat	No Effect
Coastal pelagic EFH	EFH	No Effect
Coho salmon EFH	EFH	No Effect
Chinook salmon EFH	EFH	No Effect
Groundfish EFH	EFH	No Effect

Source: USFWS IPaC Official Species List, May 19, 2022, Unofficial NMFS Species List Nov. 15, 2021.

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Appendix D1. Plants Observed

Family	**Scientific Name**	**Common Name**
Amaranthaceae	*Salsola tragus*	Russian thistle
Anacardiaceae	*Schinus molle*	Peruvian pepper
Apiaceae	*Foeniculum vulgare*	Sweet fennel
Araliaceae	*Hedera helix*	English ivy
Arecaceae	*Washingtonia robusta*	Mexican fan palm
Asteraceae	*Baccharis pilularis*	Coyote brush
Asteraceae	*Centaurea solstitialis*	Yellow star-thistle
Asteraceae	*Erigeron canadensis*	Canada horseweed
Asteraceae	*Helminthotheca echioides*	Bristly ox-tongue
Asteraceae	*Taraxacum officinale ssp. officinale*	Common dandelion
Brassicaceae	*Brassica nigra*	Black mustard
Fabaceae	*Medicago polymorpha*	Bur clover
Fabaceae	*Vicia villosa*	Hairy vetch
Lamiarceae	*Lamium amplexicaule*	Giraffe head
Malvaceae	*Malva nicaeensis*	Bull mallow
Malvaceae	*Malva parviflora*	Cheeseweed mallow
Poaceae	*Avena sp.*	Wild oats
Poaceae	*Bromus diandrus*	Ripgut brome
Poaceae	*Cortaderia jubata*	Jubata grass
Poaceae	*Festuca myuros*	Rattail sixweeks grass
Poaceae	*Holcus lanatus*	Velvet grass
Poaceae	*Hordeum sp.*	Barley
Poaceae	*Lolium multiflorum*	Italian ryegrass
Poaceae	*Stipa miliaceae var. miliaceae*	Smilo grass
Polygonaceae	*Rumex crispus*	Curly dock
Urticaceae	*Urtica dioica*	Stinging nettle

Appendix D2. Special-status Plants Considered for Potential Occurrence

Common Name	**Scientific Name**	**Suitable Habitat Absent**	**Edaphic Conditions Absent**	**Outside Elevation Range**	**Extirpated from Project Vicinity**
Santa Clara thorn-mint	*Acanthomintha lanceolata*	X	X	X	X
Howell’s onion	*Allium howelii var. howelii*	X			
Bent flowered fiddleneck	*Amsinckia lunaris*	X			
California androsace	*Androsace elongata ssp. acuta*	X		X	X
Coast rockcress	*Arabis blepharophylla*	X			
Bonny doon manzanita	*Arctostaphylos silvicola*	X	X		
Alikali milk-vetch	*Astragalus tener var. tener*	X	X		
Brittlescale	*Atriplex depressa*	X			
Lesser saltscale	*Atriplex miniscula*	X			
Mexican mosquito fern	*Azolla microphylla*	X			X
Big-scale balsamroot	*Balsamorhiza macrolepis*	X	X	X	X
Brewer’s calandrinia	*Calandrinia breweri*	X	X		X
Oakland star-tulip	*Calochortus umbellatus*	X	X	X	x
Santa Cruz Mountains pussypaws	*Calyptridiuim parryi var. hesseae*	X	X	X	X
South Coast Range morning-glory	*Calystegia collina ssp. venusta*	X	X	X	X
Chaparral harebell	*Campanula exigua*	X	X	X	X
Congdon’s tarplant	*Centromadia parryi ssp. congdonii*				
Dwarf soaproot	*Chlorogalum pomeridianum var. minus*	X			
Point Reyes bird’s-beak	*Chloropyron maritimum ssp. palustre*	X	X	x	
Ben Lomond spineflower	*Chorizanthe pungens var. hartwegiana*	X	X	X	
Robust spineflower	*Chorizanthe robusta*	X	X		X

Common Name	**Scientific Name**	**Suitable Habitat Absent**	**Edaphic Conditions Absent**	**Outside Elevation Range**	**Extirpated from Project Vicinity**
	var. robusta				
Mount Hamilton fountain thistle	*Cirsium fontinale var. campylon*	X	X	X	X
Brewer's clarkia	*Clarkia breweri*	X	X	X	X
Santa Clara red ribbons	*Clarkia concinna ssp. automixa*	X		X	X
Lewis's clarkia	*Clarkia lewissii*	X			X
San Francisco collinsia	*Collinsia multicolor*	X			X
Small-flowered morning-glory	*Convolvulus simulans*	X	X		X
Clustered lady's-slipper	*Cypripedium fasciculatum*	X	X	X	X
Hospital Canyon larkspur	*Delphinium californicum ssp. interius*	X		X	X
Western leatherwood	*Dirca occidentalis*	X		X	X
Santa Clara Valley dudleya	*Dudleya abramsii ssp. setchellii*	X	X	X	X
Small spikerush	*Eleocharis parvula*	X			
Tracy's eriastrum	*Eriastrum tracyi*	X		X	X
Clay buckwheat	*Eriogonum argillosum*	X	X	X	X
Bay buckwheat	*Eriogonum umbellatum var. bahiiforme*	X	X	X	X
Jepson's woolly sunflower	*Eriophyllum jepsonii*	X	X	X	X
Hoover's button-celery	*Eryngium aristulatum var. hooveri*	X			
San Francisco wallflower	*Erysimum franciscanum*	X	X		X
San Joaquin spearscale	*Extriplex joaquinana*	X	X		X
Stinkbells	*Fritillaria agrestis*	X	X		X
Fragrant fritillary	*Fritillaria liliacea*	X	X		X
Phlox-leaf serpentine bedstraw	*Galium andrewsii ssp. gatense*	X	X	X	X
Serpentine sunflower	*Helianthus exilis*	X			
Loma Prieta hoita	*Hoita strobilina*	X	X		X

Common Name	Scientific Name	Suitable Habitat Absent	Edaphic Conditions Absent	Outside Elevation Range	Extirpated from Project Vicinity
Coast iris	*Iris longipetala*	X			X
Satan's goldenbush	*Isocoma menziesii var. diabolica*	X			X
Contra Costa goldfields	*Lasthenia conjugens*	X			
Bristly leptosiphon	*Leptosiphon aciculoaris*	X		X	X
Serpentine leptosiphon	*Leptosiphon ambiguus*	X	X	X	X
Large-flowered leptosiphon	*Leptosiphon grandifloras*	X	X		X
Wooly-headed lessingia	*Lessingia hololeuca*	X	X		X
Smooth lessingia	*Lessingia micradenia var. glabrata*	X	X	X	X
Spring lessingia	*Lessingia tenuis*	X		X	X
Small-leaved lomatium	*Lomatium parvifolium*		X		
Arcuate bush-mallow	*Malacothamnus arcuatus*	X			
Hall's bush-mallow	*Malacothamnus hallii*	X			X
Dusky-fruited malacothrix	*Malacothrix phaeocarpa*	X		X	X
Mount Diablo cottonweed	*Micropus amphibolus*	X	X	X	X
Sylvan microseris	*Microseris sylvatica*	X	X	X	X
Elongate copper moss	*Mielichhoferia elongata*	X			X
San Antonio Hills monardella	*Monardella antonina ssp. Antonina*	X		X	X
Woodland woolythreads	*Monolopia gracilens*	X	X	X	X
Cotula navarretia	*Navarretia cotulifolia*	X			X
Prostrate vernal pool navarretia	*Navarretia prostrata*	X			
Dudley's lousewort	*Pedicularis dudleyi*	X	X		
Santa Cruz Mountains beardtongue	*Penstemon rattanii var. kleei*	X	X	X	
White rayed pentachaeta	*Pentachaeta bellidiflora*	X	X	X	
Gairdner's yampah	*Perideridia gairdneri ssp. gairdneri*	X			X

Common Name	**Scientific Name**	**Suitable Habitat Absent**	**Edaphic Conditions Absent**	**Outside Elevation Range**	**Extirpated from Project Vicinity**
White flowered rein orchid	*Piperia candida*	X			
Narrow-petaled rein orchid	*Piperia leptopetala*	X		X	X
Michael’s rein orchid	*Piperia michaelii*	X			X
Hickman’s popcornflower	*Plagiobothrys chorisianus var. hickmanii*	X			X
Hairless popcornflower	*Plagiobothrys glaber*	X		X	
Delta woolly-marbles	*Psilocarphus brevissimus var. multiflorus*	X			X
California alkali grass	*Puccinellia simplex*	X			X
Rock sanicle	*Sanicula saxatilis*			X	
Sanford's arrowhead	*Sagittaria sanfordii*	X			X
Chaparral ragwort	*Senecio aphanactis*	X		X	X
Maple-leaved checkerbloom	*Sidalcea malachroides*	X	X		X
Long styled sand spurrey	*Spergularia macrotheca var. longistyla*	X	X		
Metcalf Canyon jewelflower	*Streptanthus albidus ssp. albidus*	X	X	X	X
Most beautiful jewelflower	*Streptanthus albidus ssp. peramoenus*	X	X	X	X
Slender-leaved pondweed	*Stuckenia filiformis ssp. alpine*	X		X	X
California seablite	*Suaeda californica*	X		X	
Santa Cruz clover	*Trifolium buckwestiorum*	X	X		
Saline clover	*Trifolium hydrophilum*	X	X		

Appendix E

Hazardous Materials

CONTENTS

- *Attachment 1:* Cornerstone Earth Group, *Hazardous Materials Assessment: San José International Airport*, October 2019.
- *Attachment 2*: Woodard & Curran, *PFAS Completion Report*, January 30, 2020.
- *Attachment 3*: Woodard & Curran, *PFAS Phase Two Site Investigation Report*, June 14, 2022.

Attachment 1:

Cornerstone Earth Group, *Hazardous Materials Assessment: San José International Airport*, October 2019.

CORNERSTONE
EARTH GROUP

TYPE OF SERVICES	Hazardous Materials Assessment
LOCATION	San José International Airport San José, California
CLIENT	David J. Powers & Associates
PROJECT NUMBER	118-105-1
DATE	October 24, 2019

ENVIRONMENTAL

CORNERSTONE
EARTH GROUP

Type of Services	**Hazardous Materials Assessment**
Location	**San José International Airport** **San José, California 95110**
Client	**David J. Powers & Associates**
Client Address	**1871 The Alameda, Suite 200** **San José, California 95126**
Project Number	**118-105-1**
Date	**October 24, 2019**

Prepared by

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Senior Principal Geologist

Table of Contents

Type of Services	**Hazardous Materials Assessment**
Location	**San José International Airport** **San José, California 95110**

SECTION 1: INTRODUCTION

This report presents the results of the Hazardous Materials Assessment performed at the Norman Y. Mineta San José International Airport (the “Airport” or “Site”) located in San José, California. The Site boundaries are shown on Figures 1 and 2. This work was performed for David J. Powers & Associates in accordance with our December 29, 2018 Agreement (Agreement).

1.1 PROJECT BACKGROUND AND PURPOSE

The City of San José (the “City”), as the Lead Agency, is preparing a Draft Environmental Impact Report (EIR) for a major amendment to the Airport Master Plan in compliance with the California Environmental Quality Act (CEQA) and the CEQA Guidelines. The existing Airport Master Plan was adopted by the San José City Council in June 1997 following the certification of the 1997 Airport Master Plan EIR. The existing Airport Master Plan consists of a comprehensive and integrated package of improvements to airside and landside facilities at the Airport, such improved facilities having the design capacity to fully accommodate the 2027 forecast demand for air passenger, air cargo, and general aviation services in a comfortable and efficient manner. The proposed amendment to the Airport Master Plan would: 1) extend the horizon year and demand forecasts from 2027 to 2037; 2) incorporate the set of airfield configuration changes recommended in the Runway Incursion Mitigation/Design Standards Analysis Study; and 3) update the layout and sizing of various landside facilities to adequately serve the projected 2037 demand.

Subsequent to the certification of the EIR and approval of the Airport Master Plan in 1997, most of the capital improvement projects have been constructed. The remaining Airport Master Plan capital projects include several taxiway upgrades/extensions, new air cargo facilities on the east side of the Airport, construction of the South Concourse of Terminal B, upgrades and expansion of various support facilities (*e.g.*, maintenance, flight kitchen, etc.), and the buildout of general aviation facilities on the west side of the Airport. The proposed amendment to the Airport Master Plan would update the layout and sizing of many of the yet-to-be constructed landside facilities to adequately serve the projected 2037 demand.

This Hazardous Materials Assessment was prepared to assist in updating the Hazardous Materials Section of the EIR that initially was prepared in 1997. In addition to other related topics, this assessment includes an evaluation of the existing uses and storage of hazardous materials at the Airport and the generation of hazardous waste; and describes locations on the Airport where there is known or suspected contamination and the status of remediation efforts.

1.2 SCOPE OF WORK

As presented in our Agreement, the scope of work performed for this Hazardous Materials Assessment included the following:

- Review of readily available information regarding current hazardous materials use and storage at the Airport. The main data sources included existing Hazardous Materials Business Plans (HMBPs); Spill Prevention, Control, and Countermeasure (SPCC) plans; and Storm Water Pollution Prevention Plans (SWPPPs) that have been prepared for the Airport and on-Site tenants.

- A cursory review of readily available files for selected Airport facilities and on-Site tenants at the Santa Clara County Department of Environmental Health (DEH), the local agency responsible for implementing California's Unified Hazardous Waste and Hazardous Materials Management regulatory program (Unified Program).

- Acquisition and review of a regulatory agency database report of public records for the general area of the Site to evaluate potential impacts to the Site from reported contamination incidents on-Site and at nearby facilities.

- Review of information regarding past on-Site and nearby spill incidents that currently are or historically were subject to oversight by the DEH, Water Board and/or the California Department of Toxic Substances Control (DTSC).

- Review of readily available maps and historical aerial photographs to help evaluate past and current Site uses.

- Preparation of a written report summarizing our findings and conclusions.

The limitations for the Hazardous Materials Assessment are presented in Section 9.

1.3 ASSUMPTIONS

In preparing this Hazardous Materials Assessment, Cornerstone assumed that all information received from the Airport and other parties is true and accurate. In addition, we assumed that all records obtained, such as regulatory agency databases, maps, related documents and environmental reports prepared by others are accurate and complete. We also assumed that the boundaries of the Site, based on information provided by David J. Powers & Associates, are as shown on Figure 2. We have not independently verified the accuracy or completeness of any data received.

SECTION 2: SITE DESCRIPTION

The Airport is owned and operated by the City and has been in operation since 1945. The Airport occupies approximately 1,050 acres generally bounded by Highway 101 to the north, Highway 880 to the south, the Guadalupe River to the east, and Coleman Avenue to the west. The Airport property consists of multiple parcels and addresses. Table A1 (in Appendix A) provides a summary of the various on-Site parcels, and corresponding addresses and occupants/tenants. Assessor's parcel maps also are attached in Appendix A. The information in Table A1 was compiled based predominantly on data obtained from the Santa Clara County Assessor's Office and information supplied by the Airport. Supplemental information also was obtained from other data sources researched during this study. The primary Airport and tenant facility locations are shown on Figure 3.

SECTION 3: SITE HISTORY REVIEW

To evaluate the Site history, we reviewed aerial photographs dated between 1939 and 2016 obtained from Environmental Data Recourses (EDR) of Shelton, Connecticut. Copies of the aerial photographs reviewed are presented in Appendix B. Historical topographic maps also were reviewed online.

Based on the aerial photographs, the Site historically consisted mainly of agricultural land (orchards and row crops) with multiple widely spaced residences, many of which had associated outbuildings such as sheds and barns. The Guadalupe River formerly traversed portions of the Site.

By 1948, a runway and associated airport facilities were constructed on the southeastern portion of the Site. The 1948 aerial photograph also shows earthwork activities on the northwestern portion of the Site (on APN 230-03-101, -102 and -074) and on topographic maps from the 1950s this area is labeled as “sewage disposal.” The aerial photographs and topographic maps show what appears to have been a sewage treatment plant located nearby (off-Site) at the intersection of Robert Avenue and De La Cruze Boulevard in the City of Santa Clara. The on-Site earthwork appears likely to have been associated with sludge drying or disposal activities; this area is depicted on Figure 6.

During the 1950s and 1960s, a gradual expansion of airport facilities is apparent, along with a corresponding decrease in agricultural land. By the early 1960s, a second runway was added and the Guadalupe River was realigned so that it no longer traversed the Site. The former Terminal C building was constructed on the northeast side of the Airport by 1968. A third runway was added by the early 1970s for general aviation of the southwest side of the Site. Between the 1970s and the present, the Airport was gradually expanded including facilities along both the northeast and southwest sides of the Site. The expansion activities included the construction of new facilities, as well as the demolition or replacement of older facilities/structures.

SECTION 4: PHYSICAL SETTING

We reviewed readily available geologic and hydrogeologic information to evaluate the likelihood that chemicals of concern released on a nearby property could pose a significant threat to the Site and/or its intended use.

USGS 7.5 minute topographic maps were reviewed to evaluate the physical setting of the Site. The Site’s elevation ranges from approximately 35 to 60 feet above mean sea level; topography in the vicinity of the Site slopes downward gently to the northwest towards the San Francisco Bay.

Based on our experience and information presented in the California Geotracker database pertaining to the Site and nearby properties, the shallow groundwater beneath the Site typically has been reported at depths of approximately 7 to 20 feet. Groundwater likely flows generally toward the north; northeasterly and northwesterly flow directions also have been reported at on-Site locations.

SECTION 5: HAZARDOUS MATERIALS USE AT THE AIRPORT

The operation of the Airport involves the storage, use and transport of hazardous materials and the generation of hazardous wastes. Hazardous materials are transported to and from the Airport by pipeline and ground vehicles, as well as by passenger and all-cargo aircraft. The largest quantity of hazardous material used at the Airport is aviation fuel, which is consumed in operations and, therefore, generates minimum hazardous waste. In addition to aircraft refueling, industrial operations at the Airport include commercial and private airplane maintenance and cleaning, ground vehicle and equipment maintenance and cleaning, building and grounds maintenance, and material storage and transfer areas. These operations may additionally involve the use and storage of hazardous materials and the generation of hazardous waste. Facilities on the Airport are operated by both the Airport and Airport tenants.

The discussion in this section is based mainly on Hazardous Materials Business Plans (HMBPs), Spill Prevention, Control, and Countermeasure (SPCC) plans, and Storm Water Pollution Prevention Plans (SWPPPs) that have been prepared for the Airport and/or on-Site tenants, as well as other information provided by the Airport. A summary of the predominant Airport-operated facilities and tenant facilities at which hazardous materials are used/stored or hazardous wastes are generated is presented in Table 1. Further discussion is provided in the following sections.

Table 1. Summary of Hazardous Materials Storage and Waste Generation

Facility Name and Address	Hazardous Materials Storage Summary	Hazardous Wastes Generation Summary
MPOE Generator (south main point of entry) 1203 Airport Boulevard	Diesel aboveground storage tank (AST) for emergency generator	
Ground Support Equipment Wash Rack 1207 Airport Boulevard	Propane AST	
American Airlines Hangar* 1253 Airport Boulevard[1]	Oils/lubricants (5 gallon and smaller containers) along with de-icing fluid and various other miscellaneous maintenance related materials.	Used oil, oil filters, contaminated adsorbent, batteries, antifreeze and aerosols stored in drums and smaller containers.
Multi-Tenant Hangar: UPS, Alaska, JetPro* 1277 Airport Boulevard[2]	Alaska Airlines: Oil, antifreeze and de-icing fluid stored in drums and smaller containers. JetPro: ZEP degreaser in a drum.	Alaska: Used oil, jet fuel, aerosol cans, spent batteries, spent de-icing fluid and oily debris stored in drums. Universal wastes also generated. JetPro: Used oil, oil filters and antifreeze. UPS: Used oil, waste jet fuel and damaged package wastes stored in drums
Airport Sign Shop 1311-B Airport Boulevard	Inks, alcohols, lubricants, spray paint, propane and gasoline (in small containers - typically 1 to 5 gallon capacity)	Waste printer ink
Hazardous Waste Accumulation Area 1311-C Airport Boulevard		Used oil, antifreeze, absorbent, aerosol cans, latex paint, waste corrosives and acids, and universal wastes (stored in drums and smaller containers)
SJPD Airport Division (Old Bldg.) 1387 Airport Boulevard	Diesel in ASTs for emergency generators	
Fleet Maintenance/Paint Shop 1395 Airport Boulevard	Two underground storage tanks (USTs) containing gasoline and diesel. Propane, paint related products, oils, antifreeze, transmission fluid (stored in drums, ASTs and/or other containers). Compressed gasses (acetylene, oxygen and argon) also are stored.	Used oil, antifreeze and contaminated absorbent (stored in ASTs and drums)
Airport Facilities 1401 Airport Boulevard	Grounds and facility maintenance chemicals and propane	
SJ Fire Station #20 1433 Airport Boulevard	Fire Fighting Agents (Aqueous Film-Forming Foam [AFFF[3]] concentrate, Purple-K, and Halotron) stored in ASTs and drums. Diesel in ASTs for emergency generators.	
Southwest Airlines Cargo* 1521 Airport Boulevard	Propane cylinders	
Terminal B - Daily Lot 4 1639 Airport Boulevard	Propane AST	

Continued.

Table 1. Continued

Facility Name and Address	Hazardous Materials Storage Summary	Hazardous Wastes Generation Summary
Consolidated Rent-A-Car facility (CONRAC)* 1659 Airport Boulevard	Three USTs contain gasoline. Diesel AST for emergency generator. Motor oil, car wash detergents and window wash fluid stored in drums and/or ASTs. AFFF is stored in an ASTs	Used oil (stored in ASTs), used oil filters (stored in drums)
Terminal B-Hourly Lot 5 1661 Airport Boulevard	Diesel AST for emergency generator	
Terminal B 1701 Airport Boulevard	Diesel in ASTs for emergency generators	
Alaska Airlines Ramp/Terminal Facility* 1701 Airport Boulevard	De-icing fluid (propylene glycol) stored in an AST. Gasoline and diesel (storage method not described). Lead-acid batteries for ground support equipment.	
Southwest Airlines Ramp/Terminal Facility* 1701 Airport Boulevard		Used absorbent stored in drums.
Central Plant 2055 Airport Boulevard	Water treatment chemicals, refrigerants and compressed gasses (oxygen and nitrogen).	
Terminal A Parking Garage 2075 Airport Boulevard	Diesel AST for fire water pumps	
Terminal A 2077 Airport Boulevard	Diesel stored in one UST and in ASTs for emergency generators	
American Airlines Ramp/Terminal Facility* 2077 Airport Boulevard	Lead-acid batteries in ground equipment, de-icing fluid in tote, and miscellaneous lubricants and other materials in 1-gallon and smaller containers.	Used absorbent
United Airlines Ramp/Terminal Facility* 2077 Airport Boulevard		Used absorbent and universal wastes. Biohazard waste (if needed).
Delta Airlines Ramp/Terminal Facility* 2077 Airport Boulevard	De-icing fluid (propylene glycol) stored in drums and tank wagon.	Used oil, filters and absorbent stored in drums
Rocky Pond Retention Basin Pump Station 2080 Airport Boulevard	Diesel ASTs for water pumps	
CNG Fueling Station* 2151 Airport Boulevard	Compressed Natural Gas (CNG) and diesel AST for emergency generator	
North Air Cargo/Switchgear 2201 Airport Boulevard	Diesel AST for emergency generator	
Swissport Fuel Dispensing Racks* 2201 Airport Boulevard	Diesel and Jet A stored in ASTs.	
Swissport Fueling Services* (Airside Maintenance Shop and Yard) 2341 Airport Boulevard	Oils/lubricants, antifreeze stored in drums and smaller containers. Jet A, diesel and gasoline in mobile tankers.	Used oil and filters stored in drums

Continued.

Table 1. Continued

Facility Name and Address	Hazardous Materials Storage Summary	Hazardous Wastes Generation Summary
Atlantic Aviation (formerly TWC)* 1162 Aviation Avenue		Used oil and waste fuel stored in drums
Hewlett Packard* 1210 Aviation Avenue	Oil, paint, safety kleen solvent, diesel and Jet A fuel (in quantities between 25 and 260 gallons). Aerosols and other miscellaneous materials, as well as AFFF also are stored.	Unknown
Atlantic Aviation* 1250 Aviation Avenue	Jet A fuel and Avgas in ASTs at tank farm. Oils, de-icing fluid and Prist® stored in drums and totes. AFFF also is present.	Used oil, absorbents, waste fuels, spent de-icing fluid, stored in drums.
General Aviation West 1128 Coleman Avenue		Used oil and oil filters, and oily debris (stored in drums)
AvBase* 1144 Coleman Avenue	Jet A fuel stored in an AST	Used oil, waste fuel, used filters and oily rags stored in drums
Airfield Electrical Lighting Vault 273 Martin Avenue	Diesel in ASTs for emergency generators	
FAA Airport Traffic Control Tower* 275 Martin Avenue	Diesel in AST for emergency generator	Unknown
Westside Parking Lot 325 Martin Avenue	Diesel AST for emergency generator	
Signature Flight Support Terminal Building and Hangars 1 through 6* 303, 313, 323, 333, 343, 353 and 363 Martin Avenue	Jet A fuel, Avgas, MoGas, and diesel in ASTs. Also 2-(2-Methoxyethoxy) ethanol (a fuel system icing inhibitor) is stored in drums. AFFF also is present.	Used oil, used antifreeze and waste fuels in drums.
Signature Flight Support Hangar 7 and Fuel Farm* 373, 383 and 393 Martin Avenue		
Swissport Fuel Farm* 2250 Seaboard Avenue	Jet A fuel and diesel in ASTs. AFFF also is stored in an AST. Motor oil is stored in 5 gallon containers.	Used motor oil and used filters are stored in drums

* Tenant-Operated Facility
1 Note that the County Assessor’s Office identifies this parcel as 1277 Airport Boulevard.
2 Note that the County Assessor’s Office identifies this parcel as 1311 Airport Boulevard.
3 Regulations pertaining to AFFF (including its constituents and associated wastes) currently are being promulgated by state and federal agencies. Some common constituents are considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200) and/or are regulated under the California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65). Discharge of wastewater and runoff containing AFFF on land or to surface water bodies can be subject to regulation under the Clean Water Act. The applicability of specific regulations may vary depending upon the constituents of the AFFF product.

5.1 AVIATION FUEL STORAGE AND USE

Aircraft fueling at the Airport occurs primarily at Commercial Gates, Cargo Handling Areas and at the Fixed Base Operators (FBOs) and General Aviation (GA) areas. On the northeast side of the Airport where commercial and cargo aircraft operate, Jet A fuel is conveyed to covered fuel reloading racks via a dedicated pipeline from a fuel tank farm located on the northeast side of Highway 101 (at 2250 Seaboard Avenue); these facilities area operated by Swissport Fueling, Inc. (Swissport). Mobile fuel tanker trucks then drive to individual aircraft positioned at each gate and refuel the aircraft through a flexible pipe connection. At the FBO and GA areas on the southwest side of the Airport, three main fueling operations take place. The FBOs AvBase, Atlantic Aviation and Signature Fight Support store their fuel in their own aboveground storage tanks (ASTs), which are re-loaded via incoming tanker trucks. Mobile on-Site fueling trucks then transfer fuel from the ASTs to aircraft.

Fueling activities conducted by Swissport, AvBase, Atlantic Aviation and Signature Fight Support are described in greater detail in the following sections. A summary of fuel storage at these facilities is presented in Table 2; the locations of these facilities are shown on Figure 4. Annual aviation fuel (aviation gasoline [Avgas] and Jet A fuel) consumption at the Airport for 2017 and 2018 is presented in Table 3.

Table 2. Aviation Fuel Storage

Facility/Operator	Tanks*	Type of Fuel	Total Capacity (gallons)
Swissport	110, 102, 103, PRT-1, PRT-2 and ST	Jet A	1,919,211
Atlantic Aviation	1, 2, 3 and 4	Jet A	80,000
	5	Avgas	15,000
AvBase	1	Jet A	20,000
Signature Flight Support	1, 2 and 3	Jet A	60,000
	4	Avgas	15,000
		Total	**2,109,211**

* Tank ID as indicated by the facility/operator (see discussion below for additional details).

Table 3. Annual Aviation Fuel Consumption

Type of Fuel	2017	2018	Percent Increase
Retail Avgas	64,383	69,744	8.3 %
Retail Jet A	11,817,158	11,665,226	-1.3 %
Contract Jet A	100,547,632	110,207,934	9.6 %
Total	**112,429,173**	**121,942,904**	**8.5 %**

5.1.1 Re-Fueling of Commercial and Cargo Aircraft:

5.1.1.1 Swissport Fueling Services

Operations at the Swissport Fueling Services facility include bulk product storage, pipeline product receipt, tank truck product receipt, refueler load area product dispensing and filter separator replacement. Swissport loads fueling trucks with Jet A fuel from the Fuel Reloading Racks located on the north end of the Airport and transfers this fuel to commercial aircraft located at Terminals A and B. Diesel fuel also is stored by Swissport for operation of an emergency generator and fire water pumps. Fuel storage capacity at the Swissport facility is summarized in Table 4.

Table 4. Swissport Fuel Storage Capacity

Tank ID (ASTs)	Location	Capacity	Product	Type of Secondary Containment
Tank-101	Tank Farm	633,685	Jet-A	Imperviously lined dike area
Tank-102	Tank Farm	635,597	Jet-A	Imperviously lined dike area
Tank-103	Tank Farm	644,879	Jet-A	Imperviously lined dike area
PRT-1	Tank Farm	1,500	Jet-A	Double walled construction
PRT-2	Airside Facility	550	Jet-A	Double walled construction
ST	Tank Farm	3,000	Jet-A	Double walled construction
Diesel Generator	Tank Farm	660	Diesel	Double walled construction
Diesel Fire Water Pumps-Tank Farm	Tank Farm	500	Diesel	Double walled construction
Diesel Fire Water Pumps-Airside	Airside Facility	300	Diesel	Double walled construction

All fuel storage at Swissport is contained in a secondary manner. The large vertical ASTs (Tanks 101, 102 and 103) are contained within an imperviously lined concrete dike area. All other tanks are secondarily contained through double walled construction.

There are three oil-water separators at the facility: OWS-1 and OWS-2 are located at the tank farm and OWS-3 is located at the airside load facility. OWS-1 collects drainage from the offload/load islands at the tank farm and has a 10,000 gallon product holding capacity. OWS-2 collects drainage from the tank dike areas and the pump pad at the tank farm and has a 6,000 gallon product holding capacity. OWS-3 collects drainage from the load islands and has a 15,000 gallon product holding capacity. The three oil water separators have internal gravity oil stop valves and a motor-controlled inlet valve that will automatically shut if a high level is sensed in the product holding chamber. The oil water separators provide secondary containment for the areas served. Containment curbing is present at both the load and offload areas and at the pump pad. This curbing will contain a discharge and route it to the corresponding oil-water separator.

The Swissport facility receives Jet A fuel from a Jet A pipeline; however, the fuel facility also can receive fuel from tanker trucks. Fuel receipt from tanker trucks is an operation that rarely occurs at this facility and typically would only occur in the event of an emergency. The dedicated Jet A pipeline originates at the Wickland Pipeline facility in San Jose and terminates at the Swissport facility. The pipeline normally operates at approximately 1,500 barrels per hour and 14 psi. All fuel received is metered, filtered and pumped directly into the ASTs. While transfers of Jet A take place, communication between the pipeline operator and facility personnel is continuous. Actuation of any emergency fuel shutoff or overflow prevention device at the Swissport facility automatically closes the motor operated valve on the inbound fuel pipeline at the Swissport Facility; sends an alarm to the Wickland Pipeline facility; and closes motor operated valves at the Wickland Pipeline facility.

Diesel fuel is received by tanker trucks and pumped directly into the diesel ASTs. These transfers take place at the tank farm and airside facility, where a discharge will be contained and/or drain to an oil-water separator.

5.1.2 Re-Fueling of Privately Owned Aircraft:

The fueling operation for privately owner aircraft involves the transference of Jet A and Avgas from ASTs located at AvBase, Atlantic Aviation and Signature Flight Support. Mobile fueling tanker trucks are utilized to transfer fuel from the ASTs to the aircraft. Fuel storage at these facilities is described in the following Sections.

5.1.2.1 AvBase San Jose, LLC

AvBase San Jose, LLC is a general aviation FBO located on the southwest side of the Airport (1140 Coleman Avenue) and stores Jet A in a single AST for aircraft refueling. The AST has a capacity of 20,000 gallons and is a double-walled tank. Jet A is delivered to the AST by common carrier transport trucks. AvBase operates a 5,000 gallon mobile refueler tank truck that is used to transfer fuel from the AST to aircraft on the tarmac.

The AST area and the adjacent loading/unloading area drain to a single inlet. The drain discharges into an underground oil-water separator with an 8,000 gallon containment capacity. The oil-water separator is connected to the sanitary sewer system.

5.1.2.2 Atlantic Aviation

Atlantic Aviation is a FBO located at the Airport (1250 Aviation Avenue) and provides fueling of general aviation and corporate aircraft. The Atlantic Aviation facility occupies approximately 22 acres on the southwest side of the Airport and includes five aircraft hangars, one aboveground fuel storage facility, mobile fuel truck parking, and ramp parking for transient aircraft. Atlantic Aviation also occupies a hangar at 1162 Aviation Avenue (former TWC Aviation facility). Typical daily operations include aircraft fueling, towing, washing, and servicing aircraft and ground service equipment. Jet fuel is stored on-Site in four 20,000-gallon double-walled steel ASTs, and Avgas is stored in one 15,000 gallon double walled steel AST. Fuel storage capacity at the Atlantic Aviation facility is summarized in Table 5.

Table 5. Atlantic Aviation Fuel Storage Capacity

Tank ID (ASTs)	Location	Capacity	Product	Type of Secondary Containment
1	Tank Farm	20,000	Jet-A	Double walled construction
2	Tank Farm	20,000	Jet-A	Double walled construction
3	Tank Farm	20,000	Jet-A	Double walled construction
4	Tank Farm	20,000	Jet-A	Double walled construction
5	Tank Farm	15,000	Av Gas	Double walled construction

Fuel is delivered to the bulk storage ASTs by common carrier transport trucks. On-Site mobile fuel delivery trucks then transfer the fuel into aircraft tanks. Fifty-five gallon drums of fuel additive, de-icing fluid, and oils are stored in a 3-hour, fire-rated, hazardous materials bunker equipped with secondary containment. An underground oil-water separator with a 20,000 gallon containment capacity is located adjacent to the fuel tank farm and receives liquid that drains from a grated drain inside the bermed truck rack area. Additional oil-water separators are present at the Hangar A wash rack, at Hangars C and E, and at the former TWC Aviation hangar.

5.1.2.3 Signature Flight Support

Signature Flight Support is a FBO located at the Airport (303-393 Martin Avenue). Avgas and Jet A fuel are stored at the Signature facility in ASTs and used to fuel aircraft. The facility consists of an FBO terminal building, offices, aircraft ramp, hangars and fuel tank farm, and has six mobile refueler tank trucks.

Fuel tank farm at the facility consists of six ASTs that contain Avgas and Jet A fuel used to fuel aircraft, as well as diesel fuel and motor vehicle gasoline (MoGas) used to fuel various ground support vehicles. The fuel farm also contains an oil-water separator. The Signature facility additionally has one emergency generator with an integral diesel fuel AST and two emergency fire water pumps with associated diesel fuel ASTs. The total stationary fuel storage capacity of this facility is 78,230 gallons. Fuel storage capacity at the Signature facility is summarized in Table 6.

Table 6. Signature Flight Support Fuel Storage Capacity

Tank ID (ASTs)	Location	Capacity	Product	Type of Secondary Containment
1	Tank Farm	20,000	Jet-A	Double walled construction
2	Tank Farm	20,000	Jet-A	Double walled construction
3	Tank Farm	20,000	Jet-A	Double walled construction
4	Tank Farm	15,000	Avgas	Double walled construction
5	Tank Farm	1,000	Diesel	Double walled construction
6	Tank Farm	1,000	MoGas	Double walled construction
7	Hangar 7 Emergency Generator	80	Diesel	Double walled construction
8	Hangar 7 Emergency Fire Water Pump	575	Diesel	Double walled construction
9	Hangar 7 Emergency Fire Water Pump	575	Diesel	Double walled construction

The tank farm facility is constructed with a designated loading/unloading fuel transfer area (spill pad). This location is where all transfers of fuel from delivery fuel transport trucks and into the bulk storage AST takes place and where airport mobile refueler trucks are filled. This designated area is designed to capture and retain any fuel spilled during the transfer. The fuel transfer area is constructed with a sump drain system to capture spilled fluids and a sump pump to pump rainwater and residual fuel into an oil-water separator connected to the sanitary sewer system.

5.2 OTHER HAZARDOUS MATERIALS AND HAZARDOUS WASTE

5.2.1 Vehicle Fueling and Maintenance

Most vehicle fueling and maintenance activities at the Airport occur at the Fleet Maintenance facility and at the Consolidated Rent-A-Car (CONRAC) facility that are discussed in the following sections. As discussed in the preceding Section, Signature Flight Support also stores motor vehicle gasoline and diesel in two 1,000 gallon ASTs for fueling of ground support equipment/vehicles.

5.2.1.1 Fleet Maintenance Facility

The majority of ground support vehicles are fueled at a canopy covered fuel dispenser island located on-Site at the Fleet Maintenance facility (1395 Airport Boulevard). Airport Department vehicles and equipment, including San Jose Police Department (SJPD) vehicles, San Joe Fire Department (SJFD)-Fire Station #20 rigs, and tenant ground support vehicles use these dispensers. A small percentage of airline service support vehicles are fueled by tanker trucks on the ramp. Fuel to the dispenser island is supplied by two double-walled, 10,000-gallon USTs, one containing renewable diesel fuel and the other containing unleaded gasoline. Vehicle maintenance is performed inside two maintenance shops (Bays 1 and 2). Drip pans are utilized to contain drips/leaks while the vehicles are being serviced. Spill cleanup supplies, including containers for clean and used absorbent, brooms and shovels, are kept undercover at the dispenser island in case of a small fuel spill at the dispensers.

Other hazardous materials stored at the Fleet Maintenance facility include paints, motor oil, transmission fluid, hydraulic fluid and antifreeze, among others. Used oil, used antifreeze and used absorbent are generated. These hazardous materials and wastes typically are stored in small ASTs, 55-gallon drums and/or smaller containers. The Fleet Maintenance facility has a vehicle wash rack that is connected to an oil-water separator, and a paint shop that has a wastewater clarifier.

5.2.1.2 Consolidated Rent-A-Car facility

The CONRAC facility is located on-Site at 1659 Airport Boulevard and is occupied by multiple participating rental car companies. Gasoline is stored at the CONRAC facility within three double-walled 12,000-gallon USTs. Piping from the USTs (below ground and aboveground) leads to fuel dispensers located on the 2nd, 3rd and 4th levels of the multi-level facility. Car wash equipment and vehicle service areas also are located on each of these levels. Motor oil is stored at the facility in a 2,500 gallon AST and in 55 gallon drums. Car wash detergents and windshield washer fluid also are stored. A 450 gallon AST contains diesel fuel for an emergency generator. Used oil is stored in three 1,000 gallon ASTs; used oil filters also are generated. Several oil-water separators are present at the facility that are associated with vehicle maintenance activities and car wash facilities.

5.2.2 Diesel Fueled Emergency Generators and Pumps

The majority of emergency/standby generators on-Site are stationary generators that have an aboveground diesel storage tank as part of the generator set, usually at the base of the generator. A few generators have separate ASTs located nearby. One generator (Terminal A - Generator C, ID #28538) is fueled by a 1,000 gallon diesel UST. A propane fueled generator is present at Daily Parking Lot 4.

The diesel is the fuel source for the generators, which are used for power generation in the event of a main electrical power failure. They provide emergency power for such features as parking lot lighting, airfield lighting, terminal lighting, fire sprinkler pumps and flood control pumps. Diesel powered pumps for fire water or storm water management also are present at a few locations. Fuel for the Airport-operated generators/pumps is added when needed by City of San Jose Public Works Department Fleet staff. Tenant-operated equipment is maintained by the responsible tenant. The locations of the generators, pumps and diesel storage tanks are shown on Figure 4 and listed below in Table 7.

Diesel powered generators are required to have air permits under the jurisdiction of the Bay Area Air Quality Management District (BAAQMD). The generators with diesel fuel tanks of 55-gallons or greater also are permitted under Title 19, Division 2 of the California Code of Regulations (CCR). The Airport (or responsible tenant) is required to prepare and update annually the HMBPs for these facilities. The Airport occasionally has portable generators on-Site for construction activities, which are registered under the California Air Resources Board's (CARB's) Statewide Portable Equipment Registration Program (PERP).

Table 7. Diesel Fueled Emergency Generators and Pumps

Generator GSA #	BAAQMD Source #	Facility Location	Address	Fuel tank size (gallons)
Airport-Operated Emergency Generators and Pumps				
94212	S-1	Terminal A Garage - Fire Pump	2075 Airport Boulevard	60
28513	S-3	Terminal A - Generator E	2065 Airport Boulevard	240 day + 500 AST
94198	S-6	Facilities (next to Biffy House)	1401 Airport Boulevard	50
28509	S-8	Westside Parking Lot	325 Martin Avenue	200
28510	S-9	Airport SJ Police Department Building (former)	1387 Airport Boulevard	173
97057	S-10	Rocky Pond Retention Basin (Pump B)	2080 Airport Boulevard	shared tank with 97056
97056	S-11	Rocky Pond Retention Basin (Pump A)	2080 Airport Boulevard	160
94230	S-12	SJ Fire Department Station 20	1433 Airport Boulevard	90
21900	S-14	SJ Police Department (Portable)	1387 Airport Boulevard (currently in Facilities parking lot)	100
28521	S-15	Airfield Lighting Vault (western)	273 Martin Avenue	100 day + 1000 AST
28522	S-16	Airfield Lighting Vault (eastern)	273 Martin Avenue	shared tank with 28521
28548	S-19	Terminal B - H core (north)	1701 Airport Boulevard	1350
28546	S-20	Terminal B - J core (mid)	1701 Airport Boulevard	1350
28547	S-21	Terminal B - K core (south)	1701 Airport Boulevard	1350
28538	S-22	Terminal A - Generator C	2077 Airport Boulevard	50 day + 1000 UST
28553	S-23	Terminal A (north) - Generator B	2077 Airport Boulevard	1423
28554	S-24	Terminal B - L core (ticketing)	1701 Airport Boulevard	1350
28550	S-25	Terminal A - Generator D	2077 Airport Boulevard	1200

Table 7 Continued. Diesel Fueled Emergency Generators and Pumps

Generator GSA #	BAAQMD Source #	Facility Location	Address	Fuel tank size (gallons)
Airport-Operated Emergency Generators and Pumps (Continued)				
21921	NA	Terminal B - Daily Parking Lot 4 (Propane Tank)	1639 Airport Boulevard	100 (propane)
28561	S-27	Terminal B - Parking Lot 5	1661 Airport Boulevard	60
TBD	TBD	Air Cargo Ramp - Switchgear	2201 Airport Boulevard	80
TBD	NA	MPOE (Main Point of Entry)	1203 Airport Boulevard	67
Tenant-Operated Emergency Generators and Pumps				
NA	S-18	CNG Station	2151 Airport Boulevard	130
NA	NA	CONRAC Garage	1659 Airport Boulevard	450
NA	NA	Swissport Tank Farm Generator	2250 Seaboard Avenue	660
NA	NA	Swissport Tank Farm Fire Water Pumps	2250 Seaboard Avenue	500
NA	NA	Swissport Airside Fire Water Pumps	2341 Airport Boulevard	300
NA	NA	Signature Flight Support Hangar 7 Emergency Generator	303-393 Martin Avenue	80
NA	NA	Signature Flight Support Hangar 7 Fire Water Pump	303-393 Martin Avenue	575
NA	NA	Signature Flight Support Hangar 7 Fire Water Pump	303-393 Martin Avenue	575
NA	NA	FAA Airport Traffic Control Tower AST for Generator	275 Martin Avenue	2000

NA = not available or not applicable
TBD = to be determined

5.2.3 Underground Storage Tanks

As discussed in Section 5.2.1, two USTs are located on-Site at the Airport Fleet Maintenance Facility and three USTs are located on-Site at the CONRAC facility. An additional UST is located at Terminal A (2077 Airport Boulevard) and supplies diesel fuel to an emergency generator (“Generator C”, ID #28538). The on-Site UST locations are shown on Figure 4.

The Fleet Maintenance USTs are re-fueled through tanker truck deliveries (Western States is the vendor). There is no set schedule for deliveries (as it is based on usage), but there is roughly one delivery every other week. The City’s Public Works Department manages the fuel deliveries. The USTs at the CONRAC facility are owned by the City but operated by the facility. The UST at Terminal A supports an emergency generator that is not often used; thus, the tank does not need frequent re-fueling. When needed, the City Public Works Department’s Fleet fueling truck performs that duty.

The County DEH is the lead Certified Unified Program Agency (CUPA) for the UST program. Each of the six on-Site USTs is permitted through the DEH.

5.2.4 Paint Shop

Material handling and storage areas for paint and paint related materials (PRMs) are located at the Airport Paint Shop (1395 Airport Boulevard). Storage lockers designed for the storage of PRM are utilized both indoors and outdoors at the facility. Paint waste is transported to the main Hazardous

Waste Accumulation Area located at 1311-C Airport Boulevard for subsequent proper disposal as needed. Wastewater generated during washing activities is collected through an existing water clarifier structure located adjacent to the Paint Shop that discharges to the sanitary sewer.

5.2.5 Aircraft and Vehicle Washing

The potential pollutants associated with aircraft and vehicle washing are detergents, total suspended solids, oil, grease, fuel and metals.

Commercial aircraft are washed off-Site for compliance with the Airport's Stormwater Industrial General Permit. Private/general aviation aircraft located on the Airport's southwest side are hand washed at the Airport and washwater is collected in oil-water separators and discharged to the sanitary sewer system. This washwater does not comingle with stormwater in the stormwater drainage system. Aircraft wash racks with oil-water separators are located at the General Aviation West area, Atlantic Aviation, and the Hewlett Packard facility.

Airport Standard Operating Procedures require all ground vehicles operating within the Air Operations Area (AOA) to be washed at one of two wash racks - the Fleet Maintenance Wash Rack or the Ground Support Wash Rack. The Fleet Maintenance Wash Rack is used by Airport Department vehicles. Tenant vehicles utilize the Ground Support Wash Rack. Oil-water separators are present at both wash racks that collect and separate wastewater from oils/grease and discharge to the sanitary sewer system.

The CONRAC facility has car wash facilities that are used by participating rental car companies. A water reclamation system and several oil-water separators are present at the CONRAC facility for treatment and reuse of washwater used for cleaning of rental cars.

The locations of aircraft and vehicle wash racks are depicted on Figure 5. Additional oil-water separators that collect drainage from fuel tank farms, various aircraft hangars and other facilities also are shown on Figure 5. Oil-water separator locations include the following:

- Atlantic Aviation at aircraft wash rack, fuel farm and at hangars C and E - 1250 Aviation Avenue
- Atlantic Aviation (Former TWC) hangar - 1162 Aviation Avenue
- General Aviation West at aircraft wash rack - 1128 Coleman Avenue
- Fleet Maintenance wash rack - 1395 Airport Boulevard
- Paint Shop wastewater clarifier- 1395 Airport Boulevard
- Ground Support wash rack - 1207 Airport Boulevard
- Terminal A trash compactor area - north of Terminal A
- Hewlett Packard Enterprise at aircraft wash rack - 1210 Aviation Avenue
- CONRAC facility - 1659 Airport Boulevard
- Swissport Fuel Dispensing Racks - 2201 Airport Boulevard
- Swissport Fuel Farm - 2250 Seaboard Avenue
- Signature Flight Support Fuel Farm - 393 Martin Avenue
- AvBase AST area - 1144 Coleman Avenue

5.2.6 Firefighting Foam Usage

Since the 1960s, many fire suppressant foams, often referred to as Aqueous Film Forming Foam (AFFF), contained perfluorinated compounds (PFCs). PFCs are a subset of chemicals called perfluoroalkyl and polyfluoroalkyl substances (PFAS). Two of the most studied PFCs are PFOS (perfluorooctane sulfonate) and PFOA (perfluorooctanoic acid). Some PFAS substances, including PFOS and PFOA are no longer manufactured in the Unites States, in part due to a voluntary phase-out program initiated by the USEPA in 2006.

In recent years, the USEPA has identified PFAS as emerging contaminants of concern and has identified fire training facilities and airports as potential sources of PFAS contamination. These highly soluble contaminants pose a soil leaching concern due to their mobility, they readily migrate in groundwater, and are bioaccumulative. PFAS can be persistent in the environment with degradation periods of years, decades, or longer under natural conditions.

On March 20, 2019, the State Water Resources Control Board (SWRCB) issued Water Code Section 13267 Order WQ-2019-0005-DWQ (Order) to Title 14, Code of Federal Regulations, Part 139 Airports in California, including the Norman Y. Mineta San José International Airport. The Order required the City of San José to submit a work plan for a one-time preliminary site investigation of PFAS impacts at the Airport (Work Plan). As part of the Work Plan development, Airport staff identified current and historic on-Site AFFF storage and usage locations. Some of the information presented below was identified as a result of the preparation of the Work Plan. The Work Plan was submitted and uploaded to the Geotracker database on June 14, 2019. The San Francisco Bay Regional Water Quality Control Board conditionally approved the Work Plan in a letter dated July 18, 2019. PFAS concentrations in soil and groundwater at relevant locations on Airport property will be evaluated in accordance with the approved Work Plan.

Airport-owned AFFF is stored in Building 1000, located next to Fire Station #20 at 1433 Airport Boulevard, for firefighting purposes and in automated fire suppression systems within some on-Site tenant-owned and operated structures on leased-Airport property (*e.g.*, Signature Flight Support, Hewlett-Packard Enterprise, Atlantic Aviation, CONRAC, Swissport, etc.[1]).

Based on information provided by the Airport staff[2], the Airport typically has sent Fire Station #20 personnel off-Site for live fire training whereas firefighting apparatus (*i.e.*, foam proportioning) testing has primarily occurred either off-Site at a Public Works Department location or on-Site at an oil-water separator that connects to the sanitary sewer system in the southeast corner of the Airport property. Records reviewed during the development of the Work Plan identified two aircraft incidents that required the use of fire suppression foam around runway 30L. In addition, Fire Station #20 staff have historically sprayed rinse water from AFFF equipment into the grassy area near the intersection of Taxiways B and Z, and the rinse water from the hoses may contain diluted AFFF. In November 2016, AFFF was accidentally deployed from an automated fire suppression system within Hangar 7 at the Signature Flight Support facility and exited the hangar, while a smaller incident in February 2018 was contained inside Hangar 7.

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[1] An inventory of all AFFF storage at the Site was not completed during this study; this information was provided by Airport staff after the PFAS Work Plan was developed.

[2] Email correspondence and telephone conversations with Ms. Jessica Huybregts, Environmental Services Specialist, Planning and Development Division.

Historical documents and information from Airport staff indicate two former fire training areas on-Site, which have now both been paved and redeveloped as aircraft aprons. Files pertaining to the Airport obtained from the state Geotracker database (http://geotracker.waterboards.ca.gov) include those for a Cleanup Program Site (CPS) (Case #: 43S0533) associated with a former "burn pit" at the Airport[3]. In a 1990 letter, the burn pit area was described as being under a "new American Airlines Parking Runway" and covered by a concrete apron. The 1997 EIR (Appendix A, Table 3.12.A.9) also refers to a "Fire Department Training Area" on the "North End of the Airport," which likely was the same feature. The CPS case is identified as having been closed in 1996. Per Airport staff, the burn pit noted in the 1990 letter refers to an original fire department training area that consisted of a concrete basin located on the northeast portion of the Airport, at approximately the location of the current Terminal A Gate 2 area (when Terminal A was constructed, American Airlines moved from Terminal C to Terminal A, hence the American Airlines reference). After that burn pit was closed, a new one reportedly was established just south of the Airport Traffic Control Tower. The second burn pit was removed to facilitate construction of a new hangar by Atlantic Aviation in 2003/2004; a paved apron area reportedly covers the former burn pit location. The Work Plan refers to this location as the Former Fire Training Area 2.

5.2.7 Aircraft De-Icing Operations

De-icing is performed on a limited basis due to the mild climate of the region. January temperatures average 50°F. In addition, FBO aircraft on the west side of the Airport and cargo aircraft in the north-east section typically do not engage in de-icing activities and typically do not dispatch aircraft under icing conditions. De-icing fluid (propylene glycol) is stored at various tenant facilities. Best Management Practices (BMPs) for de-icing activities consist of minimizing the amount of de-icing product sprayed on wings, the timely vacuum sweeping of the affected ramp areas (utilizing a ramp scrubber) and protecting the closest drain to the de-icing activity.

5.2.8 Air Transport of Hazardous Materials

Certain hazardous materials, termed "dangerous goods" by the airline industry, are transported by air, primarily by all-cargo carriers. Occasionally, the Airport is notified by an airline, as required by law, that a hazardous materials shipment is scheduled to occur. On those occasions, in coordination with the FAA Air Traffic Control Tower, the aircraft is parked in a remote area, with trucks or other surface vehicles escorted directly to and from the aircraft. Such flights are usually conducted by an all-cargo or cargo charter airline.

The transportation of hazardous materials by air, including packaging, labeling, and reporting, is regulated under Section 172.101 of the Hazardous Materials Transportation Act in the Code of Federal Regulations (CFR) Title 49. The regulation specifies restrictions on the type of hazardous materials that may be carried on aircraft and requires notification of airports where a transfer of the materials is planned. In addition to complying with federal regulations, air carriers operating at the Airport also comply with the guidelines of the International Air Transport Association (IATA), which are consistent with CFR Title 49 and are based on the Chicago Convention on International Civil Aviation. IATA has developed and issued detailed transport guidelines for association members worldwide that categorically prohibit air transport of certain hazardous materials that are considered too dangerous to be transported by air and that provide detailed instructions for transporting those materials that are allowed on aircraft. Restrictions on

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[3] Only limited information is available on the Geotracker website. Case files were requested from the Water Board. The Water Board indicated that they have no additional information.

the type of hazardous materials that may be carried on aircraft vary somewhat between passenger and cargo flights. Prohibited goods include most explosives, any substance that could evolve heat or gas under conditions of normal transport, inhalation poisons, many flammable materials, and a long list of other chemicals. The IATA guidelines are recognized worldwide and are reviewed and updated annually; the 60th edition of the IATA *Dangerous Goods Regulations* went into effect on January 1, 2019. Individual air cargo carriers also have health and safety guidelines that cover handling of hazardous materials, employee health and safety, and specific in-flight storage for each make and model of aircraft.

5.2.9 Hazardous Waste Generation

Hazardous waste generated at the Airport originates mainly from Airport upkeep and aircraft and automobile maintenance activities. The most common hazardous waste generated at the Airport is used motor oil associated with vehicle and aircraft maintenance. Other common wastes include used absorbents (for spill and leak cleanup), used antifreeze, waste fuels, spent oil filters, aerosol cans and various universal wastes (batteries, fluorescent light tubes, and mercury-containing lamps, etc.). Used/excess de-icing fluid (propylene glycol) is also collected once it has been applied and disposed by tenants using their disposal company. The hazardous wastes are transported off-Site for recycling, treatment, and/or disposal by licensed waste disposal contractors.

Tenants are responsible for the management and disposal of the hazardous waste they generate, and they have their own storage areas and arrangements with disposal companies. The exception is the general aviation west (GA West) area (1128 Coleman Avenue). Pilots/mechanics/owners of small aircraft place used motor oil and used oil filters into 55 gallon metal drums stored inside a roll-top container with secondary containment and inspected weekly; these materials are managed and disposed by the Airport.

Hazardous waste generated by Airport operations (excluding tenant waste) is secured, collected and managed at a main Hazardous Waste Accumulation Area located at 1311-C Airport Boulevard. The Airport has a contract with Environmental Logistics Inc. to remove and dispose of hazardous waste stored at the Hazardous Waste Accumulation Area and from the GA West area, and a contract with Safety Kleen for waste generated at the Fleet Maintenance facility located at 1395 Airport Boulevard.

The Airport generates a significant amount of universal waste (e-waste, batteries, and used light bulbs/lamps/tubes). The e-waste is currently picked up and recycled by Wisetek, and the lights/bulbs and batteries are recycled by QuickLight Recycling.

The Airport and tenants manage their hazardous materials and hazardous waste in a manner that minimizes exposure to rain, thereby reducing the potential for stormwater pollution. This is detailed further in the Airport Stormwater Pollution Prevention Plan (SWPPP). Hazardous waste generators are inspected by the County DEH.

Airport facilities and tenants that generate hazardous waste are identified in Table 1. Hazardous Waste generated by Airport operations (excluding tenant waste) is summarized below in Table 9.

Table 9. Hazardous Waste Generated by Airport Operations

Waste Stream	Quantity Generated Annually (2018)	Disposal Method	Waste Hauler	Airport Location	Data Source	State waste code	Designated Facility / Notes
Used oil filters	110 Gal (475 Units)	Recycled	Safety-Kleen Systems	1395 Airport Blvd	Manifest	223	Thermo Fluids Inc.
Used antifreeze	60 Gal	Recycled	Safety-Kleen Systems	1395 Airport Blvd	Manifest	133	Thermo Fluids Inc.
Used oil	300 Gal	Recycled	Safety-Kleen Systems	1395 Airport Blvd	Manifest	221	Safety-Kleen Systems
Aqueous Parts Cleaners (solvents)	45 Gal	NA	Safety-Kleen Systems	1395 Airport Blvd	Manifest	134	Safety-Kleen Systems
Contaminated Absorbent (w/oil)	1800 lb	Recycled	Environmental Logistics	1311-C Airport Blvd/ 1395 Airport Blvd	Manifest	352	Filter Recycling Services Inc.
Used oil	110 Gal	Recycled	Environmental Logistics	1311-C Airport Blvd/ 1128 Coleman Ave	Manifest	221	Filter Recycling Services Inc.
Used oil filters	50 lbs	Recycled	Environmental Logistics	1128 Coleman Ave	Manifest	352	Filter Recycling Services Inc.
Waste corrosive bases	55 Gal	Haz Waste	Environmental Logistics	1311-C Airport Blvd	HMBP estimate	Federal waste code D002	HazMat Inc.
Waste corrosive acids	55 Gal	Haz Waste	Environmental Logistics	1311-C Airport Blvd	HMBP estimate	Federal waste code D002	HazMat Inc.
Non-PCB ballast	250 lb	Recycled	Environmental Logistics	1311-C Airport Blvd	Manifest	NA	Filter Recycling Services Inc.
Waste flammable liquids (solvents)	8 Gal	Haz Waste	Environmental Logistics	1311-C Airport Blvd	Manifest	Federal waste codes D001 & D018	HazMat Inc.
Universal waste - batteries	1100 lb	Recycled	Environmental Logistics	1311-C Airport Blvd	Manifest	Universal Waste	Filter Recycling Services Inc.
Universal waste - aerosols	100 lb	Recycled	Environmental Logistics	1311-C Airport Blvd	Manifest	Universal Waste	Filter Recycling Services Inc.
Waste latex paint	40 Gal	Recycled	Environmental Logistics	1311-C Airport Blvd	Manifest	Universal Waste	Filter Recycling Services Inc.
Used toner & printer ink	50 lb	Recycled	Environmental Logistics	1311-C Airport Blvd	Manifest	NA	Filter Recycling Services Inc.
Mercury-containing lamps/ light tubes	15 drums	Recycled	QuickLight Recycling	1311-C Airport Blvd	Manifest	Universal Waste	
Batteries	800 lb	Recycled	QuickLight Recycling	1311-C Airport Blvd	Manifest	Universal Waste	
Non-PCB ballast	40 lb	Recycled	QuickLight Recycling	1311-C Airport Blvd	Manifest	Universal Waste	

Notes: Information compiled from waste manifests obtained from hazardous waste haulers in 2018 and/or facility HMBPs (Compiled by J.Huybregts 1/29/2019).

5.2.9.1 Aircraft Sanitary Service Operations

Ground support vehicles are utilized to collect, transport and manage sanitary waste from aircraft. Lavatory waste vehicles are stationed at various ramp locations on the northeast commercial/cargo side of the Airport. When an aircraft arrives at the gate, the lavatory vehicle mobilizes and removes the lavatory waste from the aircraft via a flexible transfer hose. When nearing capacity, the vehicle drives to the lavatory waste disposal bay (Biffy House at 1431 Airport Boulevard) and empties the contents of the tank into the sanitary sewer. This waste, along with all sanitary waste from restrooms at the Airport, is conveyed via the existing sanitary collection system to the City Wastewater Treatment Plant for treatment. Stormwater rules and regulations prohibit flushing or washing any lavatory waste spills into the storm drainage system. If spills occur, individuals responsible for creating the lavatory waste spill are also responsible for the control, containment and cleanup per established procedures. Training for this procedure is included in employee Secure Identification Display Area (SIDA) badge training and in the Airport's Ramp Safety & Traffic Regulations Handbook (Ramp Handbook, 2019).

SECTION 6: SPILLS, LEAKS AND RESPONSE ACTIONS

When hazardous material spills occur, the responsible tenant reports the incident to the Airport Operations Center (AOC) who generates a Spill Report. Spill Report logs are maintained at the Airport per established stormwater rules and regulations. The Spill Report documents the causes of the spill, the type of material spilled, the approximate quantity spilled, any impacts to the storm sewer system, the cleanup methodology, and any subsequent corrective actions. Incidents that involve aircraft are the responsibility of the aircraft owner/operator to ensure the safe, expedient removal of the spilled material, and to repair any physical damage as a result of the incident. Under no circumstances are spilled materials to be flushed or washed away or be allowed to enter the Airport's stormwater collection system. Spill cleanup guidelines, methods and reporting standards are documented in the Ramp Handbook (2019) along with other operational standards.

A cursory review of provided spill logs for the past 5 years indicates that incidents occur approximately 8 times per month. The most common material spilled during operations at the Airport is jet fuel. Other materials include hydraulic fluid, oil, transmission fluid, other lubricants and fuels, and lavatory waste. Most reported spills occur on paved ramp areas and are relatively small (1 to 10 gallons); they are cleaned in general accordance with established procedures (typically through the use of absorbents) by on-Site personnel. Airport Operations will contact the Airport Fire Station if the fuel spill covers over 10 feet in any direction, or it is over 50 ft^2 in area, continues to flow, or is otherwise a hazard to persons or property (in accordance with NFPA 407 4.2.3.5.7 and the California Fire Code 2006.11.5). If the spill/release of oil/fuel is 42 gallons or more, or if the spill has discharged to, or threatens to discharge to State Waters (*e.g.,* Guadalupe River), or if the spill/release causes harm, or threatens to cause harm to the public health and safety, the environment, or property, then notifications are be made to the California State Office of Emergency Services (OES) and the United States Coast Guard National Response Center (NRC).

The Airport utilizes "Safe Drains" to prevent spills and potentially contaminated stormwater from discharging into the Guadalupe River. These Safe Drains are located adjacent to taxiways, gate areas and other locations on the ramp *(i.e.,* aircraft parking areas). Safe Drains contain a valve that can be manually opened and closed with a specialized key. Safe drains are kept in the closed position during dry periods so that if a spill occurs, it will not enter the storm drain system or the Guadalupe River. Additionally, a stormwater retention basin, known as Rocky Pond, is located at 2080 Airport Boulevard and utilizes two stationary diesel fueled engines to power pumps that pump water from the Retention Basin when it reaches capacity. The retention pond collects groundwater from parking garage basement pumps and runoff from landside non-industrial areas. The retention basin also can be used to contain an emergency spill from the Air Operations Area drainage area by diverting the flow via manual valves.

6.1 SOIL AND GROUNDWATER CONTAMINATION

The Airport has experienced several hazardous material releases that have resulted in localized impacts to soil and/or groundwater quality. A summary of these incidents is presented in Table 10; their locations are shown on Figure 6. Note that multiple adjacent rental car facilities historically were located along Airport Boulevard southeast of the former Terminal C location. These are grouped separately in Table 10 and shown as single area on Figure 6.

Investigations and remedial actions at these locations have been conducted under oversight from the County DEH and/or the Water Board. Some cases were previously overseen and closed by the Santa Clara Valley Water District (SCVWD); oversight responsibility for investigations and clean-up of releases from USTs was transferred from the SCVWD to the County DEH in 2004.

As indicated in Table 10, most leaking underground storage tank (LUST) and voluntary cleanup program (VCP) cases have been closed by the overseeing regulatory agency. The only remaining open cases are two VCP cases at Signature Flight Support (303 and 325 Martin Avenue), and a LUST case at 1615 Airport Boulevard (formerly 1661 Airport Boulevard), which was occupied by a former Chevron jet fuel AST facility until 1971 and then occupied by Dollar Rent A Car until 2002. For the open LUST case, site assessment and monitoring activities are ongoing and being conducted under Water Board oversight. As a result of the open LUST case, the Airport is included on California's Hazardous Waste and Substances Sites List, also known as the Cortese List (pursuant to California Government Code Section 65962.5). The two VCP cases are being overseen by the County DEH and are discussed further in Section 6.1.1.

At most of the closed LUST and VCP case locations, residual contamination remains in soil and/or groundwater and, as a condition of case closure, on-going management requirements were established by the overseeing regulatory agencies. The stipulated management requirements are included as footnotes in Table 10. Additional details regarding each of the cases listed in Table 10 are contained in documents available from the state Geotracker database (http://geotracker.waterboards.ca.gov).

Table 10. On-Site LUST and VCP Cases

Facility Name and Address	Case Type and Status	On-Going Management Requirements	Notes/Discussion
Marchese Farms 297 Martin Avenue	LUST case Closed 1996	Yes[1]	Former on-Site farm complex. Impacted soil and groundwater identified in 1995 during the removal of a diesel AST. Residual contaminants reported to remain.
Signature Flight Support Hangar A 303 Martin Avenue	VCP case Open	TBD	In a February 2019 letter, the DEH required revisions to a Soil Management Plan for planned construction activities, and further assessment of soil, groundwater and soil vapor. In addition to identified impacts from organochlorine pesticides, the DEH noted that groundwater impacted by volatile organic compounds (VOCs) originating from 282 Brokaw Road (off-Site) may have migrated below the Site. See Sections 6.1.1 and 6.1.2 for further details.
Signature Flight Support 325 Martin Avenue	VCP case Open	Yes[2]	Soil impacted mainly by organochlorine pesticides. See Section 6.1.1 for discussion.
SJ Airport General Aviation 1101 Airport Boulevard	LUST case Closed 2009	Yes[3]	Three USTs removed in 1990 and two USTs removed in 2004. Residual contaminants reported to remain.
San Jose Jet Center (Atlantic Aviation) 1250 Aviation Avenue	LUST case Closed 2006	Yes[3]	Four USTs and an oil-water separator were removed in 2005. Residual contaminants reported to remain.
SJ Airport Fleet Maintenance Area 1395 Airport Boulevard	LUST case Closed 2012	Yes[3]	Four USTs were removed in 1990 and one UST was removed in 2006. Residual contaminants reported to remain.
SJ Airport/Chevron 1401 Airport Boulevard	LUST case Closed 2015	Yes[3]	Former tank farms operated by Chevron and the City of San Jose. Multiple USTs and an AST were removed between 1991 and 2011. Residual contaminants reported to remain.
SJ Airport Terminal C 1661 Airport Boulevard	LUST case Closed 2005	Yes[3]	One UST was removed in 1992. Residual contaminants reported to remain.
SJC Terminal A 1701 Airport Boulevard	CPS case Closed 1996	Unkown[4]	Former “Burn Pit.” See Section 5.2.6 for discussion.
AMPCO Site 1801 Airport Boulevard	LUST case Closed 2002	None specified	One UST was removed in 2000. Residual contaminants reported to remain.
Dollar Thrifty 2251 Airport Boulevard	VCP case Closed 2012	Yes[3]	An AST, carwash and an oil-water separator were removed in 2012. Residual contaminants reported to remain.
Avis Budget 2225 and 2253 Airport Boulevard	VCP case Closed 2012	Yes[3]	Three ASTs, two car washes and two oil-water separators were removed in 2012. Residual contaminants reported to remain.
Hertz 2411 Airport Boulevard	VCP case Closed 2011	Yes[3]	An AST, carwash and an oil-water separator were removed in 2011. Residual contaminants reported to remain.
Rental Car Facilities Southeast of Former Terminal C			
Avis Rent A Car case# 43-0134 1445 (1521) Airport Blvd.	LUST case Closed 1996	Yes[1]	One UST was removed in 1985. Residual contaminants reported to remain.
Avis Rent A Car case# 07S1W01A07f 1521 Airport Blvd.	LUST case Closed 2004	Yes[3]	One UST, an AST and an oil-water separator were removed in 2002. Residual contaminants reported to remain.
Budget Rent A Car 1521 Airport Blvd.	LUST case Closed 2006	None specified	One UST and an oil-water separator were removed in 2002. Residual contaminants reported to remain.

Continued.

Table 10 (Continued). On-Site LUST and VCP Cases

Facility Name and Address	Case Type and Status	On-Going Management Requirements	Notes/Discussion
National Rent A Car 1527A Airport Blvd.	LUST case Closed 2008	Yes[3]	One UST, two ASTs, an oil-water separator and two car wash sumps were removed in 2002. Residual contaminants reported to remain.
National Car Rental 1585 Airport Blvd.	LUST case Closed 1995	None specified	One UST was removed in 1992. Residual contaminants reported to remain.
Former Chevron USA Tank Area and Dollar Rent A Car 1615 Airport Boulevard (formerly 1661 Airport Boulevard)	LUST case Open	TBD	There are two separate releases at this location. One is a gasoline UST release from a former Dollar Rent a Car (Dollar) facility, and the other is a release of jet fuel from an AST(s) from a former Chevron jet fuel AST facility. The site was supplied with jet fuel by Standard Oil of California for use by United Airlines (United) until approximately 1971. Following termination of use by United, the site was used by Dollar until 2002. Dollar installed a gasoline UST in 1971, which was removed in 1990. Various other car rental businesses, including Alamo, Avis and Hertz were located adjacent to or in the immediate vicinity. The area is currently used for airport parking. Assessment and monitoring activities are ongoing and being conducted under Water Board oversight.
Hertz Corporation 1617 Airport Blvd.	LUST case Closed 2006	Yes[3]	Two USTs were removed in 1986. In 2002, two USTs, two ASTs, an oil-water separator and hydraulic lifts were removed. Residual contaminants reported to remain.
Budget Rent A Car 1661 Airport Blvd.	LUST case Closed 1992	None specified	One UST was removed in 1989. Residual contaminants reported to remain.

TBD To be determined (case still open)

CPS Cleanup Program Sites (CPS), formerly known as Spills, Leaks, Investigations, and Cleanup (SLIC) sites. Lead agency identified as the Water Board.

1 Water Board notification and the preparation of a health and safety plan (HSP) required upon planned change in land use, use of groundwater, or excavations that disturb soil or groundwater.

2 Any soil disturbed must be managed in accordance with the DEH approved SMP. Case closure is pending and additional requirements could be stipulated.

3 Residual contamination remains in soil and/or groundwater at the site that could pose an unacceptable risk under certain site development activities such as site grading, excavation, or the installation of water wells. Therefore, the impact of the disturbance of any residual contamination or the installation of water well(s) in the vicinity of the residual contamination shall be assessed and appropriate action taken so that there is no significant impact to human health, safety, or the environment. This could necessitate additional sampling, health risk assessment, and mitigation measures. The County DEH and the appropriate planning and building department shall be notified prior to any changes in land use, grading activities, excavation, and installation of water wells. This notification shall include a statement that residual contamination exists on the property and list all mitigation actions, if any, necessary to ensure compliance with this site management requirement.

4 Only limited information is available on the Geotracker website. Case files were requested from the Water Board. The Water Board indicated that they have no additional information.

6.1.1 Open VCP Cases at Signature Flight Support

The two open VCP cases at Signature Flight Support pertain to soil impacted mainly by organochlorine pesticides. These areas reportedly were historically used for agricultural purposes until 1995 and are discussed in the two following sections.

6.1.1.1 325 Martin Avenue

In 2014, prior to the initiation of construction activities for the existing Signature Flight Support (Signature) facilities, soil sampling was conducted that identified elevated concentrations of organochlorine pesticides (OCPs). OCPs were detected at concentrations exceeding residential screening levels, and some concentrations also exceeded their respective Total Threshold Limit Concentrations (TTLCs). The TTLC is the concentration at which a solid waste is considered a hazardous waste, for waste disposal classification purposes, per Title 22 of the California Code of Regulations. The detected OCP concentrations typically did not exceeded commercial screening levels.

Signature subsequently entered into a Voluntary Cleanup Program Remedial Action Agreement with the County DEH. The DEH approved a Soil Management Plan (SMP)[4] in April 2015 that described methods to appropriately manage the impacted soil on-Site during construction activities. In general, the approved SMP allowed, under certain conditions, for the on-Site reuse of soil with contaminant concentrations that did not exceed commercial/industrial screening levels[5]. If such soil contained contaminant concentrations exceeding TTLCs, it was required to be placed below impervious surfaces or below 2 feet of acceptable soil (see the SMP for details). An As-Built Soil Reuse Report[6] was prepared in 2016 and approved by the DEH in February 2017 and the DEH indicated that the case would be evaluated for closure.

The Soil Reuse Report indicates that impacted soil was reused at three on-Site locations including: 1) within the 325 Martin Avenue study area along a taxiway to the northeast of the Signature Flight Support hangars; 2) near the VOR[7] antenna on the northwestern portion of the Airport; and 3) on APN 230-46-040 within a landscape berm along Coleman Avenue. A fourth reuse area, located off-Site at a City-owned parcel (referred to as Guadalupe Gardens) northwest of the intersection of Spring Street and West Hedding Street, also was utilized. The three on-Site locations are depicted on Figure 6. The Soil Reuse Report states that soil that may be disturbed during the future operations of the Site (*e.g.*, future construction, utility and other subsurface maintenance or repair work, paving, landscaping, etc.) should be properly managed in accordance with the DEH approved SMP.

6.1.1.2 303 Martin Avenue

To facilitate the construction of an additional hangar to the southeast of Signature Flight Support Hangar 1 (at 303 Martin Avenue), Hangar A LLC entered into a Voluntary Cleanup Program

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[4] Woodard & Curran. March 27, 2015. Soil Management Plan, FBO Complex & Site Development Norman Y. Mineta San Jose International Airport, 1701 Airport Boulevard, San Jose, California.

[5] September 23, 2010, California Office of Environmental Human Health Assessment (OEHA) Human Health Screening Levels (CHHSLs) for the Commercial/Industrial Scenario.

[6] Woodard & Curran. July 25, 2016. As-Built Soil Reuse Report, Flight Support, 325 Martin Avenue, San Jose, California.

[7] *VOR* = Very High Frequency (VHF) Omni-Directional Range

Remedial Action Agreement with the County DEH in November 2018. A soil characterization study was undertaken on the proposed expansion site in 2017 (Woodard & Curran, 2017) that identified OCP impacted soil, similar to that identified at the adjacent 325 Martin Avenue study area. A SMP dated October 31, 2018 was submitted for DEH review. In a February 2019 letter, the DEH required revisions to the SMP and further assessment of soil, groundwater and soil vapor. In addition to identified impacts from OCPs, the DEH noted that groundwater impacted by volatile organic compounds (VOCs) originating from 282 Brokaw Road (off-Site) may have migrated below the Site. Efforts to address DEH requirements are ongoing.

6.1.2 Potential Impacts from Off-Site Spill Incidents

Cornerstone conducted a review of federal, state and local regulatory agency databases provided by Environmental Data Resources (EDR) to evaluate the likelihood of contamination incidents near the Site. The database sources and the search distances are in general accordance with the requirements of ASTM E 1527-13. A cursory review of readily available documents obtained from the state Geotracker (http://geotracker.waterboards.ca.gov) and Envirostor (http://www.envirostor.dtsc.ca.gov) databases also was performed. The potential for impacts to the Site was based on our interpretation of the types of incidents, the locations of the reported incidents in relation to the Site and the assumed groundwater flow direction. As discussed in the following two Sections, two adjacent spill incidents were identified that appear to have impacted groundwater at the Airport.

6.1.2.1 Former FMC Corporation Facility - 1125 Coleman Avenue

The former FMC Corporation facility was in operation from 1905 to 1996 and is located adjacent to the southwest of the Airport (across Coleman Avenue). Research, development and manufacturing of military tracked vehicles were conducted at the FMC property, primarily under U.S. Department of Defense contracts from 1951 to 1996 when the facility closed. FMC also operated a landfill (1/4-acre) from 1946 to 1979. The 1125 Coleman address consisted of two areas: the Test Track area and the Central Plant that have been investigated and remediated separately under DTSC oversight. Remedial efforts are ongoing. Based on the information reviewed, VOC impacted groundwater has migrated from the FMC property onto the Airport. The general areas of the identified VOC impacted groundwater are depicted on Figure 6. Note, however, that the extent of VOC migration onto Airport property has not been well established.

6.1.2.2 Stanford Applied Engineering - 282 Brokaw Road

The former Stanford Applied Engineering property is located at 282 Brokaw Road, adjacent to the southwest of the Airport. Stanford Applied Engineering was a printed circuit board manufacturing facility that operated from the mid-1970s to 1992. During the 1990s, VOCs were identified in groundwater at the property. The general area of the identified VOC impacted groundwater is depicted on Figure 6. The extent of VOC migration onto Airport property has not been established. Monitoring and characterization activities are ongoing and being conducted under Water Board oversight.

SECTION 7: HEALTH AND SAFETY PROGRAMS AND REGULATORY COMPLIANCE

The use and storage of hazardous materials at the Airport is regulated under a variety of federal, state and local statutes, with inspections undertaken by the County DEH and the City of San Jose Fire Department. Relevant agencies and regulations are summarized below.

7.1 CERCLA AND EPCRA

Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), commonly known as Superfund, was enacted by Congress in 1980. This law provided broad Federal authority to respond directly to releases or threatened releases of hazardous substances that may endanger public health or the environment. CERCLA established prohibitions and requirements concerning closed and abandoned hazardous waste sites; provided for liability of persons responsible for releases of hazardous wastes at these sites; and established a trust fund to provide for cleanup when no responsible party could be identified. CERCLA was amended by the Superfund Amendments and Reauthorization Act (SARA) in 1986.

One of the biggest changes instituted under SARA was the passage of the Emergency Planning and Community Right-To-Know Act or EPCRA. A separate law unto itself, it is commonly known as SARA Title III and it sets requirements for local and state emergency planning around hazardous chemicals, the right of the public to access information on chemical hazards in their community, and the reporting responsibilities for facilities that use, store, and / or release hazardous chemicals. It also requires that Material Safety Data Sheets (MSDS) are readily available in the workplace.

7.2 RESOURCE CONSERVATION AND RECOVERY ACT (RCRA)

The Resource Conservation and Recovery Act (RCRA), initially authorized in 1976, gives the USEPA the authority to control hazardous waste from "cradle-to-grave." This includes the generation, transportation, treatment, storage and disposal of hazardous waste. RCRA also set forth a framework for the management of non-hazardous solid wastes. The 1986 amendments to RCRA enabled USEPA to address environmental problems that could result from underground tanks storing petroleum and other hazardous substances.

7.3 STATE, LOCAL AND OTHER FEDERAL REGULATIONS AND AGENCIES

In California, the USEPA has granted most enforcement authority over federal hazardous materials and hazardous waste regulations to the California Environmental Protection Agency (Cal/EPA). In turn, local agencies (*e.g.,* the County DEH) have been granted responsibility for implementation and enforcement of many hazardous materials regulations under the Certified Unified Program Agency (CUPA) program (See Section 7.3.1). The federal EPCRA program is implemented and administered in California by the California Governor's Office of Emergency Services (Cal OES), a State Emergency Response Commission (SERC), six Local Emergency Planning Committees (LEPCs), and 83 CUPAs.

Regional agencies are responsible for programs regulating emissions to the air, surface water, and groundwater. The Bay Area Air Quality Management District (BAAQMD) has oversight over air emissions, and the Water Board regulates discharges and releases to surface and groundwater. Oversight of investigation and remediation of properties impacted by hazardous materials releases can be performed by state agencies, such as the DTSC or Water Board (divisions of Cal/EPA), or local agencies, such as the County DEH. The DEH typically oversees investigation and remediation LUST cases, as well as many VCP cases in San José.

Other agencies that regulate hazardous materials include the California Department of Transportation (transportation safety) and Cal/EPA Division of Occupational Safety and Health, better known as Cal/OSHA (worker safety).

7.3.1 Hazardous Materials and Hazardous Waste Management, and Public Disclosure

California Health and Safety Code (HSC), Division 20, Chapter 6.95 requires that businesses handling at least 500 pounds of a solid hazardous material, 55 gallons of a hazardous liquid, or 200 cubic feet of a hazardous gas prepare Hazardous Materials Business Plans (HMBPs). These plans must include floor plans of the facility; an inventory of hazardous materials handled or stored; an emergency response plan; and a safety and emergency response training program for employees.

Passage of Senate Bill 1082 in 1993 required consolidation of state-mandated hazardous waste and hazardous materials management programs within a singled Unified Program, to be administered by a CUPA. The County DEH has been certified by the state to be a CUPA and administers the following six programs:

- Hazardous Materials Business Plans (HSC Chapter 6.95)
- Hazardous Waste Generator Program (HSC Chapter 6.5)
- Hazardous Waste Tiered Permitting (HSC Chapter 6.5)
- Underground Storage Tanks (HSC Chapter 6.7)
- Aboveground Petroleum Storage Act (APSA) (HSC Chapter 6.67)
- California Accidental Release Prevention Program (CalARP) (HSC Chapter 6.95)

The San José Fire Department, Bureau of Fire Prevention, also conducts inspections of facilities that use, store, or handle hazardous materials. These facilities, including the Airport and Airport tenants, are required to operate in accordance with the California Fire Code, the City of San José Hazardous Materials Storage ordinance, and all applicable Federal and State regulations based upon the specific occupancy classification and products on-site. The Fire Department additionally provides consultation to businesses regarding the safe use, storage, and handling of hazardous materials; reviews construction documents related to hazardous materials facilities (new construction and tenant improvements); investigates complaints pertaining to hazardous materials spills and releases; and responds to emergencies when requested to provide additional technical assistance.

All of the Airport's HMBP components, including owner/operator information, inventory, maps, emergency response/contingency plans, and staff training programs, are stored on-Site with the Environmental Services Program Manager at the Airport's Administrative offices (1701 Airport Blvd Suite B-1130) and are maintained in the California Environmental Reporting System (CERS) database. CERS Modules are updated annually or when significant changes are made to the facility's use or storage of hazardous materials or generation of hazardous waste. The Airport currently maintains 19 facilities within CERS; others are maintained by tenants.

The Airport also maintains a SPCC Plan as required by 40 CFR 112, as well as California HSC, Chapter 6.67. The SPCC requirements are part of the USEPA's oil spill prevention program and were published under the authority of Section 311(j)(1)(C) of the Federal Water Pollution Control Act (Clean Water Act) in 1974. A facility is covered by the SPCC rule if it has an aggregate aboveground oil storage capacity greater than 1,320 gallons or a completely buried storage capacity greater than 42,000 gallons and there is a reasonable expectation of an oil discharge into or upon navigable waters of the United States or adjoining shorelines. The Airport's SPCC plan can be found on their website at https://flysanjose.com/environment/water-quality. On-Site tenants including Swissport, Atlantic Aviation, AvBase and Signature Flight Support maintain separate SPCC plans that are specific their facilities. The SPCC plans describe established spill prevention and response actions (*e.g.*, facility operation and incident response procedures, engineered controls/systems, facility security, employee training, equipment inspections and testing, and recordkeeping, etc.).

7.3.2 Worker Safety

The California Division of Occupational Safety and Health and the federal Occupational Safety and Health Administration (OSHA) are the principal agencies responsible for ensuring worker safety. Federal regulations are contained in Title 29 of the Code of Federal Regulations (29 CFR). California's regulations are found in Title 8 of the California Code of Regulations (8 CCR). As a result of the Occupational Safety and Health Act, these regulations provide for inspections, citations, penalties, occupational injury reports and labor agreements. These regulations also contain standards for hazardous materials handling, including workplace conditions, employee protection requirements, first aid provisions, fire protection, and material handling and storage. Contaminated properties potentially are subject to special worker safety requirements to protect construction workers during demolition and excavation, and to protect investigation and cleanup workers who perform studies or remediation activities. In these instances, written Site Safety Plans are mandatory.

The Airport maintains an Injury and Illness Prevention Program (IIPP) and is committed to complying with applicable local, state and federal safety standards; eliminating conditions which may pose a hazard to employees; and encouraging employee participation in the ongoing development of the departmental safety program. The goal of the safety program is to reduce occupational injuries and illnesses. The IIPP describes communication of safe work practices; safety inspections and hazard assessment; hazard correction and control; injury reporting and accident/incident investigations; training and instruction; and recordkeeping, among other topics.

7.3.3 Emergency Response

The San José Fire Department provides fire protection, rescue and emergency medical services. Fire Station #20 is located at the Airport and responds to airside aircraft-related incidents only; they do not respond to building incidents nor do they provide responses to the release of hazardous materials unrelated to aircraft. Fire Station #20 is supported by other nearby Fire Stations and the Fire Department’s Hazardous Incident Team for those incidents.

The California Office of Emergency Services assists state and local agencies in emergency planning, and coordinates emergency response capabilities for major incidents. OSHA and the State Fire Marshal require workplaces to be furnished with appropriate emergency equipment and supplies, such as fire extinguishers and eye washes. OSHA requires that spill response areas be inventoried and re-supplied, fire extinguishers be inspected and replenished, and eye washes and safety showers be checked on a regular basis.

7.3.4 Storm Water Pollution Prevention

The Clean Water Act, Section 402, establishes a framework for regulating industrial and municipal storm water discharges under the National Pollutant Discharge Elimination System (NPDES). The U.S. Environmental Protection Agency (EPA) requires storm water discharge permits for specific categories of industrial dischargers. These categories include shipping, trucking, and air transport facilities that conduct vehicle maintenance, or facilities where materials are stored in exposed areas. The Airport operates under an Industrial General Permit (IGP), which requires the preparation and implementation of a Storm Water Pollution Prevention

Plan (SWPPP) for preventing and responding to releases of pollutants into storm water. Airport tenants are co-permittees under the IGP. The Airport's SWPPP can be found on their website at https://flysanjose.com/environment/water-quality.

7.3.5 Fuel Storage Tanks

State and Federal laws and regulations regarding USTs used to store hazardous materials (including petroleum products) require that tank owners and operators register their tanks and permitting, monitoring/testing and closure requirements are specified. The County DEH administers the Underground Storage Tank Program. The DEH issues permits for installing and operating USTs and oversees their removal.

The Above-Ground Petroleum Storage Act (HSC Chapter 6.67) requires owners of aboveground petroleum storage tanks to prepare SPCC plans and establish monitoring programs. The above-ground storage of hazardous materials is also addressed in 8 CCR. These regulations require proper drainage, dikes, and other secondary containment and safety measures to prevent accidental discharge from endangering employees or facilities. The storage of hazardous materials in ASTs is also subject to National Fire Protection Association Standards, enforced locally by the San José Fire Department.

7.3.6 Hazardous Liquid Pipelines

Pipeline safety is regulated under the federal Hazardous Liquid Pipeline Safety Act. Related regulations cover design, construction, operation, and maintenance of pipelines; testing and inspection of pipelines; and operator reporting requirements. In California, hazardous liquid pipelines are regulated by the California Pipeline Safety Act. Associated regulations are contained in Government Code Sections 51010-51019.1 and are enforced by the Office of the State Fire Marshal (OSFM). Hydrostatic (pressure) testing is required for all new petroleum pipelines. In addition, cathodic protection and leak detection systems are required for new pipelines. New pipelines also must be designed to accommodate the passage of inspection devices capable- of examining the interior of the pipeline. Pipelines must have leak mitigation plans, emergency response plans, and equipment in place as required by the State Fire Marshall. The State Fire Marshall, at his discretion and in the interest of public safety, may approve or require test methods on a case-by-case basis other than the required hydrostatic tests.

7.3.7 Ground Transport of Hazardous Materials

The U.S. Department of Transportation regulates the transportation of hazardous materials, except for those packages shipped by mail, which are covered by U.S. Postal Service regulations. Department of Transportation regulations are contained in the 49 CFR; Postal Service regulations are in 39 CFR. Every hazardous waste package type used by a hazardous materials shipper must undergo tests that imitate some of the possible rigors of travel.

Under RCRA, the EPA sets standards for transporters of hazardous waste. California regulates the transportation of hazardous wastes originating in and passing through the state (26 CCR). California adopts the U.S. Department of Transportation's hazardous materials regulations and includes some provisions that are stricter than the federal. Two state agencies have primary responsibility for enforcing federal and state regulations and responding to hazardous materials transportation emergencies: the California Highway Patrol and the California Department of Transportation.

7.3.8 Air Transport of Hazardous Materials

Certain hazardous materials, termed "dangerous goods," may be transported as air cargo. The types and quantities of hazardous substances permitted as air cargo are restricted by the Hazardous Materials Transportation Act and regulations contained in 49 CFR. Restrictions vary somewhat between passenger and cargo flights. Prohibited goods include most explosives, any substance that could evolve heat or gas under conditions of normal transport, inhalation poisons, many flammable materials, and a long list of specific chemicals. The International Air Transport Association (IATA) also develops and issues transport guidelines for members worldwide, including guidelines for the safe transport of hazardous materials by air. These guidelines provide detailed technical instructions for transporting a broad variety of hazardous materials allowed on aircraft under the appropriate circumstances. IATA guidelines categorically prohibit air transport of many hazardous materials. The IATA guidelines are recognized worldwide and are reviewed and updated annually; the 60th edition of the IATA *Dangerous Goods Regulations* went into effect on January 1, 2019. Individual air cargo carriers also have health and safety guidelines that cover handling of hazardous materials, employee health and safety, and specific in-flight storage for each make and model of aircraft.

7.3.9 Hazardous Building Materials

Asbestos is one potentially hazardous building component regulated under the federal Toxic Substances Control Act and regulations contained in 40 CFR. Asbestos-containing material is also regulated under the federal Clean Air Act (because the primary pathway of exposure is inhalation) and by OSHA. Government regulations prohibit emissions of asbestos from demolition or construction activities, specify precautions and safe work practices that must be followed to minimize the potential release of asbestos fibers, require medical examinations and monitoring of employees engaged in activities that could disturb asbestos, and require notice to regulatory agencies prior to beginning renovation or demolition that could disturb asbestos. The Bay Area Air Quality Management District is responsible for overseeing the removal of friable asbestos from structures prior to renovation or demolition activities.

Other components encountered as part of a building demolition waste stream may also contain hazardous materials. Universal wastes (fluorescent tubes and lamps, mercury containing items such as switches and thermostats, batteries, and some electronic equipment, etc.), lighting ballasts that contain PCBs, lead pipes and roof vent flashings, lubrication fluids, refrigerants and other hazardous materials must be removed for proper disposal before structural demolition begins.

SECTION 8: CONCLUSIONS AND RECOMMENDATIONS

Construction activity associated with the Airport Master Plan project components could potentially expose workers to hazardous materials at locations on-Site where residual contaminants are known to exist. Demolition and earthwork activities also could encounter hazardous materials at locations not yet identified. Asbestos and other hazardous building materials may be encountered and require proper disposal during demolition or renovation of buildings.

The above findings are similar to those identified during the 1997 EIR, which stated: *The Airport should conduct "due diligence" or screening investigations of each potentially contaminated site where demolition, renovation, or earth-moving activities are to be conducted. These investigations should determine the potential for workers to encounter hazardous materials contamination, identify the likely presence of contamination, and determine the need to notify* *regulatory agencies and take further precautions as prescribed by law, regulation, and local procedures to protect the health and safety of site workers.*

Based on the information reviewed during this study, known and potential impacts at the Site associated with hazardous materials use and storage are discussed in the following sections.

8.1 AGRICULTURAL USE

The Airport historically was used for agricultural purposes for several decades. Pesticides likely were applied to crops in the normal course of farming operations. If elevated concentrations of agricultural chemicals are present, mitigation or soil management measures may be required during construction/earthwork activities. Pesticide concentrations in soil likely are variable across the Site based on differences in past farming practices and crop types; multiple different on-Site orchard and row crop areas are apparent on historical aerial photographs. Prior to initiation of construction activities that would disturb soil, sampling should be conducted to evaluate potential impacts from agricultural chemicals, and appropriate soil management and health and safety protocols should be established.

Residual pesticide concentrations have been identified in soil on the southwest portion of the Site in the vicinity of the Signature Flight Support facility. Two open VCP cases (at 303 and 325 Martin Avenue) are associated with identified pesticide impacts in this area. During construction of the existing Signature Flight Support facilities, pesticide impacted soil was reused at three on-Site locations: 1) within the 325 Martin Avenue study area along a taxiway to the northeast of the Signature Flight Support hangers; 2) near the VOR antenna on the northwestern portion of the Airport; and 3) on APN 230-46-040 within a landscape berm along Coleman Avenue. Soil within these reuse areas that may be disturbed during the future operations of the Site (*e.g.*, future construction, grading, utility and other subsurface maintenance or repair work, paving, landscaping, etc.) should be properly managed in accordance with the DEH approved SMP. Because the VCP cases under DEH oversight at 303 and 325 Martin Avenue are still open, additional site management requirements could be stipulated. Compliance with DEH requirements should be maintained.

8.2 SOIL AND GROUNDWATER IMPACTS

8.2.1 Impacts from On-Site Releases

The Airport has experienced several on-Site hazardous material releases that have resulted in localized impacts to soil and/or groundwater quality. These include the two open VCP cases discussed in the preceding Section, and multiple closed LUST and VCP cases that are associated mainly with prior fuel storage and rental car facilities, and associated features such as prior vehicle maintenance areas, car wash facilities and oil-water separators, etc. The only remaining open LUST case is 1615 Airport Boulevard (formerly 1661 Airport Boulevard) consisting of the former Chevron USA and Dollar Rent A Car area. Site assessment and monitoring activities for this case are ongoing and being conducted under Water Board oversight. Any development activities in this area that would disturb soil or groundwater should be coordinated with the Water Board.

At most of the closed LUST and VCP case locations, residual contamination remains in soil and/or groundwater and, as a condition of case closure, on-going management requirements were established by the overseeing regulatory agencies. The stipulated management requirements are included as footnotes in Table 10. Compliance with the established Site management requirements should be maintained.

8.2.2 Impacts from Off-Site Releases

VOC releases from off-Site facilities including FMC Corporation (1125 Coleman Avenue) and Stanford Applied Engineering (282 Brokaw Road) appear to have impacted on-Site groundwater. The general areas of identified groundwater impacts from these facilities are depicted on Figure 6. Note, however, that the lateral extent of VOC impacts to on-Site groundwater have not been well defined. If construction activities will encounter groundwater within or down-gradient of the areas, appropriate health and safety, and groundwater management measures should be implemented. The potential for vapor intrusion[8] impacts to new and existing occupied structures within areas of VOC impacted groundwater also should be evaluated in accordance with published guidance documents[9] and, if warranted, vapor intrusion mitigation measures should be implemented under regulatory agency oversight.

8.3 FACILITY CLOSURES

Hazardous materials are used and stored at multiple facilities at the Airport, and on-Site features, such as wash racks and oil-water separators, are potential sources for contaminants that could impact soil and/or groundwater quality. Some of these facilities and associated features will be closed to facilitate construction of planned improvements. As part of the facility closure process, the DEH (and/or the San José Fire Department) typically requires that a closure plan be submitted that describes required closure activities, such as removal of remaining hazardous materials, cleaning of hazardous material handling equipment, decontamination of building surfaces, removal of sumps, oil-water separators and USTs, documentation of waste disposal practices, and confirmation sampling, among others. We recommend that facility closures be coordinated with the appropriate oversight agency (DEH and/or San José Fire Department) to ensure that required closure activities are completed prior to demolition and redevelopment activities.

8.4 FIREFIGHTING FOAM USAGE

Since the 1960s, many fire suppressant foams contained PFAS. In recent years, the USEPA has identified PFAS as emerging contaminants of concern and has identified fire training facilities and airports as potential sources of PFAS contamination. These highly soluble contaminants pose a soil leaching concern due to their mobility; they readily migrate in groundwater and are bioaccumulative. PFAS can be persistent in the environment with degradation periods of years, decades, or longer under natural conditions.

Two former firefighter training areas were previously present on-Site, and fire suppressant foams have been used on-Site during past aircraft incidents and accidentally deployed from an

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[8] Vapor intrusion is the movement of chemical vapors from contaminated groundwater or soil into a nearby building. Vapors primarily enter through openings in the buildings foundation, such as cracks in the concrete slab and gaps around utility lines. It is also possible for vapors to pass through concrete, which is naturally porous. Once inside the building, vapors may be inhaled posing potential health risks to building occupants.

[9] The DTSC, State Water Board, and the San Francisco Bay Regional Water Board are currently developing a supplemental vapor intrusion guidance document for conducting uniform vapor intrusion evaluations in California. This guidance document when finalized (reportedly in 2019) will serve as a supplement to existing guidance (namely, DTSC 2011 Vapor Intrusion Guidance and San Francisco Bay Water Board 2014 Interim Framework).

automated fire suppression system at Signature Flight Support Hangar 7. As a result of the March 2019 SWRCB Order, the Airport prepared a PFAS Work Plan detailing current and historic AFFF storage and usage locations, and identified potential soil and groundwater sample locations for Work Plan implementation. The Water Board conditionally approved the Work Plan in a letter dated July 18, 2019. The Airport intends to coordinate efforts with the Water Board to evaluate potential impacts to the Site from PFAS. Data collected from the PFAS Work Plan implementation will be used to inform the Airport prior to initiation of construction activities that would disturb soil or groundwater in areas where firefighting foams have been or are suspected to have been deployed. If impacts are identified, appropriate soil and groundwater management and health and safety protocols should be established.

8.5 FORMER SEWAGE DISPOSAL AREA

A 1948 aerial photograph reviewed during this study shows earthwork activities on the northwestern portion of the Site and on topographic maps from the 1950s; this area is labeled as “sewage disposal.” The aerial photographs and topographic maps show what appears to have been a sewage treatment plant located nearby (off-Site) at the intersection of Robert Avenue and De La Cruze Boulevard in the City of Santa Clara. The on-Site earthwork appears likely to have been associated with sludge drying or disposal activities; this area is depicted on Figure 6. Sewage sludge refers to the solids separated during the treatment of wastewater. Often, sewage sludge meets pollutant concentration limits allowing for land application and surface disposal. However, depending upon the wastewater source (*e.g.*, industrial or municipal, etc.) the sludge can contain elevated concentrations of metals and other persistent contaminants. Because no detailed information is available regarding the apparent on-Site sewage sludge disposal, we recommend that soil quality be evaluated prior to initiation of construction activities that would disturb soil within the identified disposal area. If impacts are identified, appropriate soil management and health and safety protocols should be established.

8.6 ASBESTOS, LEAD PAINT AND OTHER HAZARDOUS BUILDING MATERIALS

Due to the age of some on-Site structures, building materials may contain asbestos. If demolition, renovation, or re-roofing of a building is planned, an asbestos survey may be required by local authorities and/or National Emissions Standards for Hazardous Air Pollutants (NESHAP) guidelines. NESHAP guidelines require the removal of potentially friable asbestos containing building materials prior to building demolition or renovation that may disturb these materials.

Some components encountered as part of a building demolition waste stream may contain hazardous materials. Universal wastes, lubrication fluids, refrigerants and other hazardous materials should be removed before structural demolition begins. Materials that may result in possible risk to human health and the environment when improperly managed include lamps, thermostats, and light switches containing mercury; batteries from exit signs, emergency lights, and smoke alarms; lighting ballasts that contain PCBs; and lead pipes and roof vent flashings. Demolition waste such as fluorescent lamps, PCB ballasts, lead acid batteries, mercury thermostats, and lead flashings have special case-by-case requirements for generation, storage, transportation, and disposal. Before disposing of any demolition waste, the demolition contractor should determine if the waste is hazardous and ensure proper disposal of waste materials.

The Consumer Product Safety Commission banned the use of lead as an additive in paint in 1978. Based on the age of some on-Site buildings, lead-based paint may be present. If demolition is planned, the removal of lead-based paint isn't required if it is bonded to the building materials. However, if the lead-based paint is flaking, peeling, or blistering, it should be removed prior to demolition. In either case, applicable OSHA regulations must be followed; these include requirements for worker training, air monitoring and dust control, among others. Any debris or soil containing lead must be disposed appropriately.

SECTION 9: LIMITATIONS

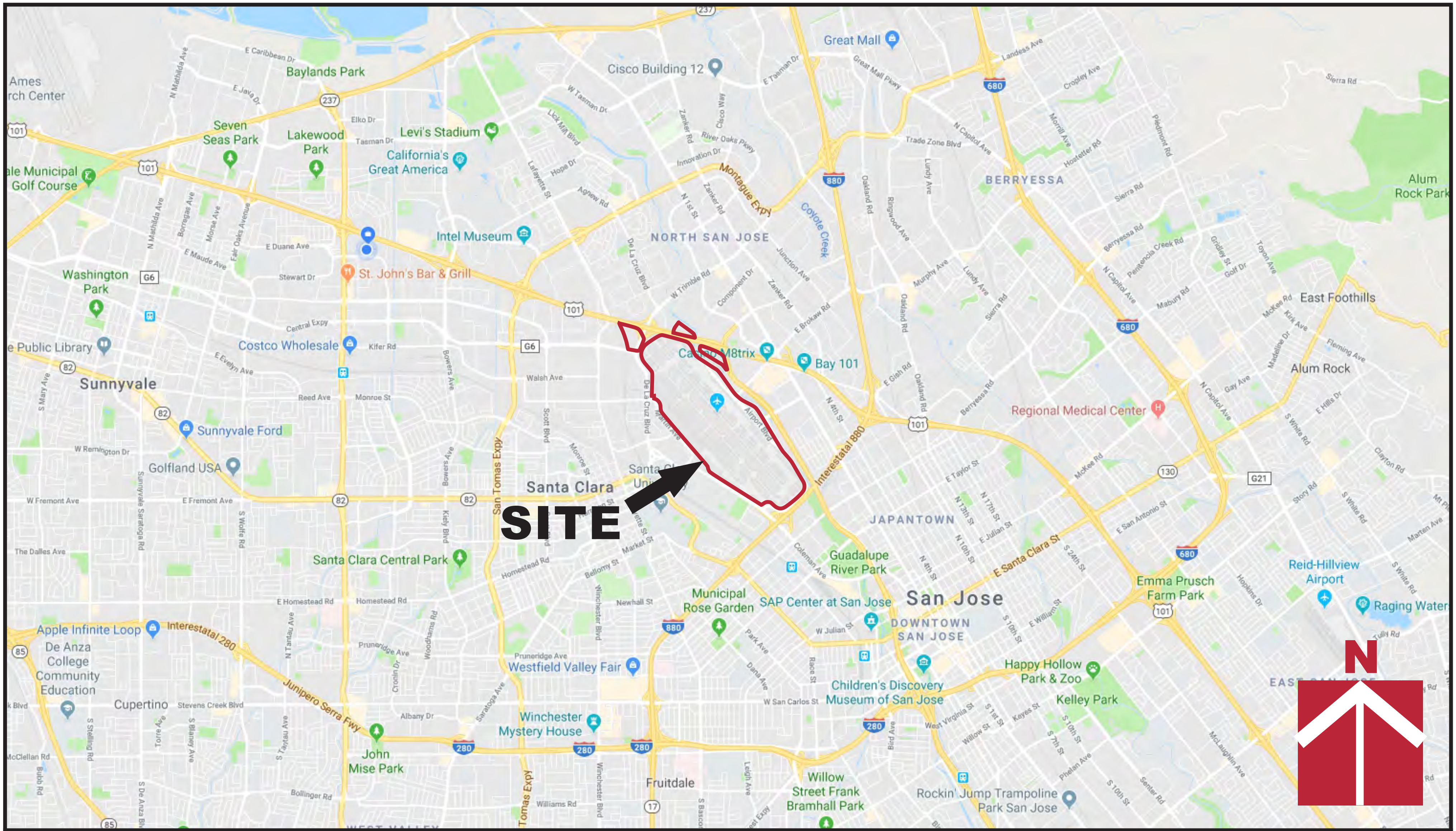
Cornerstone performed this Hazardous Materials Assessment to support David J. Powers & Associates in evaluation the Site. David J. Powers & Associates understands that the extent of information obtained is based on the reasonable limits of time and budgetary constraints.

Findings, opinions, conclusions and recommendations presented in this report are based on readily available information, and information readily identified by the interviews and/or the records review process. The findings are developed based on information obtained from a non-intrusive Site evaluation. Cornerstone does not accept liability for deficiencies, errors, or misstatements that have resulted from inaccuracies in the publicly available information or from interviews of persons knowledgeable of Site use. If a greater degree of confidence is desired regarding Site conditions, soil, groundwater, soil vapor and/or air samples should be collected by Cornerstone and analyzed by a state-certified laboratory to establish a more reliable assessment of environmental conditions.

David J. Powers & Associates and Airport staff provided Cornerstone environmental documents prepared by others. David J. Powers & Associates understands that Cornerstone reviewed and relied on the information presented in these documents and cannot be responsible for their accuracy.

This report, an instrument of professional service, was prepared for the sole use of David J. Powers & Associates and may not be reproduced or distributed without written authorization from Cornerstone. An electronic transmission of this report may also have been issued. While Cornerstone has taken precautions to produce a complete and secure electronic transmission, please check the electronic transmission against the hard copy version for conformity.

Cornerstone makes no warranty, expressed or implied, except that our services have been performed in accordance with the environmental principles generally accepted at this time and location.



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Vicinity Map

Norman Y. Mineta
San Jose International Airport
San Jose, CA

Project Number	118-105-1
Figure Number	Figure 1
Date	July 2019
Drawn By	RRN

Legend

—·—·— Approximate Site Boundary

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APPROXIMATE SCALE (FEET)

Base by Google Earth, dated 3/28/2018

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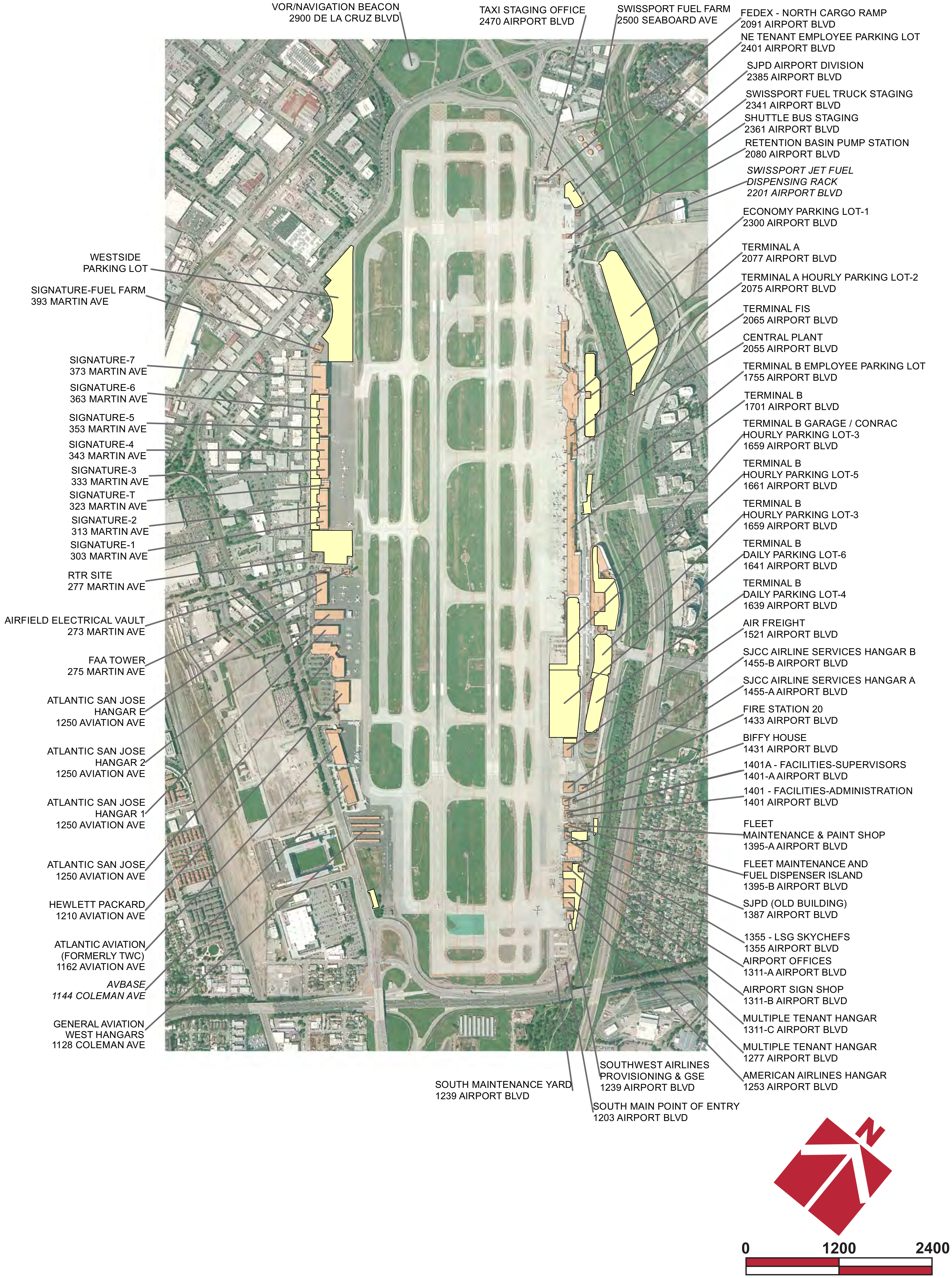
EARTH GROUP

Site Plan

Norman Y. Mineta
San Jose International Airport
San Jose, CA

Project Number	118-105-1
Figure Number	Figure 2
Date	July 2019
Drawn By	RRN



Base: Norman Y. Mineta San Jose International Airport, Attachment #2, SJC Airport, Facility Tenant Map, dated 8/27/2018

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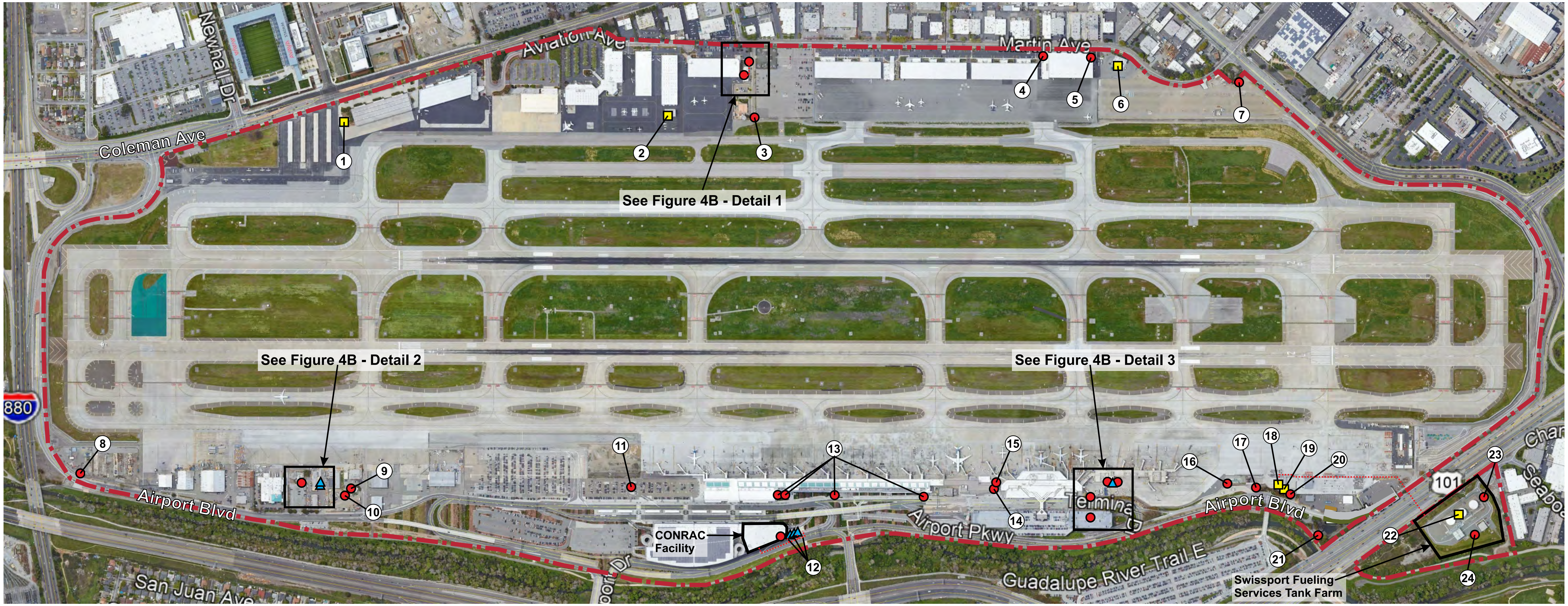
Facility/Tenant Locations

Norman Y. Mineta
San Jose International Airport
San Jose, CA

Project Number	118-105-1
Figure Number	Figure 3
Date	July 2019
Drawn By	RRN



ID	SJC Fuel Storage/Generator Areas	Address
1	Fuel Storage AST at Avbase Flight Services	1144 Coleman Avenue
2	Fuel Storage ASTs at Atlantic Aviation	1250 Aviation Avenue
3	Diesel AST at FAA Airport Traffic Control Tower	275 Martin Avenue
4	Diesel ASTs for Emergency Fire Pumps at Signature Flight Support	325 Martin Avenue
5	Emergency Generator at Signature Flight Support	325 Martin Avenue
6	Fuel Storage ASTs at Signature Flight Support	393 Martin Avenue
7	Emergency Generator Westside/Former Long Term Parking Lot	325 Martin Avenue
8	Emergency Generator at MPOE	1207 Airport Boulevard
9	San Jose Fire Department Emergency Generator	1433 Airport Boulevard
10	Facilities Emergency Generator	1401 Airport Boulevard
11	Emergency Generator Terminal B Hourly Lot 5	1661 Airport Boulevard
12	Three gasoline USTs and Generator at CONRAC Facility	1695 Airport Boulevard
13	Emergency Generators Terminal B	1701 Airport Boulevard
14	Emergency Generator Terminal A	2065 Airport Boulevard
15	Diesel AST for Generator	2065 Airport Boulevard
16	Emergency Generator at CNG Fueling Station	2151 Airport Boulevard
17	Emergency Generator Switchgear	2201 Airport Boulevard
18	Fuel Dispensing Racks-Swissport Airside Facility	2201 Airport Boulevard
19	Jet-A AST, 550 gallons-Swissport Airside Facility	2201 Airport Boulevard
20	Diesel AST for fire water pump-Swissport Airside Facility	2201 Airport Boulevard
21	Rocky Pond Flood Control Pumps with Diesel ASTs	2080 Airport Boulevard
22	Fuel Storage ASTs at Swissport Tank Farm	2250 Seaboard Avenue
23	Diesel AST for Fire Water Pumps at Swissport Tank Farm	2250 Seaboard Avenue
24	Emergency Generator at Swissport	2250 Seaboard Avenue

Legend

▬ · ▬	Approximate Site Boundary
········	Below ground piping or pipeline
🟨	Jet Fuel/Avgas Storage Facilities (ASTs)
▲	Gasoline and Diesel Storage USTs
●	Diesel fueled emergency generator or pump (or associated AST)

0 800 1600
APPROXIMATE SCALE (FEET)

Base by Google Earth, dated 3/28/2018

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Fuel Storage Locations

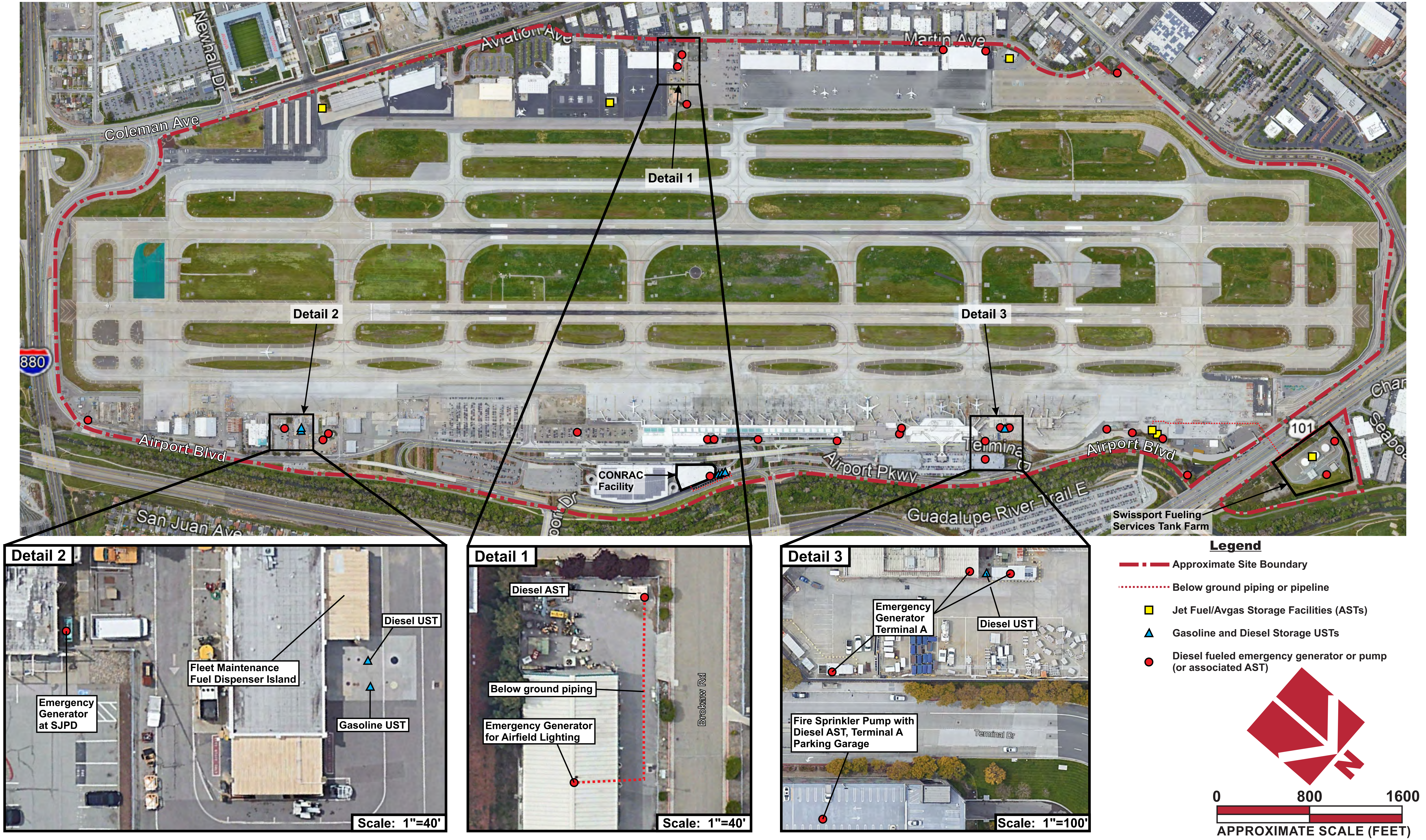
Norman Y. Mineta
San Jose International Airport
San Jose, CA

Project Number
118-105-1

Figure Number
Figure 4A

Date
July 2019

Drawn By
RRN



Base by Google Earth, dated 3/28/2018

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Fuel Storage Locations

Norman Y. Mineta
San Jose International Airport
San Jose, CA

Project Number 118-105-1

Figure Number Figure 4B

Date July 2019

Drawn By RRN

ID	SJC Oil-Water Separators Areas	Address
1	Oil-Water Separator at General Aviation Wash Rack (GA West)	1128 Coleman Avenue
2	Oil-Water Separator at AvBase AST area	1144 Coleman Avenue
3	Oil-Water Separator at Atlantic Aviation (Former TWC) Hangar	1162 Aviation Avenue
4	Oil-Water Separator at Hewlett Packard Enterprise at Aircraft Wash Rack	1210 Aviation Avenue
5	Oil-Water Separator at Atlantic Aviation Aircraft Wash Rack	1250 Aviation Avenue
6	Oil-Water Separator at Atlantic Aviation Hangar	1250 Aviation Avenue
7	Oil-Water Separator at Atlantic Aviation Fuel Farm	1250 Aviation Avenue
8	Oil-Water Separator and Adjacent AFFF Containment Tank	1250 Aviation Avenue
9	Oil-Water Separator at Signature Flight Support Fuel Farm	393 Martin Avenue
10	Oil-Water Separator at Ground Support Equipment Wash Rack	1207 Airport Boulevard
11	Oil-Water Separator at Fleet Maintenance Wash Rack	1395 Airport Boulevard
12	Oil-Water Separator at Paint Shop	1395 Airport Boulevard
13	Oil-Water Separator at CONRAC Facility (multiple oil-water separators, ground floor)	1659 Airport Boulevard
14	Oil-Water Separator at CONRAC Facility UST Area	1659 Airport Boulevard
15	Oil-Water Separator at Terminal A Trash Compactor Area	2201 Airport Boulevard
16	Oil-Water Separator at Swissport Airside Facility	2201 Airport Boulevard
17	Oil-Water Separator at Swissport Tank Farm	2250 Seaboard Avenue

Legend

- ▬ · ▬ Approximate Site Boundary
- △ Aircraft or vehicle wash rack with oil-water separator
- ● Other oil-water separator

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APPROXIMATE SCALE (FEET)

CORNERSTONE EARTH GROUP

Wash Racks and Oil-Water Separators

Norman Y. Mineta
San Jose International Airport
San Jose, CA

Project Number
118-105-1

Figure Number
Figure 5

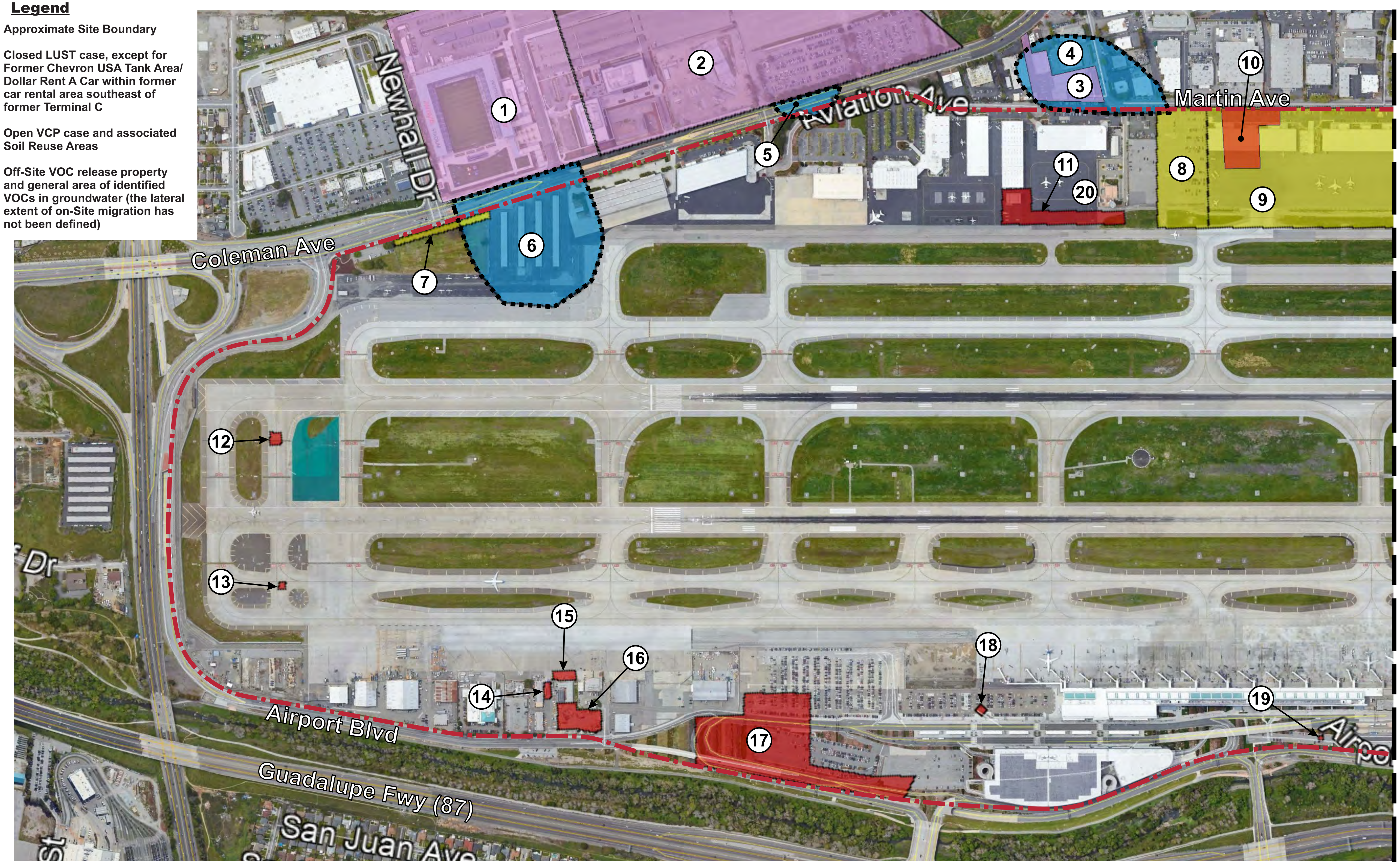
Date July 2019

Drawn By RRN

Base by Google Earth, dated 3/28/2018

Legend

- — · — Approximate Site Boundary
- 🟥 Closed LUST case, except for Former Chevron USA Tank Area/ Dollar Rent A Car within former car rental area southeast of former Terminal C
- 🟨 Open VCP case and associated Soil Reuse Areas
- 🟪🟦 Off-Site VOC release property and general area of identified VOCs in groundwater (the lateral extent of on-Site migration has not been defined)



ID	SJC Areas	Address
1	FMC Corporation Central Plant Area	1125 Coleman Avenue
2	FMC Corporation Former Test Track Area	1125 Coleman Avenue
3	Stanford Applied Engineering	282 Martin Avenue
4	General area of identified VOCs in groundwater (lateral extent is not defined)	
5	General area of identified VOCs in groundwater from FMC (lateral extent not defined)	
6	General area of identified VOCs in groundwater from FMC (lateral extent not defined)	
7	Soil Reuse Area (landscap berm)	Associated with #9 - 325 Martin Avenue Study Area
8	Signature Flight Support	303 Martin Avenue Study Area
9	Signature Flight Support	325 Martin Avenue Study Area

ID	SJC Areas	Address
10	Marchese Farms	297 Martin Avenue (AST Removed in 1995)
11	San Jose Jet Center	1250 Aviation Avenue (Four USTs removed 2005)
12	Former GA Area	1101 Airport Boulevard (2 USTs removed June 2004)
13	Former GA area	1101 Airport Boulevard
14	Fleet Maintenance Facility	1395 Airport Boulevard (4 USTs removed Oct/Nov 1990. One UST removed 2006)
15	Former Fuel Dispenser/Loading Rack Area	Associated with #16
16	Former Chevron and SJ Fuel Terminals	1401 Airport Boulevard
17	Former Car Rental Area	Multiple Rent A Car companies, southeast of former Terminal C
18	Terminal C	1661 Airport Boulevard (one UST removed 1992)
19	AAMPCO	1801 Airport Boulevard (one UST removed 2000)
20	General area of reported former burn pit	

Base by Google Earth, dated 3/28/2018

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APPROXIMATE SCALE (FEET)

Project Number
118-105-1

Figure Number
Figure 6A

Date
July 2019

Drawn By
RRN

Potential Impacts to Soil or Groundwater

Norman Y. Mineta
San Jose International Airport
San Jose, CA

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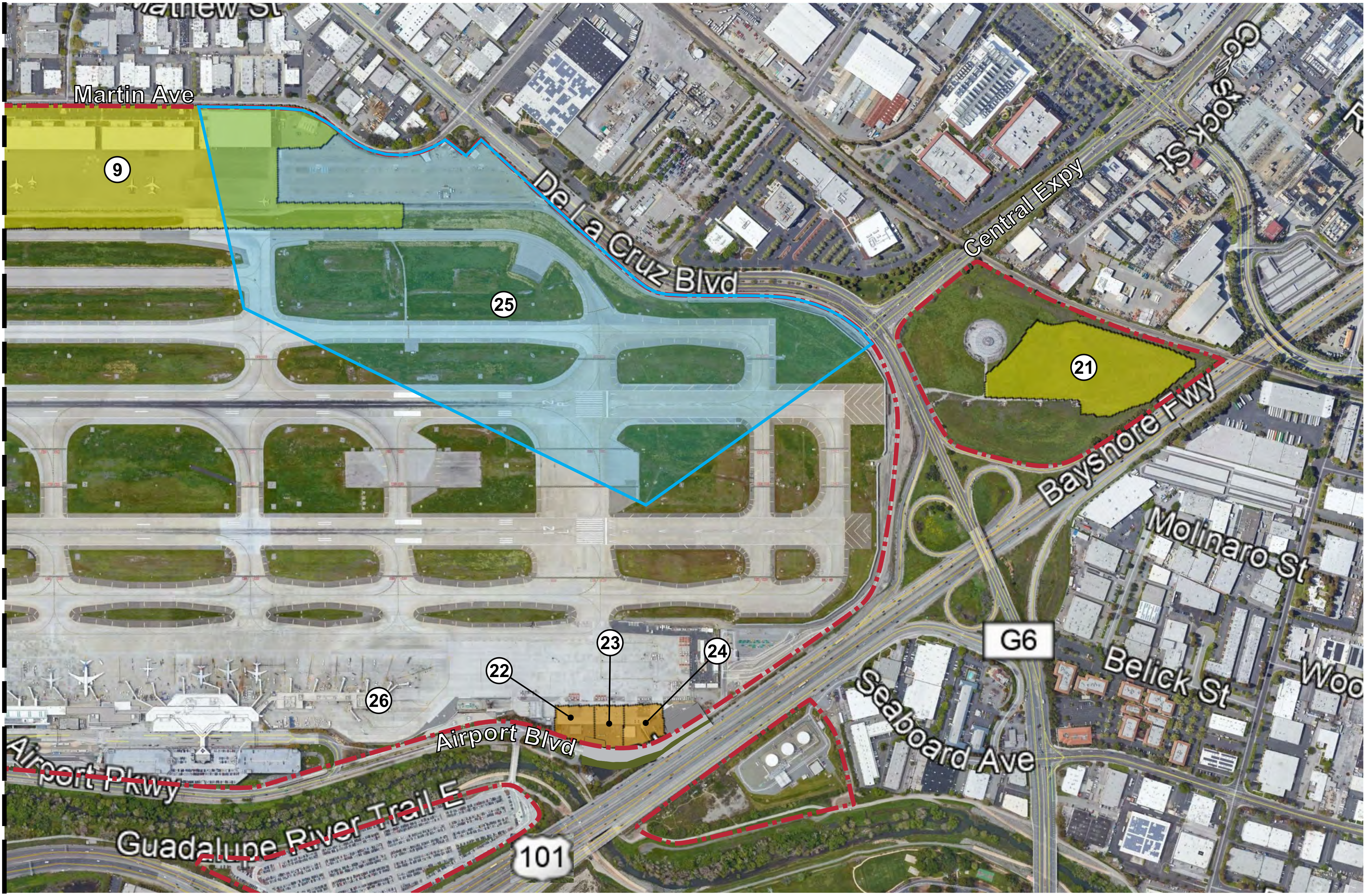
Matchline: See Figure 6A



ID	SJC Areas	Address
9	Signature Flight Support	325 Martin Avenue Study Area
21	Soil Reuse Area (VOR Antenna Area)	Associated with #9 - 325 Martin Avenue Study Area
22	Dollar Thrifty	2251 Airport Boulevard
23	Avis Budget	2225 and 2253 Airport Boulevard
24	Hertz	2411 Airport Boulevard
25	Former Sewage Disposal Area (circa 1940s/1950s)	
26	General area of reported former burn pit	

Legend

-·-·-	Approximate Site Boundary
🟧	Closed VCP case
🟨	Open VCP case and associated Soil Reuse Areas

N

0 600 1200

APPROXIMATE SCALE (FEET)

Base by Google Earth, dated 3/28/2018

Project Number 118-105-1

Figure Number Figure 6B

Drawn By RRN

Date July 2019

Potential Impacts to Soil or Groundwater

Norman Y. Mineta
San Jose International Airport
San Jose, CA

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APPENDIX A – TABLE A1 AND APN MAPS

Table A1. Site Addresses and Occupants/Tenants

Address	APN	Facility/Tenant Name
1101 Airport Boulevard	230-46-065	Former Airport address and closed LUST case
1203 Airport Boulevard	230-46-065	NA
1203 Airport Boulevard	230-25-005	MPOE Generator (south main point of entry)
1207 Airport Boulevard	230-25-005	Ground Support Equipment Wash Rack
1239 Airport Boulevard	230-25-005	South Maintenance Yard
1239 Airport Boulevard[1]	230-46-018	Southwest Airlines Provisioning and GSE
1253 Airport Boulevard[2]	230-46-019	American Airlines Hangar
1277 Airport Boulevard[3]	230-46-020	Multi-Tenant Hangar: UPS, Alaska, JetPro
1311-A Airport Boulevard	230-46-036	Airport offices
1311-B Airport Boulevard	230-46-036	Airport Sign Shop
1311-C Airport Boulevard	230-46-036	Hazardous Waste Accumulation Area and Multiple Tenant Hangar
1355 Airport Boulevard	230-46-045	LSG Sky Chefs
1387 Airport Boulevard	230-46-045	SJPD Airport Division Generator (old bldg)
1395 Airport Boulevard	230-46-045	Fleet Maintenance/Paint Shop
1401 Airport Boulevard	230-46-045	Airport Facilities
1431 Airport Boulevard	230-46-045	Biffy House lavatory waste disposal facility
1433 Airport Boulevard	230-46-045	San Jose Fire Station #20
1445 Airport Boulevard	230-46-065	Former AVIS Rent A Car
1455 Airport Boulevard	230-46-046	Airline Services Hangars A and B
1475 Airport Boulevard	230-46-046	NA
1521 Airport Boulevard	230-46-065	Air Freight (multi-airline)/Southwest Airlines Cargo
1527 Airport Boulevard	230-46-022	NA
1615 Airport Boulevard	230-46-065	NA
1617 Airport Boulevard	230-46-024	Former Hertz car rental
1639 Airport Boulevard	230-46-065	Terminal B - Daily Lot 4
1641 Airport Boulevard	230-46-065	Terminal B Daily Parking Lot 6
1659 Airport Boulevard	230-46-065	Consolidated Rent-A-Car facility (CONRAC)
1661 Airport Boulevard	230-46-045	NA
1661 Airport Boulevard	230-46-065	Terminal B-Hourly Lot 5
1701 Airport Boulevard	230-46-065	Terminal B
1701 Airport Boulevard	230-46-065	Alaska Airlines Ramp/Terminal Facility
1701 Airport Boulevard	230-46-065	Southwest Airlines Ramp/Terminal Facility
1755 Airport Boulevard	230-02-006	Terminal B Employee Parking Lot
1795, 1815 and 1817 Airport Boulevard	230-02-006	NA
2055 Airport Boulevard	230-02-006	Central Plant
2065 Airport Boulevard	230-02-006	Terminal Federal Inspection Services (FIS)
2075 Airport Boulevard	230-02-006	Terminal A Parking Garage
2077 Airport Boulevard	230-02-006	Terminal A
2077 Airport Boulevard	230-02-006	American Airlines Ramp/Terminal Facility
2077 Airport Boulevard	230-02-006	United Airlines Ramp/Terminal Facility
2077 Airport Boulevard	230-02-006	Delta Airlines Ramp/Terminal Facility
2080 Airport Boulevard	230-02-021	Rocky Pond Retention Basin Pump Station
2091 Airport Boulevard	230-02-021	FedEx-North Cargo Ramp
2091 Airport Boulevard	230-02-025	NA
2151 Airport Boulevard	230-02-025	CNG Fueling Station
2200 and 2250 Airport Blvd	230-01-058	NA

Continued.

Table A1. Continued

Address	APN	Facility/Tenant Name
2201 Airport Boulevard	230-02-025	North Air Cargo/Switchgear
2201 Airport Boulevard	230-02-025	Swissport Fuel Dispensing Racks
2251, 2253, 2265, 2411 and 2413 Airport Boulevard	230-02-021	NA
2300 Airport Boulevard	230-01-058	Economy Parking Lot-1
2341 Airport Boulevard	230-02-021	Swissport Fueling Services (Maintenance Shop and Yard)
2361 Airport Boulevard	230-02-021	Shuttle Bus Staging
2385 Airport Boulevard	230-02-021	SJPD Airport Division
2401 Airport Boulevard	230-02-021	NE Tenant Employee Parking Lot
2470 Airport Boulevard	230-02-021	Taxi Staging Office
1162 Aviation Avenue	230-46-044	Atlantic Aviation (formerly TWC)
1210 Aviation Avenue	230-46-051	Hewlett Packard
1250 Aviation Avenue	230-46-049	Atlantic Aviation facilities and fuel farm
1128 Coleman Avenue	230-46-065	General Aviation (GA) West
1144 Coleman Avenue	230-46-041	AvBase fuel farm
1144 Coleman Avenue	230-46-042	AvBase hangar
269 Martin Avenue	230-46-049	NA
269 Martin Avenue	230-46-065	NA
273 Martin Avenue	230-46-011	Airfield Electrical Lighting Vault
275 Martin Avenue	230-46-065	FAA Airport Traffic Control Tower (ATCT)
277 Martin Avenue	230-02-007	Remote transmitter/receiver (RTR) Site
297 Martin Avenue	230-02-026	Former Marchese Farms closed LUST case
303, 313, 323, 333, 343, 353 and 363 Martin Avenue	230-02-026	Signature Flight Support Terminal Building and Hangars 1 through 6
325 Martin Avenue	230-02-026	Open VCP case at Signature Flight Support
325 Martin Avenue	230-03-101	Westside Parking Lot
373, 383 and 393 Martin Ave	230-03-101	Signature Flight Support Hangar 7 and Fuel Farm
2250 Seaboard Avenue	101-03-009	Swissport Fuel Farm
--	230-02-022	NA
--	230-02-024	NA
--	230-02-035	NA
--	230-03-041	NA
--	230-03-074	NA
--	230-03-081	NA
--	230-03-102	NA
--	230-24-006	NA
--	230-25-004	NA
--	230-46-017	NA
--	230-46-023	NA
--	230-46-037	NA
--	230-46-040	NA
--	230-46-051	NA

APN	Assessors Parcel Number (APN) on which the identified facility is located.
Green	Address in use or formerly used but not assigned to the APN per the County Assessor’s Office
--	No address assigned to APN per County Assessor’s Office
NA	Address assigned to APN but not currently in use
1	County Assessor’s Office identifies this parcel as 1253 Airport Boulevard.
2	County Assessor’s Office identifies this parcel as 1277 Airport Boulevard.
3	County Assessor’s Office identifies this parcel as 1311 Airport Boulevard.

APPENDIX B – HISTORICAL AERIAL PHOTOGRAPHS

OFFICE OF COUNTY ASSESSOR —— SANTA CLARA COUNTY, CALIFORNIA

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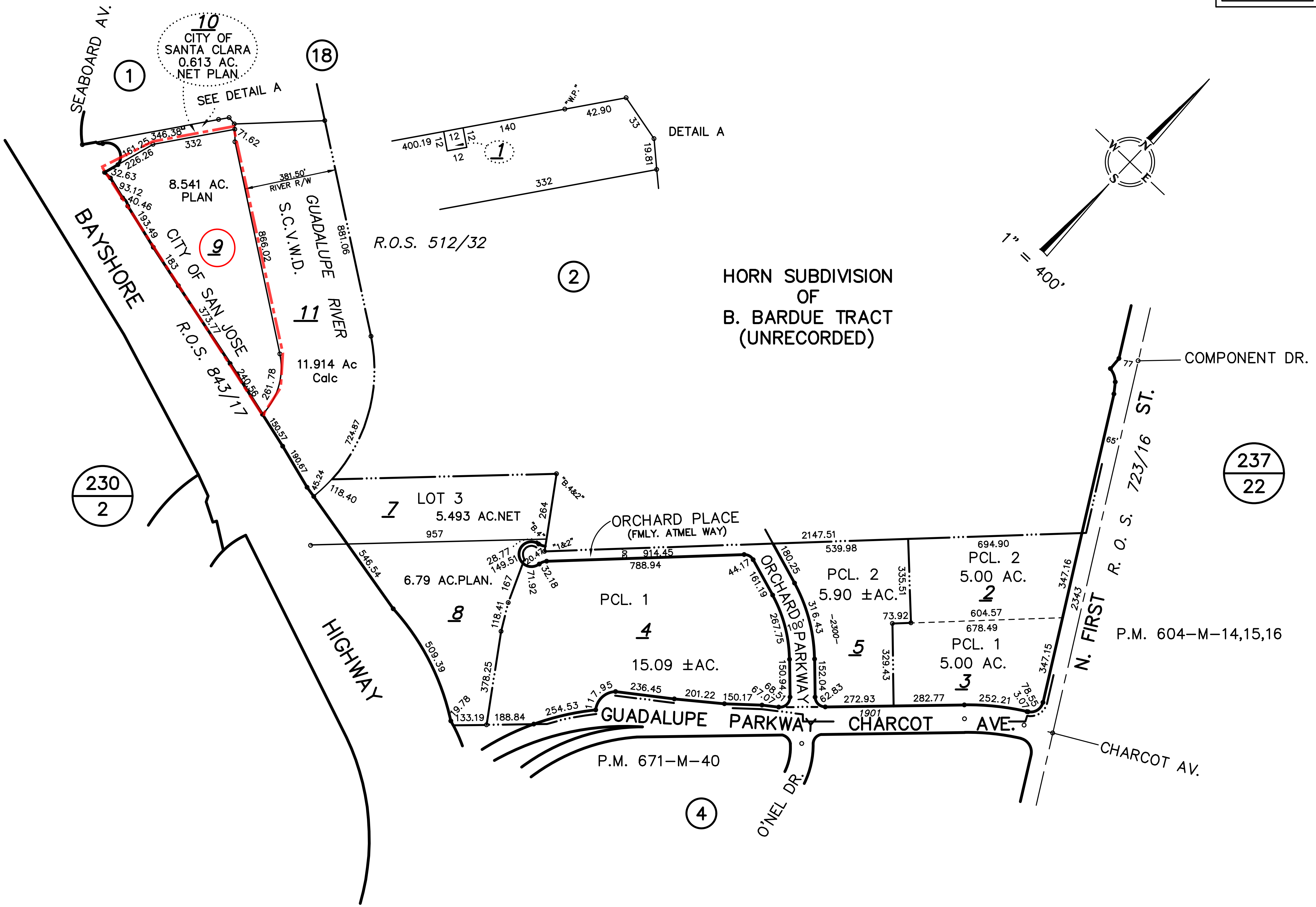
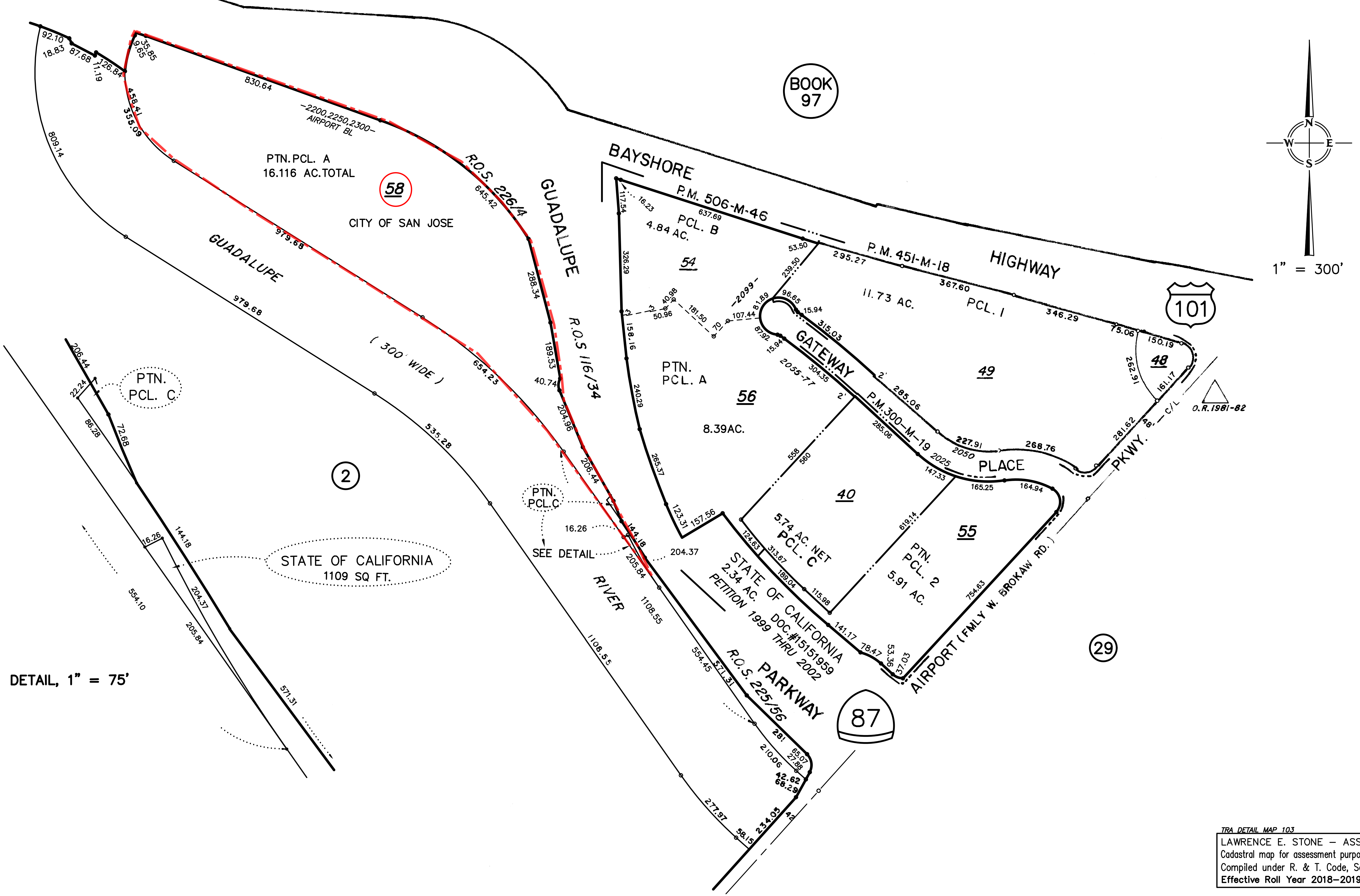


TRA DETAIL MAP 103

LAWRENCE E. STONE — ASSESSOR
Cadastral map for assessment purposes only.
Compiled under R. & T. Code, Sec. 327.
Effective Roll Year 2018–2019

OFFICE OF COUNTY ASSESSOR — SANTA CLARA COUNTY, CALIFORNIA

BOOK 230 PAGE 1



TRA DETAIL MAP 103

LAWRENCE E. STONE — ASSESSOR
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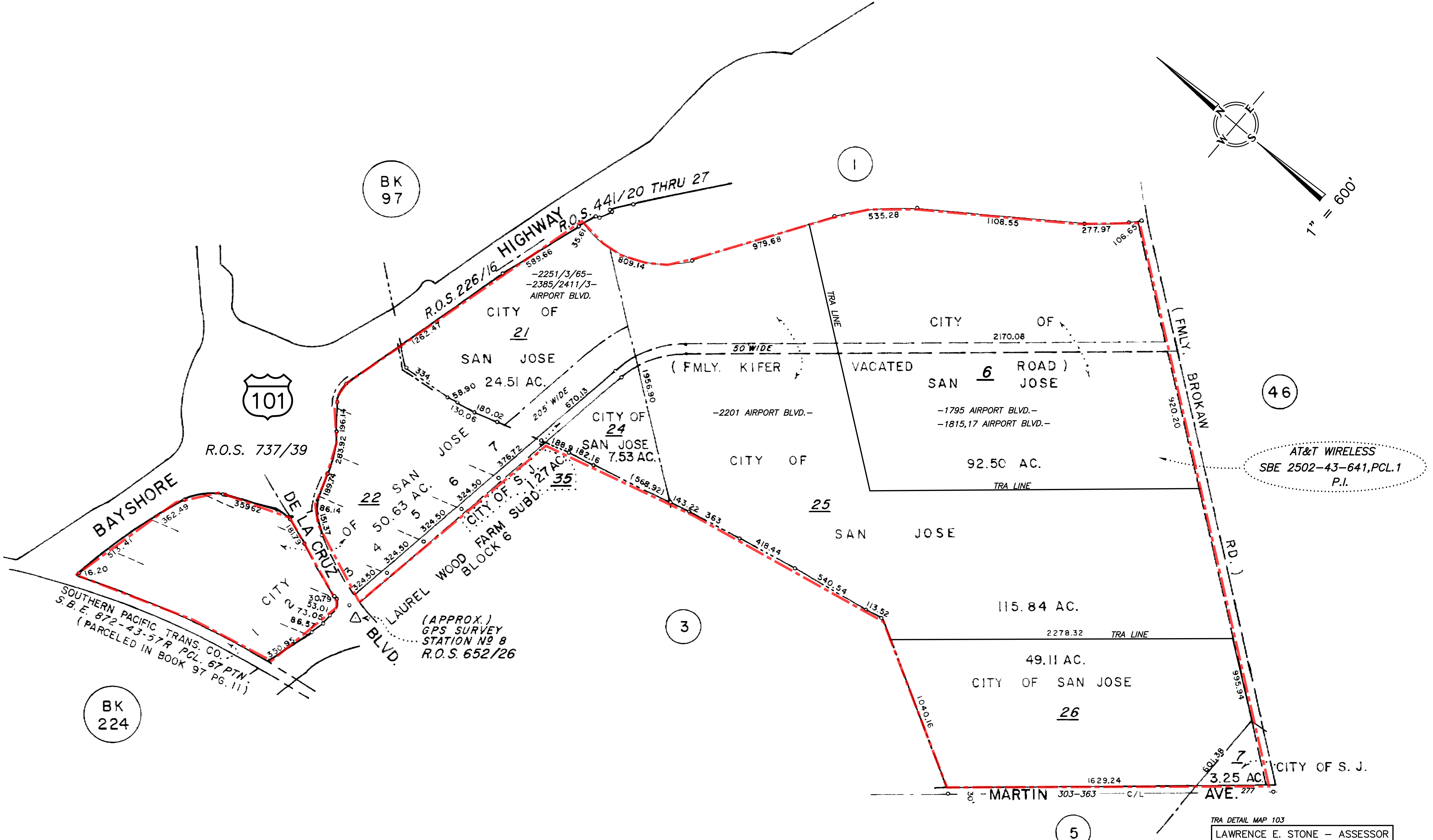

TRA DETAIL MAP 103

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BOOK	PAGE
230	3

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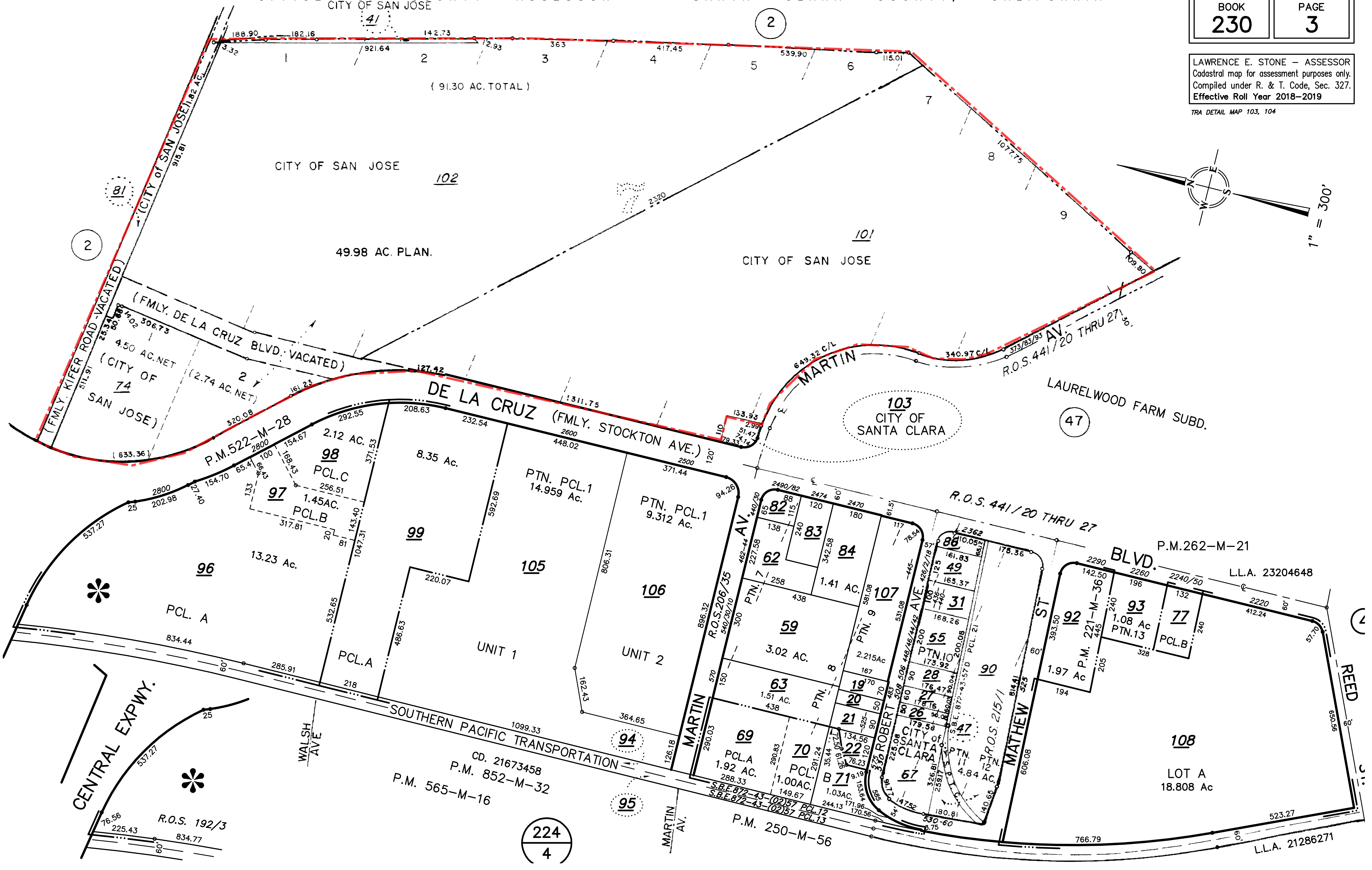
Effective Roll Year 2018–2019

TRA DETAIL MAP 103, 104



OFFICE OF COUNTY ASSESSOR — SANTA CLARA COUNTY, CALIFORNIA

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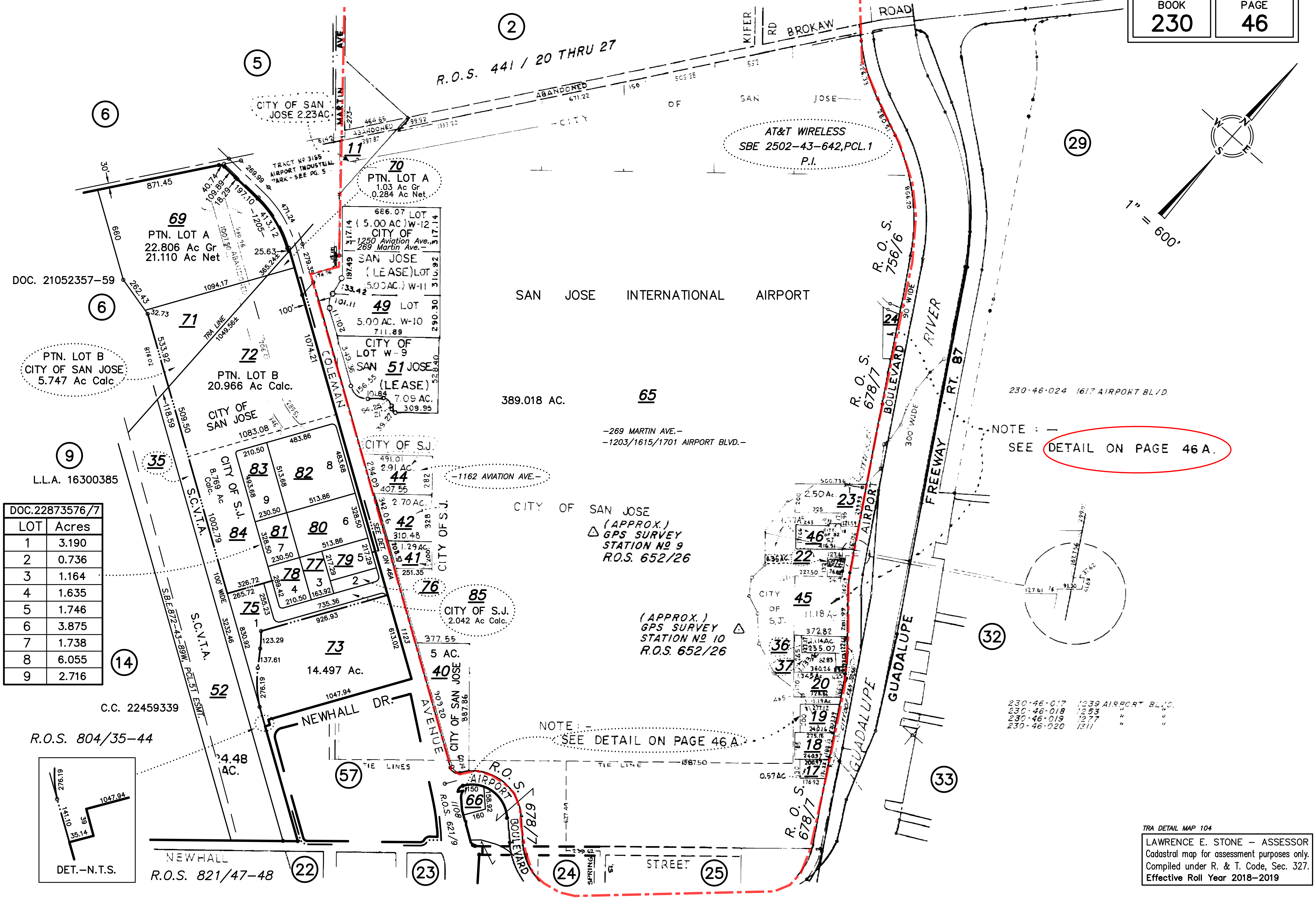

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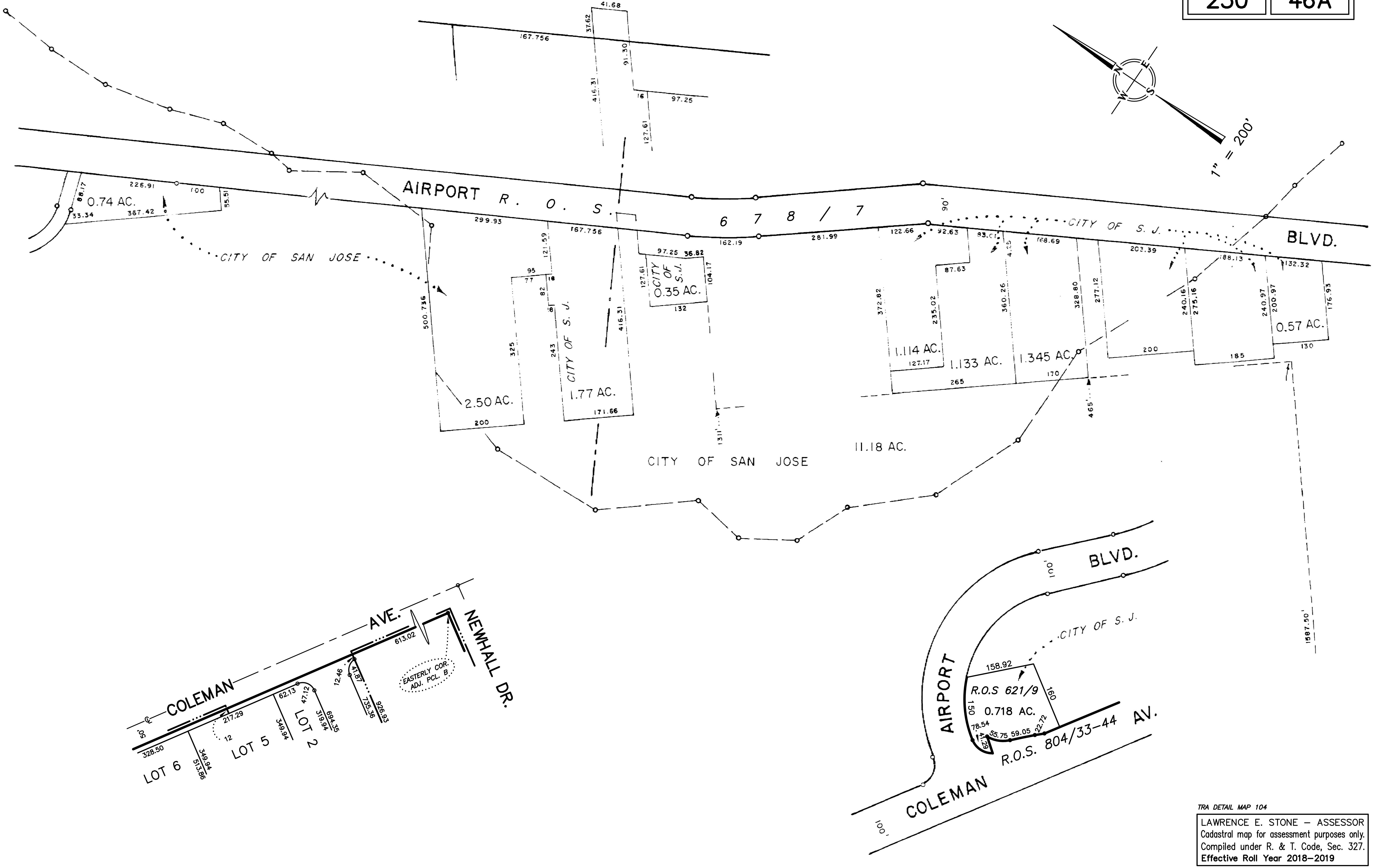
2	0.736
3	1.164
4	1.635
5	1.746
6	3.875
7	1.738
8	6.055
9	2.716

TRA DETAIL MAP 104

LAWRENCE E. STONE – ASSESSOR
Cadastral map for assessment purposes only.
Compiled under R. & T. Code, Sec. 327.
Effective Roll Year 2018–2019

OFFICE OF COUNTY ASSESSOR —— SANTA CLARA COUNTY, CALIFORNIA

BOOK 230 PAGE 46A



TRA DETAIL MAP 104

LAWRENCE E. STONE – ASSESSOR
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Effective Roll Year 2018–2019

OFFICE OF COUNTY ASSESSOR — SANTA CLARA COUNTY, CALIFORNIA

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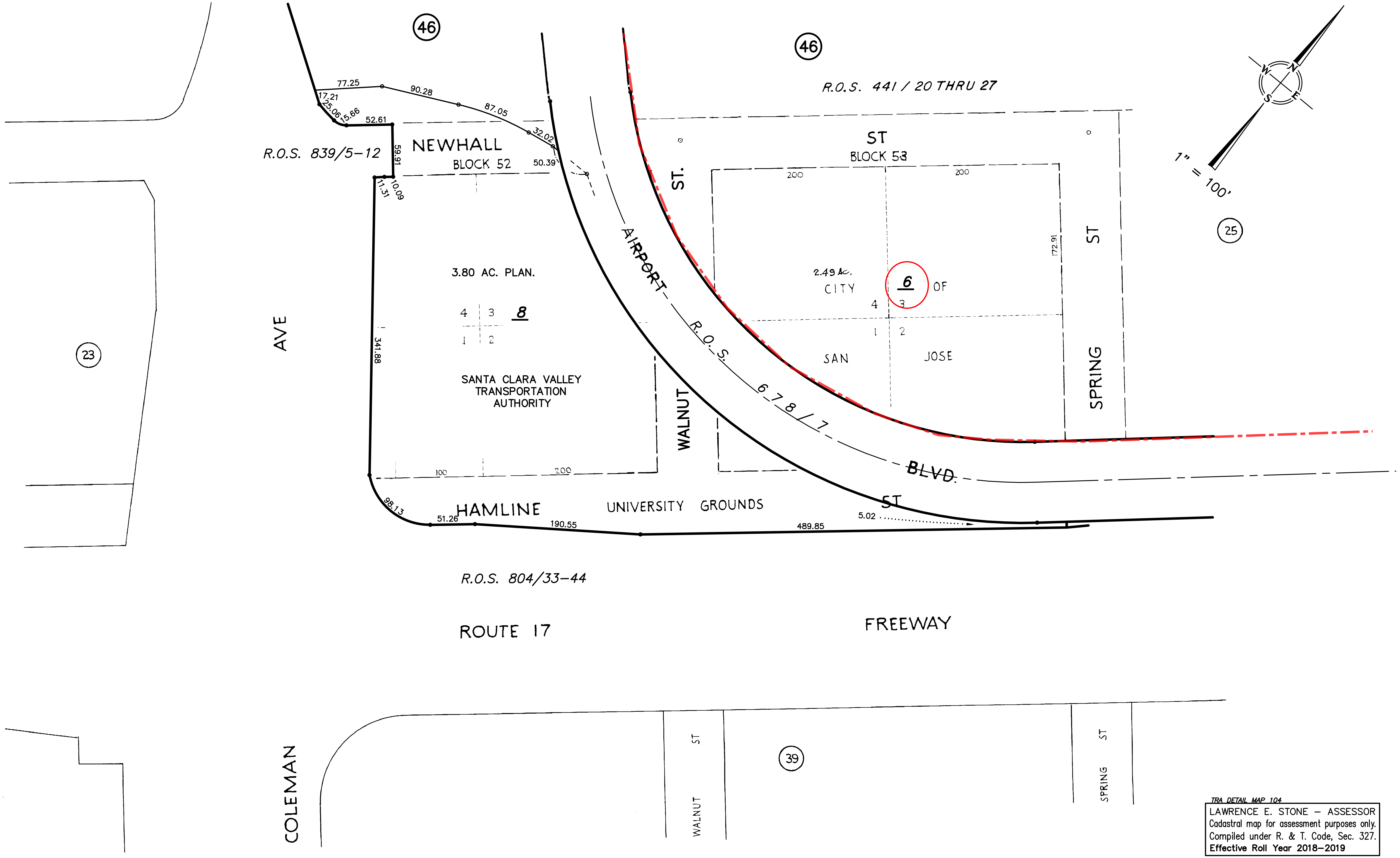

TRA DETAIL MAP 104

LAWRENCE E. STONE – ASSESSOR
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Effective Roll Year 2018–2019

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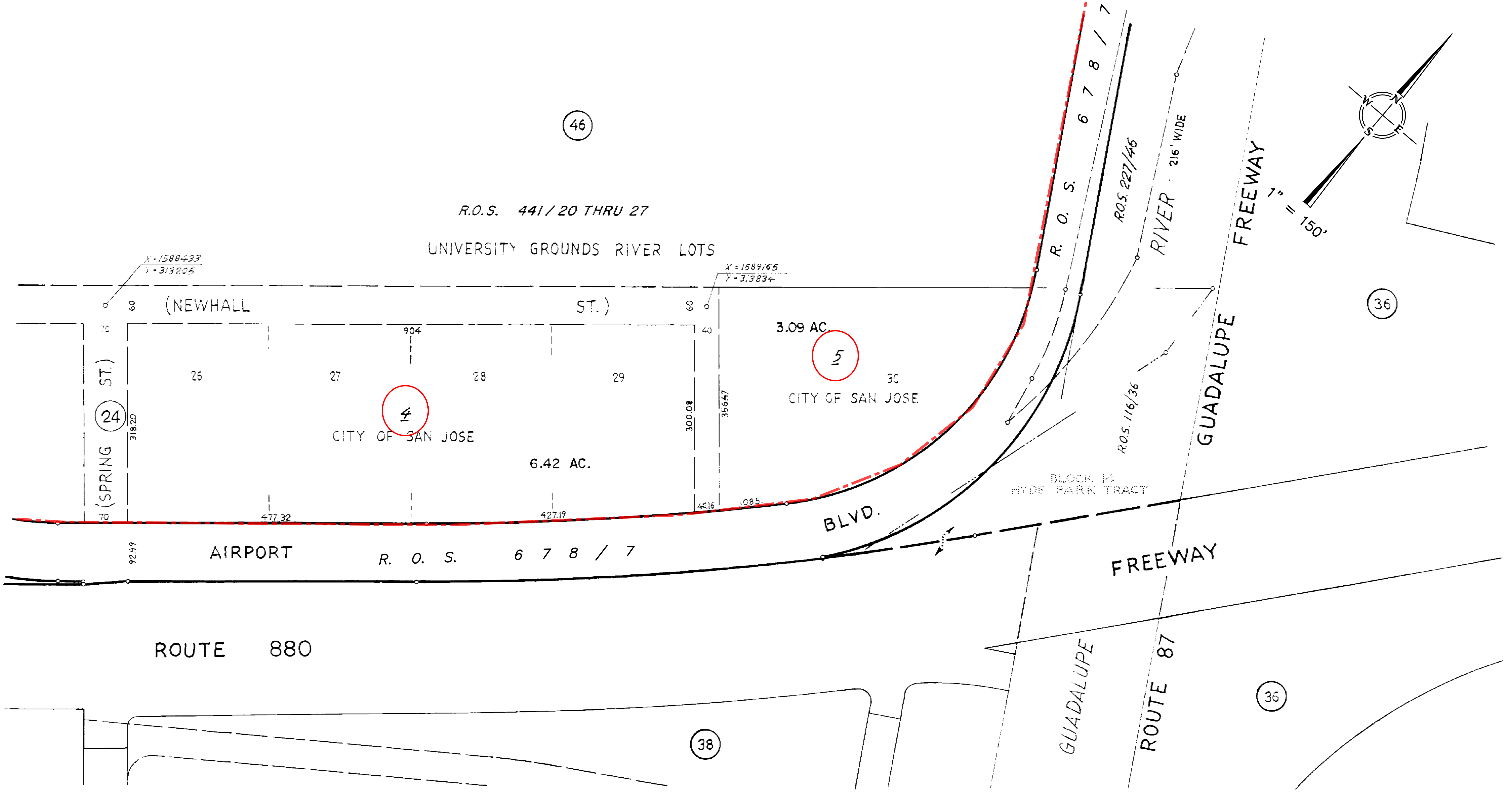

TRA DETAIL MAP 104

LAWRENCE E. STONE — ASSESSOR
Cadastral map for assessment purposes only.
Compiled under R. & T. Code, Sec. 327.
Effective Roll Year 2018–2019

San Jose International Airport
1701 Airport Boulevard
San Jose, CA 95110

Inquiry Number: 5583152.1
March 12, 2019

The EDR Aerial Photo Decade Package

6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

EDR Aerial Photo Decade Package

03/12/19

Site Name:	**Client Name:**
San Jose International Airport 1701 Airport Boulevard San Jose, CA 95110 EDR Inquiry # 5583152.1	Cornerstone Earth Group 1259 Oakmead Parkway Sunnyvale, CA 94085 Contact: Stason Foster

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Search Results:

Year	*Scale*	*Details*	*Source*
2016	1"=1000'	Flight Date: January 01, 2016	USGS
2014	1"=1000'	Flight Date: January 01, 2014	USGS
2010	1"=1000'	Flight Date: January 01, 2010	USGS
2005	1"=1000'	Flight Date: January 01, 2005	USGS
1998	1"=1000'	Flight Date: January 01, 1998	USGS
1993	1"=1000'	Flight Date: January 01, 1993	USGS
1987	1"=1000'	Flight Date: January 01, 1987	USGS
1982	1"=1000'	Flight Date: January 01, 1982	USGS
1973	1"=1000'	Flight Date: January 01, 1973	USGS
1968	1"=1000'	Flight Date: January 01, 1968	USGS
1963	1"=1000'	Flight Date: January 01, 1963	USDA
1956	1"=1000'	Flight Date: January 01, 1956	USDA
1948	1"=1000'	Flight Date: January 01, 1948	USGS
1939	1"=1000'	Flight Date: January 01, 1939	USDA

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INQUIRY #: 5583152.1

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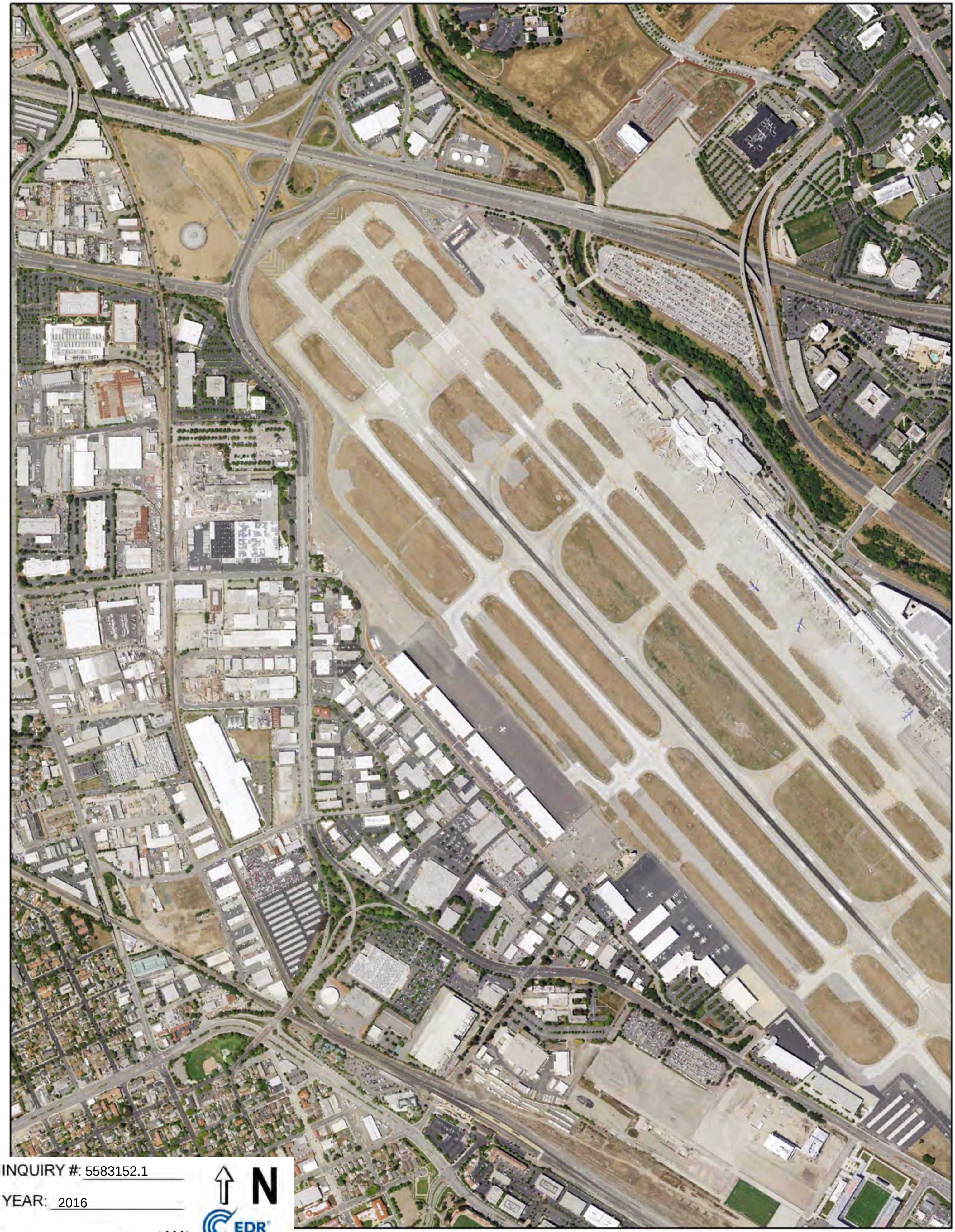

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YEAR: 2016

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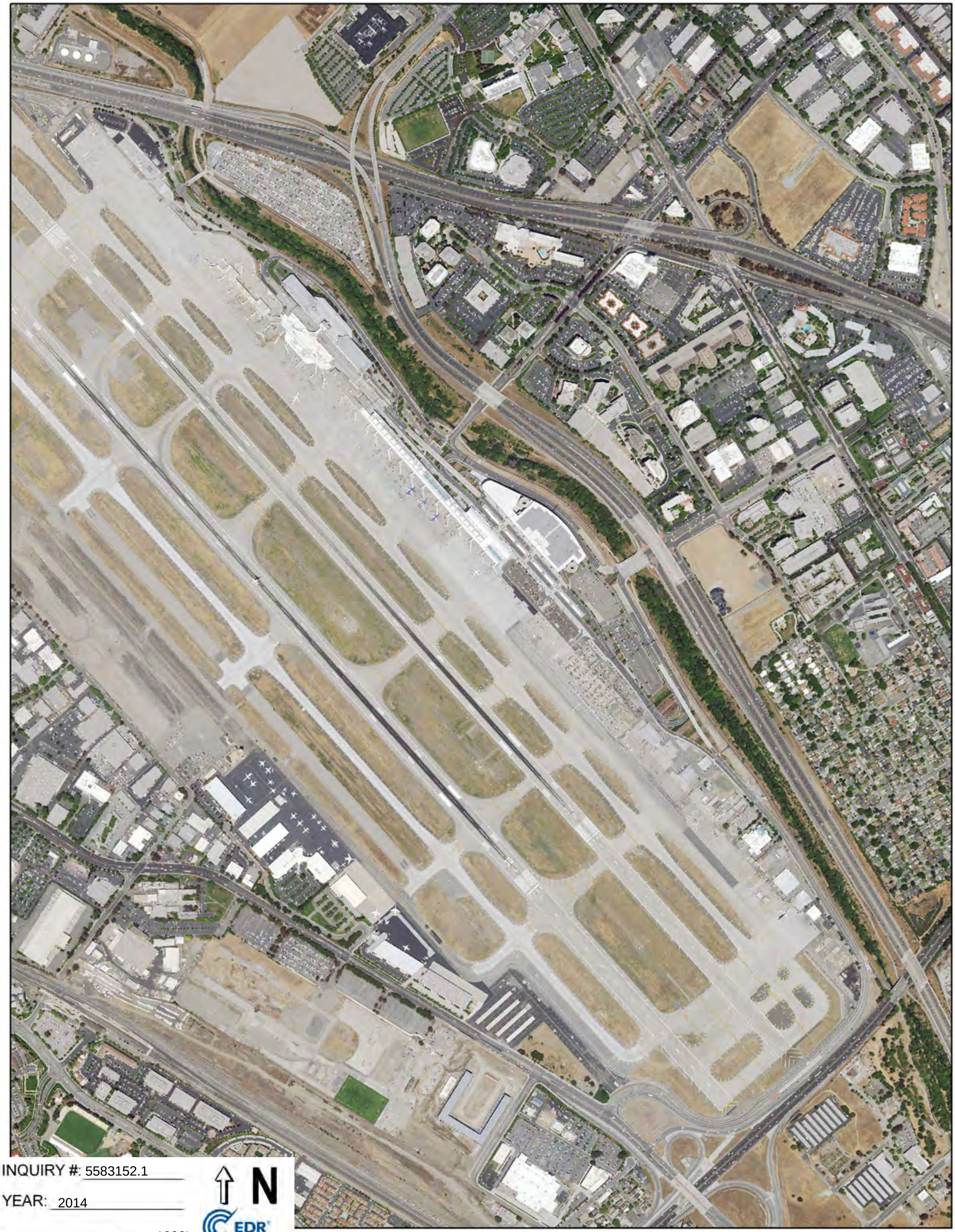
EDR



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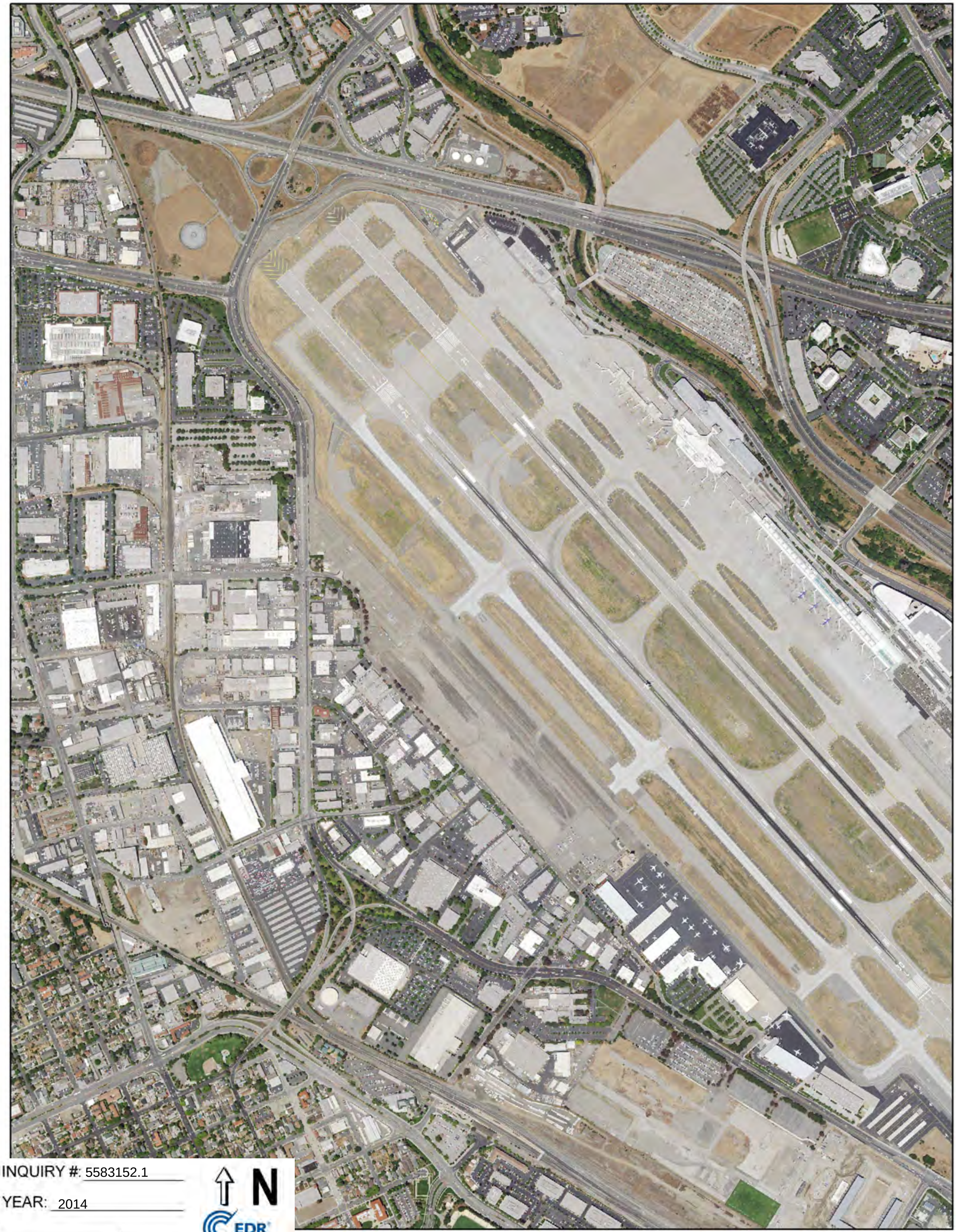

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YEAR: 2014

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EDR

INQUIRY #: 5583152.1

YEAR: 2010

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N

INQUIRY #: 5583152.1

YEAR: 2010

= 1000'

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INQUIRY #: 5583152.1

YEAR: 2005

= 1000'

N

INQUIRY #: 5583152.1

YEAR: 2005

= 1000'

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INQUIRY #: 5583152.1

YEAR: 1998

= 1000'

N

INQUIRY #: 5583152.1

YEAR: 1998

= 1000'

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YEAR: 1993

= 1000'

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INQUIRY #: 5583152.1

YEAR: 1993

= 1000'

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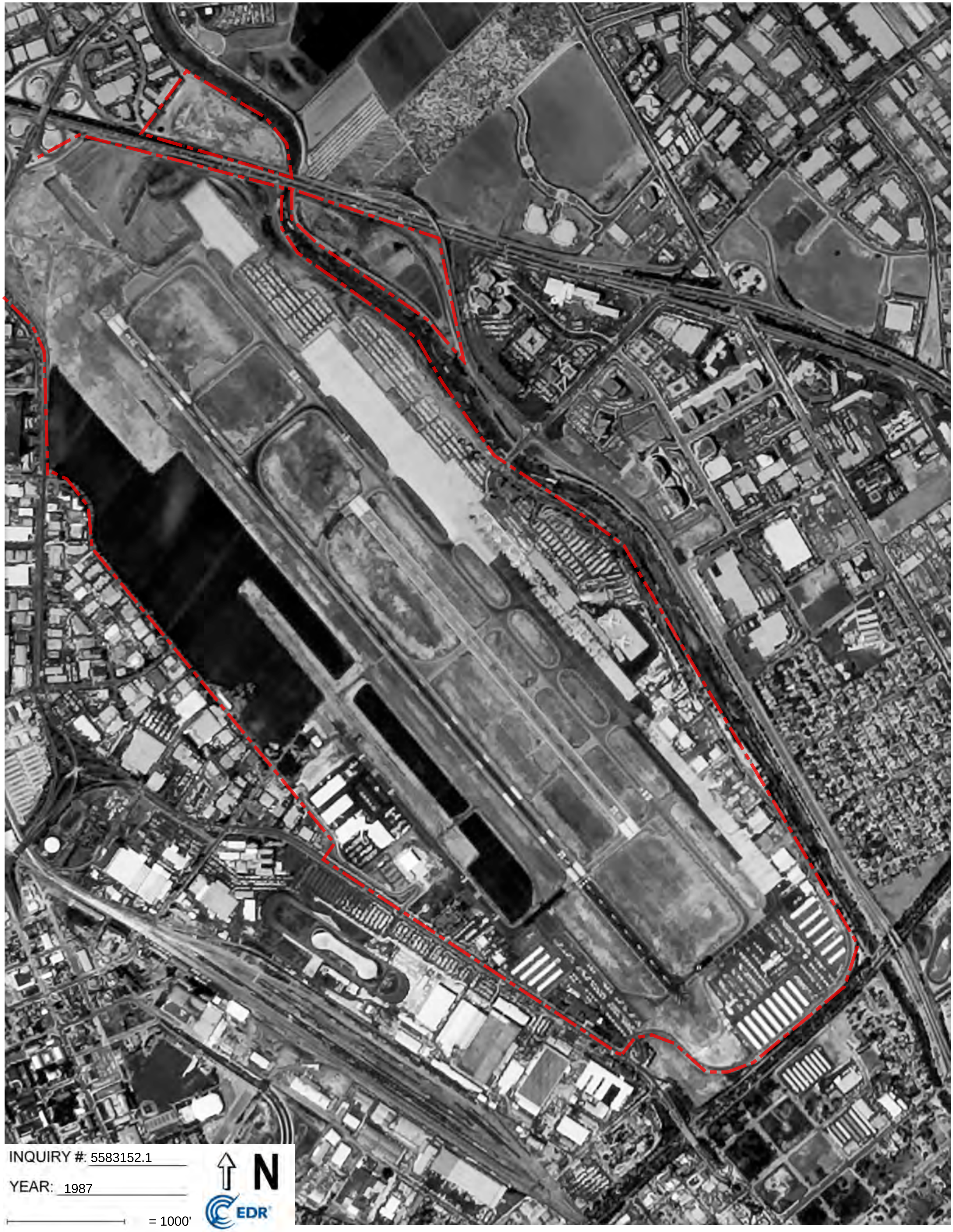
EDR



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YEAR: 1987

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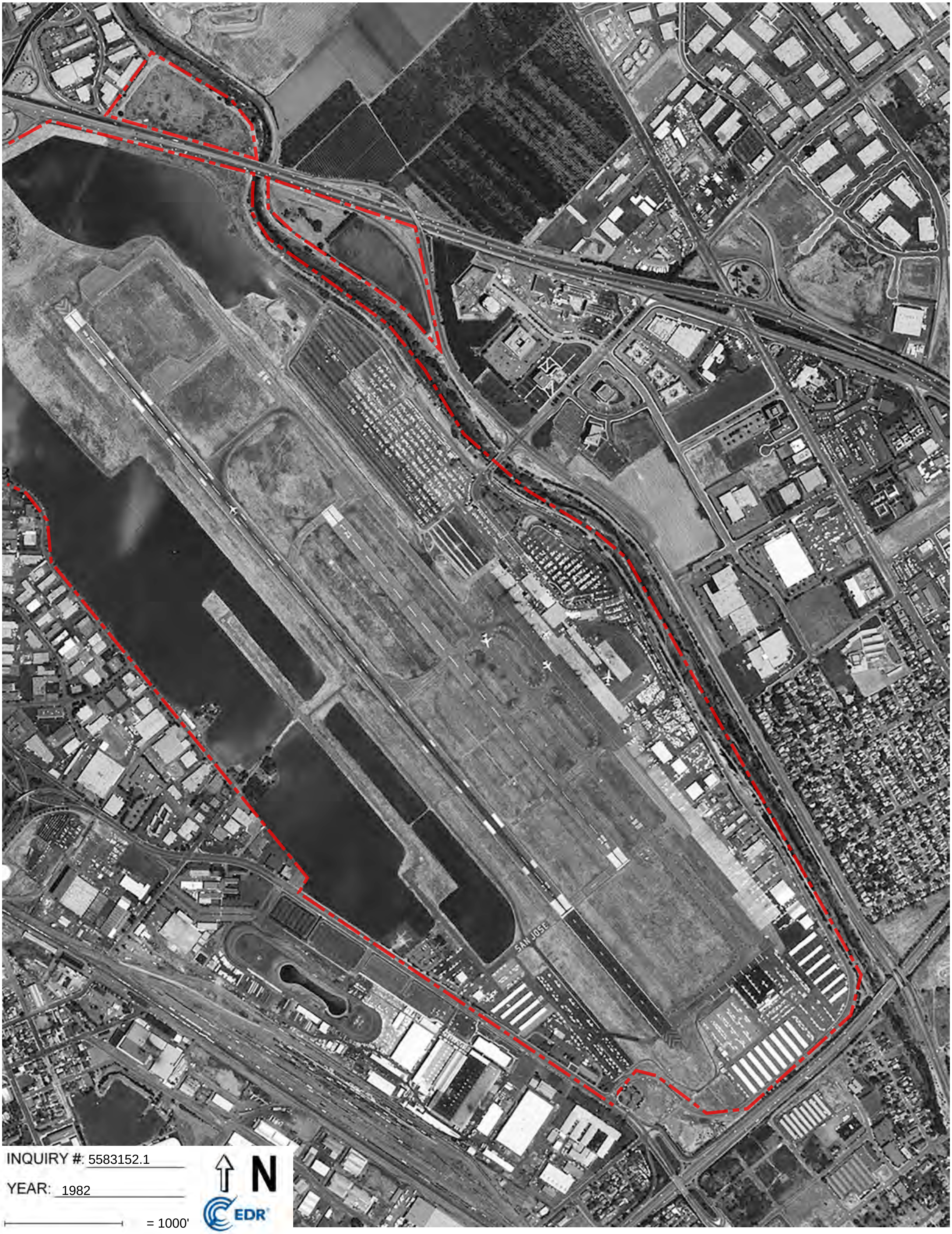

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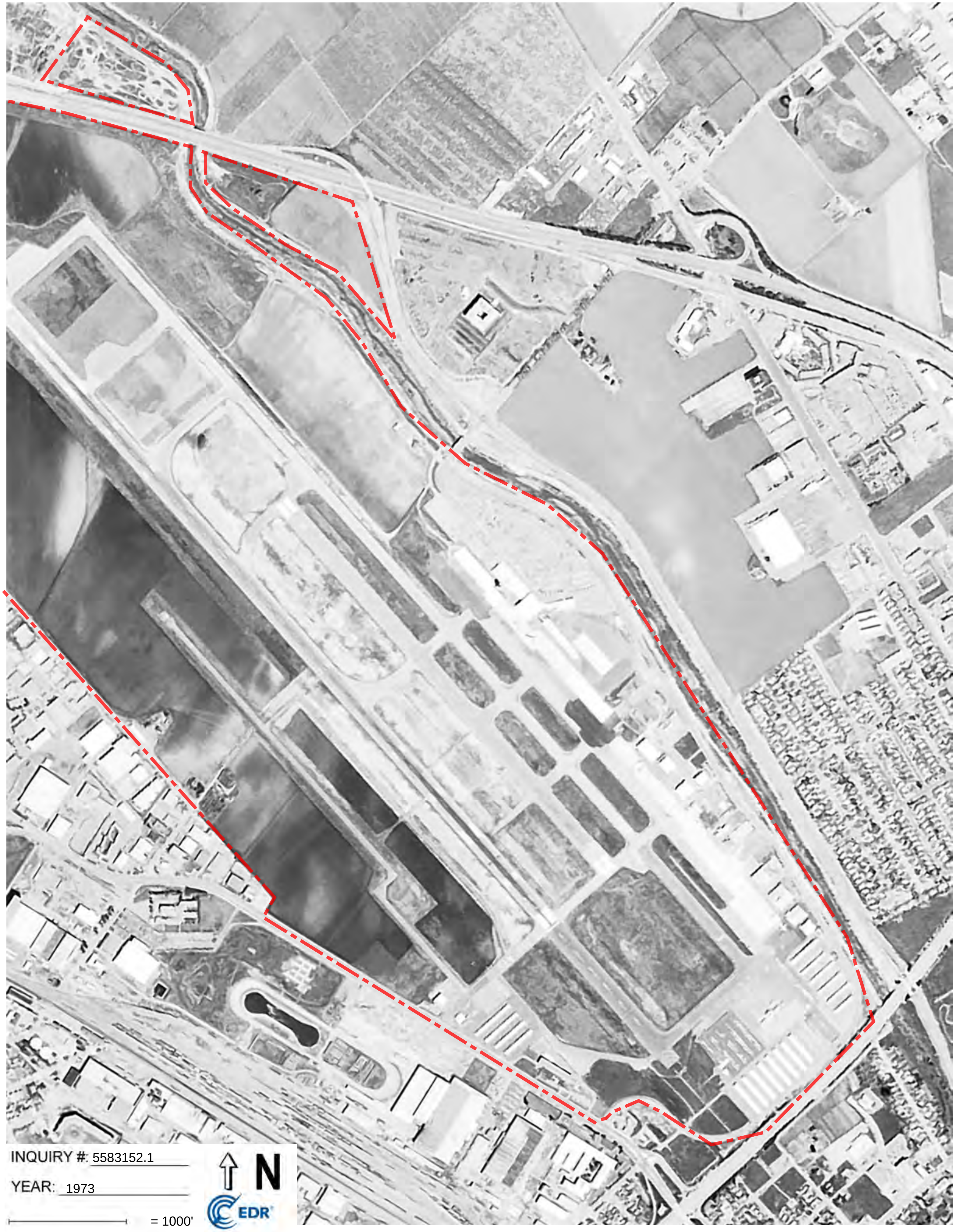

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YEAR: 1973

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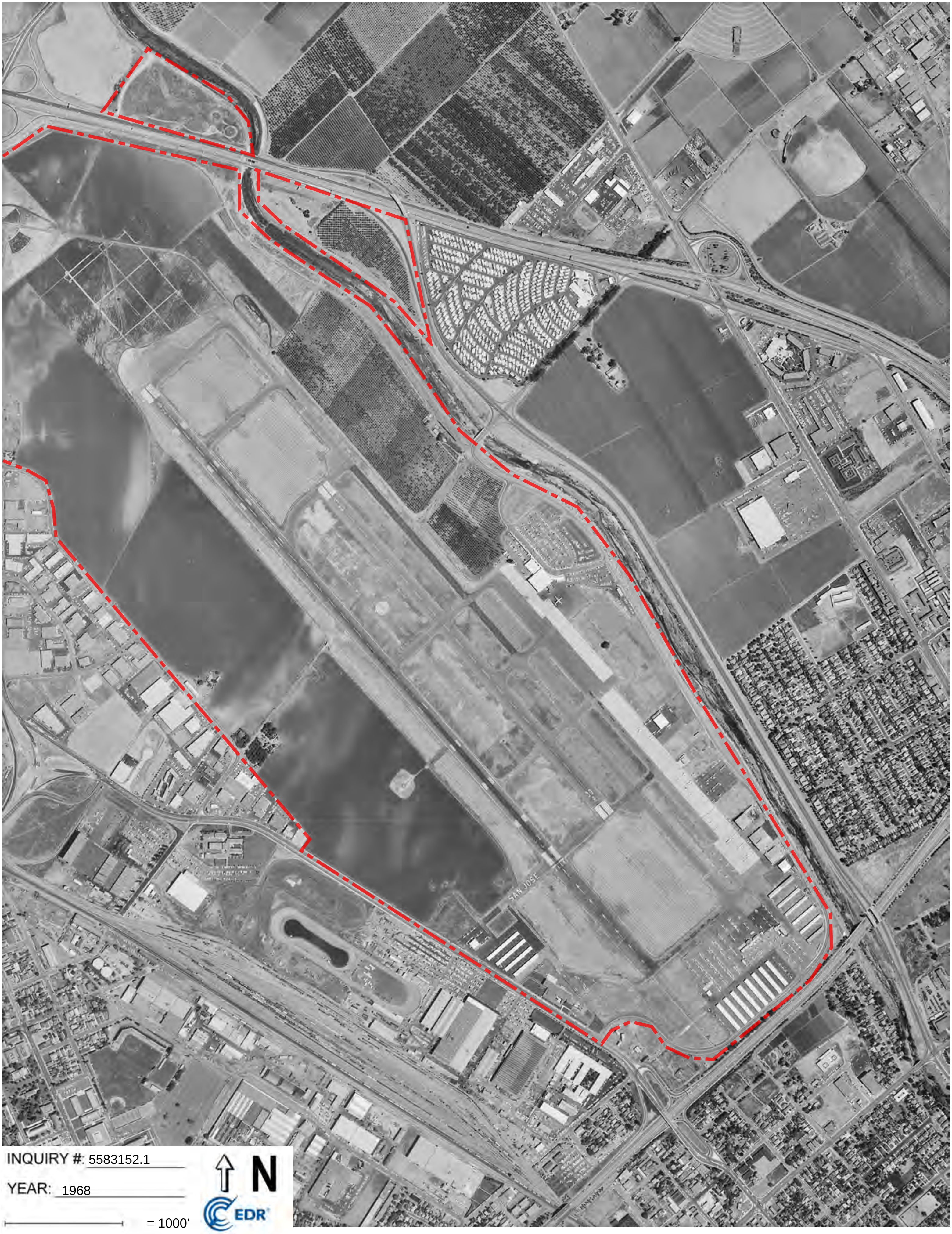

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YEAR: 1968

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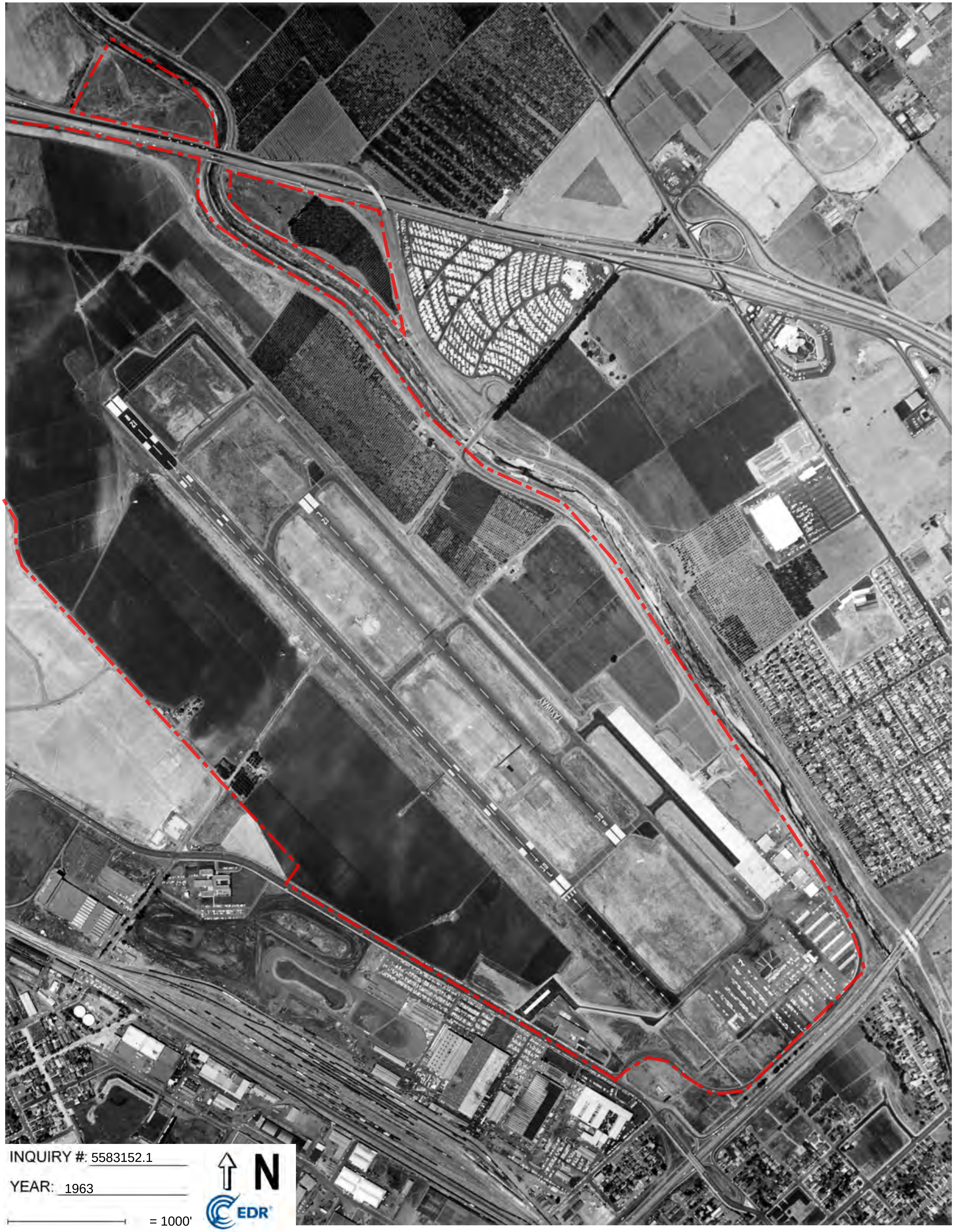

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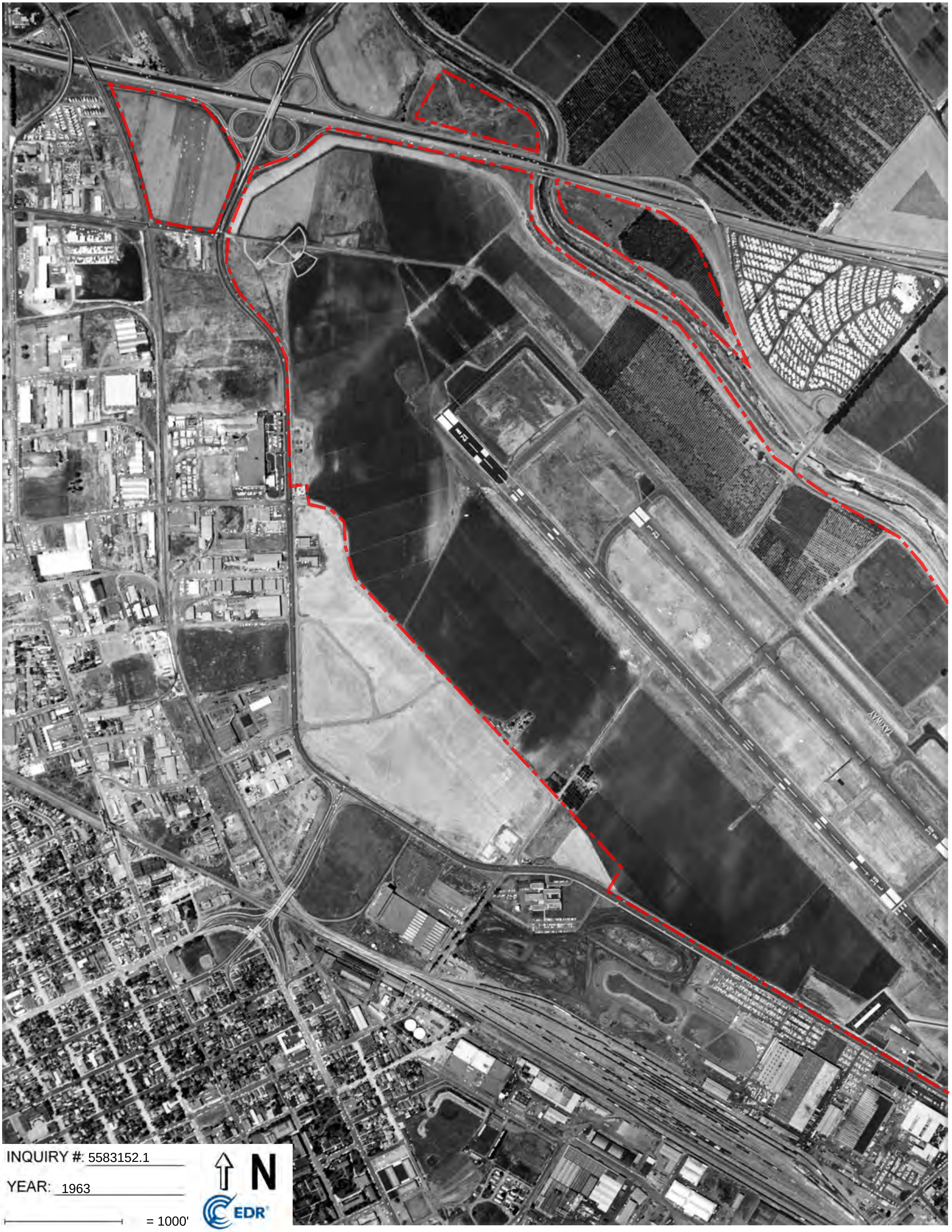

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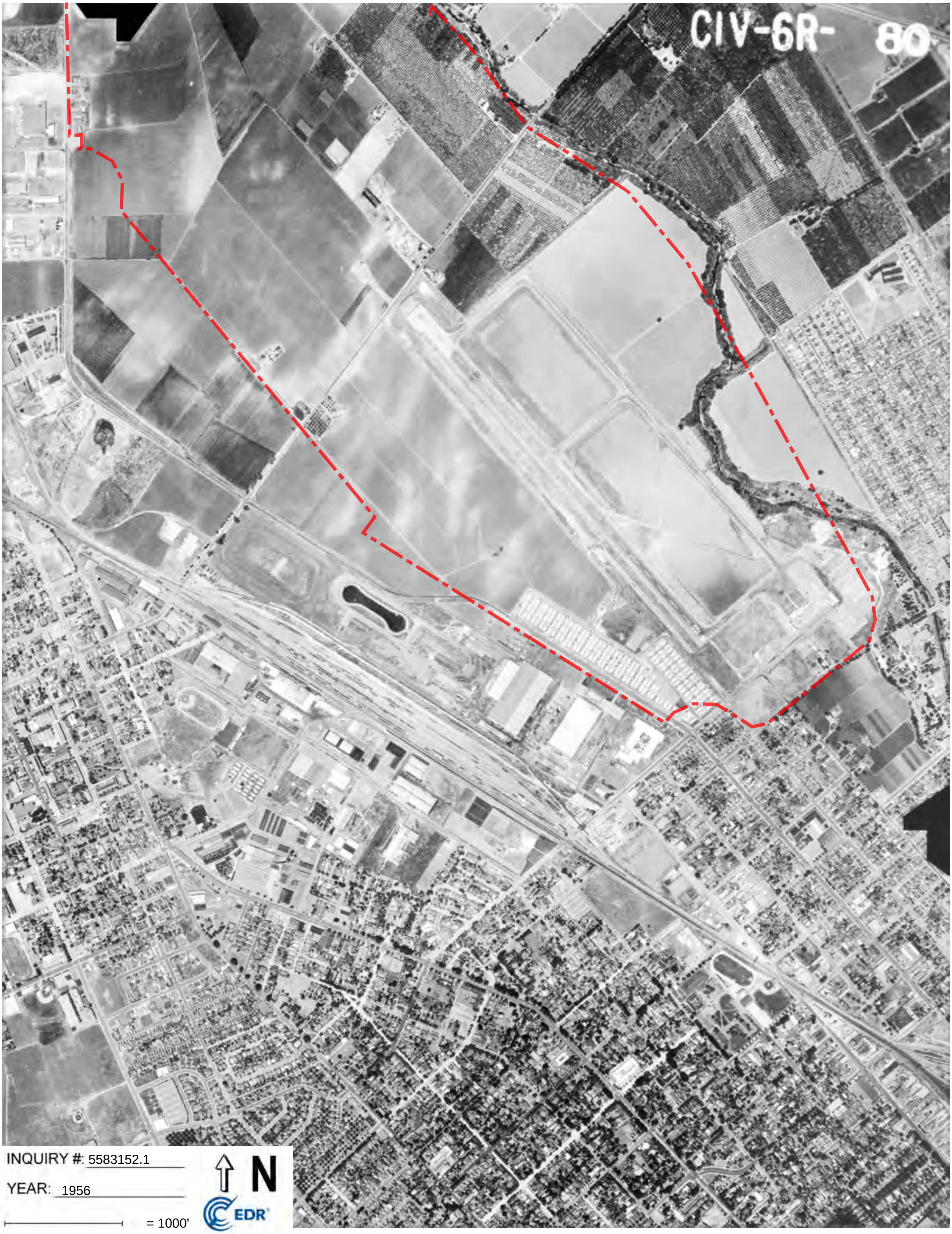

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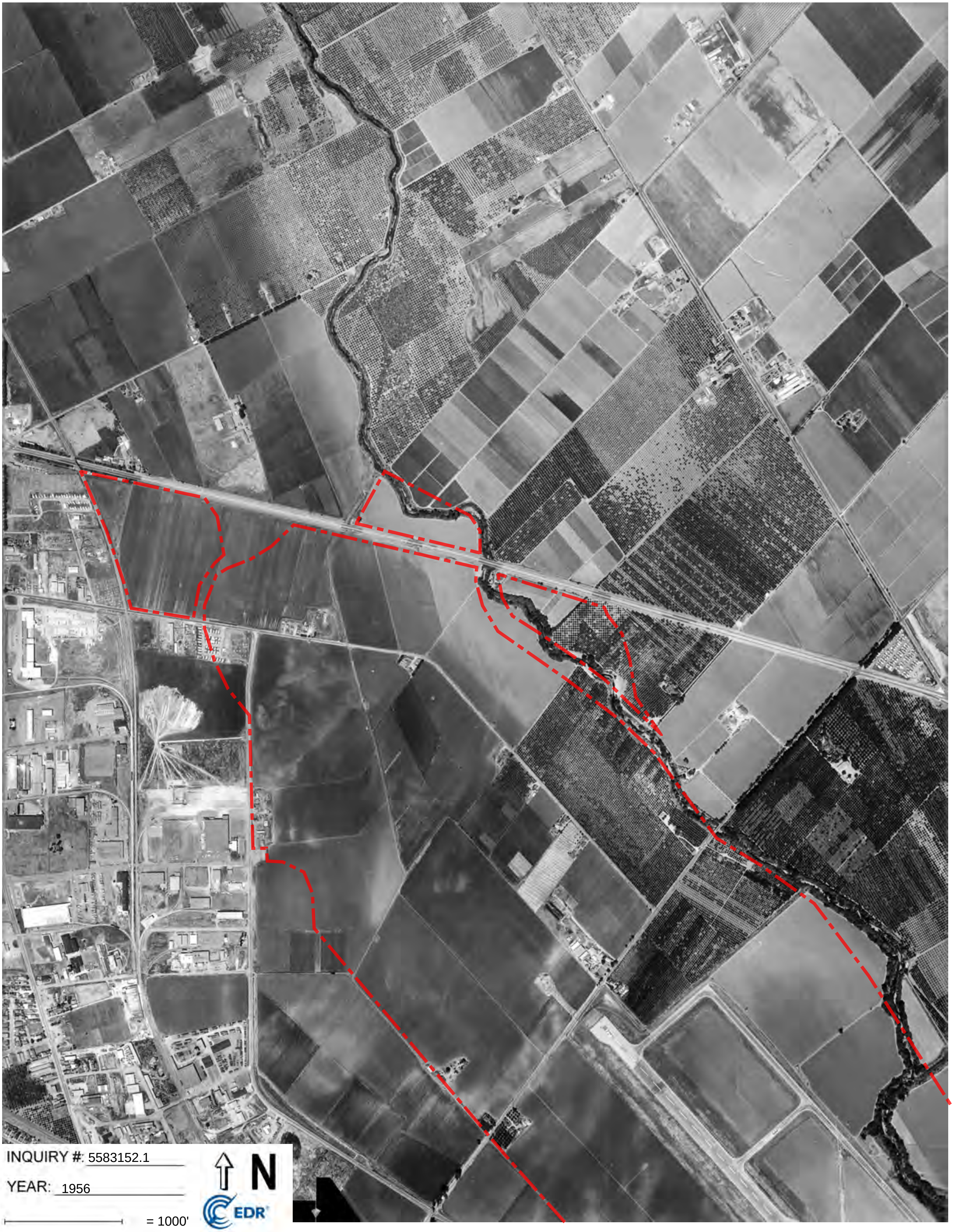

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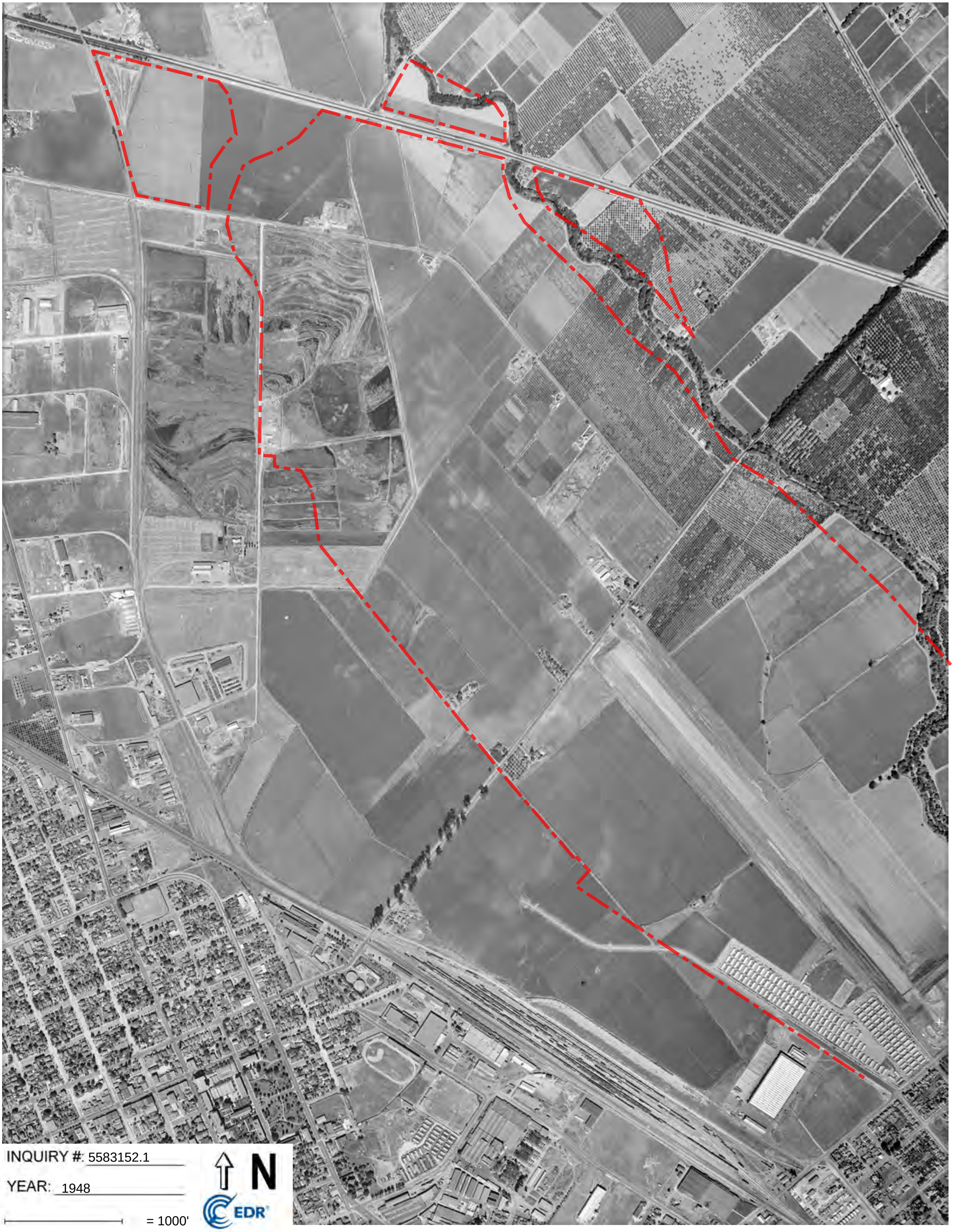

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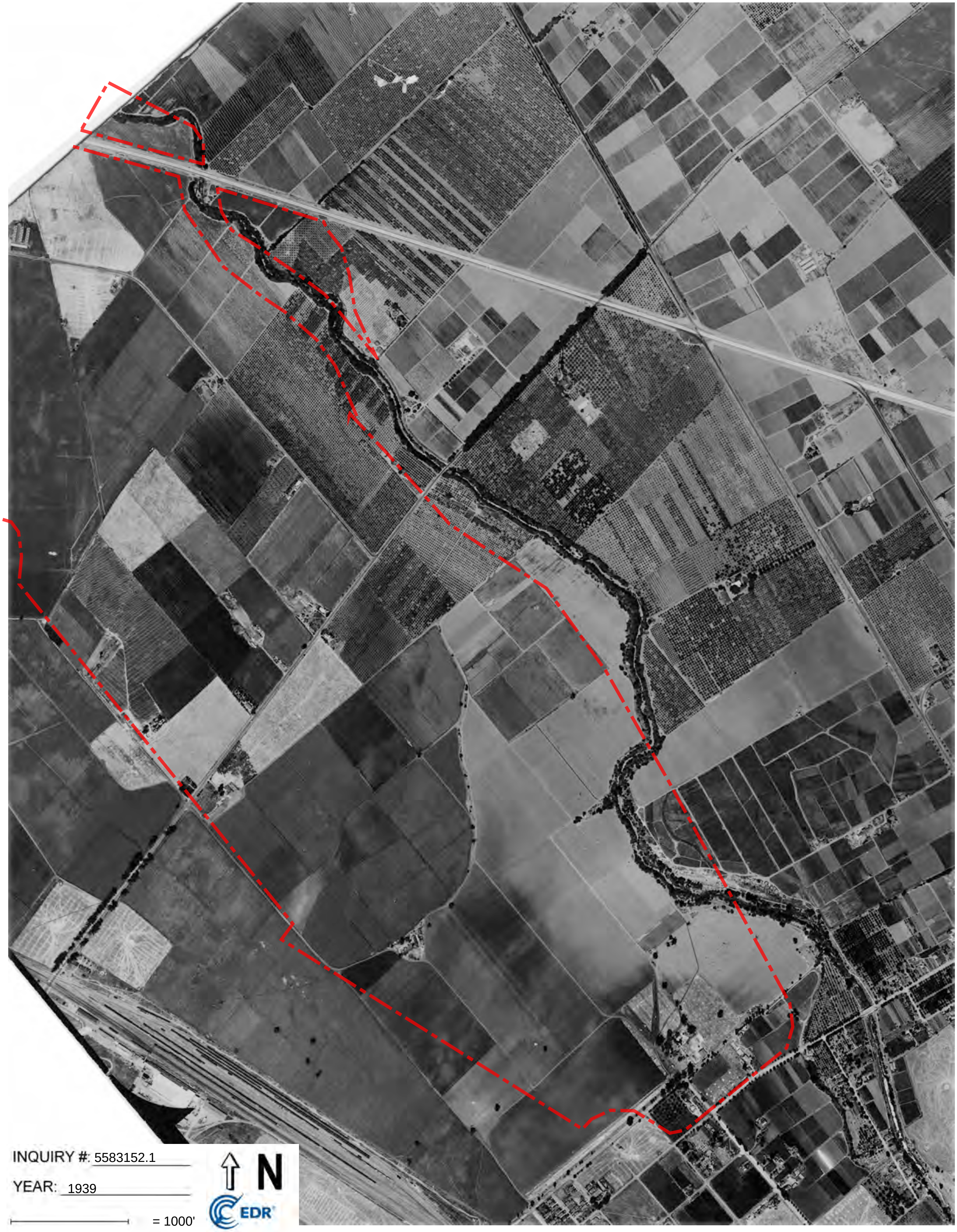
EDR



INQUIRY #: 5583152.1

YEAR: 1939

= 1000'

N

EDR

Attachment 2:

Woodard & Curran, *PFAS Completion Report*
January 30, 2020.
.

NORMAN Y. MINETA
SAN JOSE
INTERNATIONAL
AIRPORT
SILICON VALLEY'S AIRPORT

January 31, 2020

Michael Montgomery
Executive Officer
San Francisco Bay Regional Water Quality Control Board
1515 Clay Street, Suite 1400
Oakland, CA 94612

Subject: PFAS Preliminary Investigation Sampling & Analysis Completion Report in Response to Water Code Section 13267 Order WQ-2019-0005-DWQ for the Determination of the Presence of Per- and Polyfluoroalkyl Substances at Norman Y. Mineta San Jose International Airport, Airport ID SJC, Santa Clara County, T10000012766

Please find attached the Completion Report for a one-time preliminary site investigation of per- and polyfluoroalkyl substances (PFAS) impacts at SJC Airport. This Completion Report meets the requirements of the Water Code Section 13267 Order WQ-2019-0005-DWQ.

If you have any questions, please contact myself, Patrick Hansen, at 408-392-3626 or phansen@sjc.org.

I, Patrick Hansen, certify under penalty of law that this document and all attachments were prepared by me, or under my direction or supervision, and the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information.

Sincerely,

Patrick Hansen
Environmental Services Program Manager
Planning and Development Division, Mineta San Jose International Airport

Enclosure: PFAS Preliminary Investigation Sampling & Analysis Completion Report

Cc: Alec Naugle, San Francisco Bay Regional Water Quality Control Board
Erica Kalve, San Francisco Bay Regional Water Quality Control Board
John Aitken, A.A.E., Director of Aviation, Mineta San Jose International Airport
Judy Ross, A.A.E., Assistant Director of Aviation, Mineta San Jose International Airport
Drew Niemeyer, Deputy Director of Planning & Development, Mineta San Jose International Airport

1701 Airport Boulevard, Suite B-1130 • San José, CA 95110-1206 • Tel: 408.392.3600 • Fax: 408.441.4591 • www.flysanjose.com
CITY OF SAN JOSE
CAPITAL OF SILICON VALLEY

WOODARD
&CURRAN

PFAS PRELIMINARY INVESTIGATION SAMPLING & ANALYSIS COMPLETION REPORT

Norman Y. Mineta
San José
International Airport
1701 Airport Blvd.
San Jose, California

2175 N California Blvd | Suite 315
Walnut Creek, California 94596
925.627.4100

woodardcurran.com
COMMITMENT & INTEGRITY DRIVE RESULTS

0232401.01
Kimley-Horn and Associates
January 30, 2020

Completion Report | January 2020

PFAS Preliminary Investigation Sampling & Analysis Completion Report
Norman Y. Mineta San José International Airport
1701 Airport Blvd, San José, California

Prepared for

Kimley-Horn and Associates

Project No. 0232401.01

Kevin Almestad, GIT
Scientist 2

1/30/2020
Date

Samantha Olney

Samantha Olney, PG
Project Geologist

1/30/2020
Date

James F. Strandberg
No. 800
Exp. 06-30-~~19~~ 21

James F. Strandberg, PG, CHG
Senior Project Manager

1/30/2020
Date

woodardcurran.com
COMMITMENT & INTEGRITY DRIVE RESULTS

WOODARD & CURRAN

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TABLES

FIGURES

APPENDICES

LIST OF ACRONYMS

4:2 FTS	4:2 Fluorotelomer Sulfonic Acid
6:2 FTS	6:2 Fluorotelomer Sulfonic Acid
8:2 FTS	8:2 Fluorotelomer Sulfonic Acid
AFFF	Aqueous Film-Forming Foam
ARFF	Aircraft Rescue and Firefighting
bgs	Below Ground Surface
C	Degrees Celsius
EDD	Electronic Data Deliverable
FAA	Federal Aviation Administration
HDPE	High-Density Polyethylene
IDW	Investigation-derived Waste
LCS/LCSD	Laboratory Control Spike/Laboratory Control Spike Duplicate
LHA	Lifetime Health Advisory
µS/cm	Microsiemens per Centimeter
mg/L	Milligrams per Liter
mL	Milliliters
mL/min	Milliliter per Minute
MS/MSD	Matrix Spike/Matrix Spike Duplicate
mV	Millivolts
NELAP	National Environmental Laboratory Accreditation Program
NEtFOSAA	N-Ethyl Perfluorooctanesulfonamidoacetic Acid
ng/L	Nanograms per Liter
NMeFOSAA	N-Methyl Perfluorooctanesulfonamidoacetic Acid
NL	Notification Level
NTU	Nephelometric Turbidity Units
OEHHA	Office of Environmental Health Hazard Assessment
PDF	Portable Document Format
PFAS	Per- And Polyfluorinated Alkyl Substances
PFBA	Perfluorobutanoic Acid
PFBS	Perfluorobutanesulfonic Acid
PFCAs	Perfluoroalkylcarboxylic Acids
PFDA	Perfluorodecanoic Acid
PFDS	Perfluorodecanesulfonic Acid

PFHpA	Perfluoroheptanoic Acid
PFHpS	Perfluoroheptanesulfonic Acid
PFHxA	Perfluorohexanoic Acid
PFHxS	Perfluorohexanesulfonic Acid
PFNA	Perfluorononanoic Acid
PFOA	Perfluorooctanoic Acid
PFOS	Perfluorooctane Sulfonate
PFOSAm	Perfluorooctansulfonamide
PFPeA	Perfluoropentanoic Acid
PFPeS	Perfluoropentanesulfonic Acid
PFSAs	Perfluoroalkyl Sulfonic Acids
PFUnDA	Perfluoroundecanoic Acid
PFDoDA	Perfluorododecanoic Acid
PFTrDA	Perfluorotridecanoic Acid
PFTeDA	Perfluorotetradecanoic Acid
PPE	Personal Protective Equipment
PVC	Polyvinyl Chloride
QA/QC	Quality Assurance/Quality Control
SCVWD	Santa Clara Valley Water District
SWRCB	State Water Resources Control Board
TDS	Total Dissolved Solids
USDA	US Department of Agriculture
USEPA	United States Environmental Protection Agency

EXECUTIVE SUMMARY

This Per- and Polyfluoroalkyl Substances (PFAS) Preliminary Investigation Sampling and Analysis Report (Completion Report) presents the results of preliminary investigation activities conducted for the Norman Y. Mineta San José International Airport (Airport or SJC) in response to requirements from the State Water Resources Control Board (SWRCB) in the March 25, 2019 Water Code Section 13267 *Order WQ-2019-0005-DWQ Determination of the Presence of Per- and Polyfluoroalkyl Substances* (Order) to certain airports in California (SWRCB, 2019a). The Order required the City of San José (City) to submit a work plan for a one-time preliminary investigation of potential PFAS impacts at SJC. On June 14, 2019, the Airport submitted the *PFAS Preliminary Investigation Work Plan* (Work Plan), prepared on its behalf by Woodard & Curran, to the San Francisco Bay Regional Water Quality Control Board (Regional Water Board) (Woodard & Curran, 2019). On July 18, 2019, the Regional Water Board provided a conditional approval of the Work Plan to the Airport (2019a). This Completion Report also provides responses to comments in the conditional approval letter.

The Airport is located on an approximately 1,050-acre site in Santa Clara County, California, bounded to the north by Highway 101, to the south by Highway 880, to the northeast by the Guadalupe River, and to the west by Coleman Avenue. The public Airport is owned and operated as a Department of the City. The Airport operates two runways, 12L/30R and 12R/30L, with dimensions of 11,000 feet by 150 feet. The east side of the Airport supports commercial flights that depart from Terminals A and B, while the west side of the Airport is dedicated to fixed based operators. Cargo aircraft also utilize areas in the northeast and southeast of the Airport.

As part of Work Plan development, the Airport identified 15 locations where Aqueous Film-Forming Foam (AFFF) was stored, used, or released by the Airport and tenants. Approximately one-half of the locations were used for AFFF storage with no record of use or release. The remaining eight locations were used by the Airport for aircraft rescue and firefighting (ARFF) equipment testing, locations of incidents where AFFF was deployed in response to emergencies, and locations of accidental spills and discharges by the Airport and tenants.

As required by the Order, the Work Plan provided the identification of sensitive receptors such as municipal supply wells, domestic wells, and surface water bodies within a one-mile radius of the 15 locations where AFFF has been stored, used, or released at the Airport. Woodard & Curran identified 18 public and domestic water supply wells and one surface water body within the one-mile radius.

Soil and groundwater samples were collected from October 16 to October 24, 2019 in areas where AFFF was used or released to the land surface to evaluate the potential presence and preliminary characterization of PFAS compounds at the Airport. Consistent with the approved Work Plan, soil and groundwater samples were collected in the following eight locations:

Locations 3 and 4: Former Fire Training Areas 1 and 2.

Locations 8 and 9: Ground Support Equipment Wash Rack with Oil-Water Separator used for ARFF testing (Location 8) and a release at the wash rack during testing on 12/19/18 (Location 9).

Location 10: Dilute discharges of AFFF from rinsing ARFF equipment.

Locations 11 and 12: Incidents requiring the use of AFFF on 6/24/12 and 3/24/16, respectively.

Location 14: Accidental release on 11/18/16.

Twenty-eight soil borings were advanced by PeneCore Drilling of Woodland, California using the direct push drilling method for the collection of 84 discrete soil samples in these eight locations. Three to six soil borings were advanced in each location depending on size. Three discrete soil samples were collected from each boring at depths of approximately 1 foot, 5 feet and 10 feet below ground surface (bgs) to characterize the vertical extent of PFAS compounds and, specifically, to assess vertical attenuation above the water table. Grab groundwater samples were collected from 10 temporary monitoring wells installed in one or more soil borings in the hydraulically downgradient portion of each location (i.e., north-northwest).

The subsurface lithology at these locations consists of fine-grained silts and clays with varying amounts of fine-grained sands. At Location 14, however, the fine-grained soils abruptly transition to poorly sorted gravelly sands and sandy gravels at about 10 feet bgs, indicating buried stream channel deposits within the predominantly fine-grained soils. Depth to groundwater at the eight locations typically rose above the depth of saturated soils observed during advancement of the borings (10.5 to 14 feet bgs), indicating semi-confined to confined groundwater conditions beneath the Airport.

Soil and groundwater samples were submitted to Vista Analytical Laboratory of El Dorado Hills, California for analysis of the required 23 PFAS compounds by modified USEPA Method 537 Isotope Dilution Method. Groundwater samples were also analyzed for the required general chemistry parameters: chloride, nitrate, sulfate, total dissolved solids, calcium, magnesium, potassium, sodium, and alkalinity.

PFAS compounds were detected in soil and groundwater in each of the investigation locations except for soil samples collected at Location 11 and groundwater samples collected at Location 14. PFAS concentrations were elevated in soil samples collected at Location 4, Locations 8 and 9, and Location 10 compared to concentrations in other investigation locations. Groundwater analytical results indicated a higher number of PFAS compounds detected above laboratory reporting limits than soil analytical results at the same location. Correspondingly, PFAS compounds detected in soil were generally also detected in groundwater at each location. The PFAS compounds detected in soil and groundwater are consistent with the composition of AFFF.

In the absence of regulatory standards applicable to groundwater, PFAS detections are compared to federal and state standards established for two PFAS compounds in drinking water. The USEPA has adopted an LHA of 70 ng/L for PFOA and PFOS individually and combined (i.e., summation of the two compounds). California has established NLs of 5.1 ng/L for PFOA and 6.5 ng/L for PFOS. Groundwater analytical results for PFOA and PFOS individually or combined exceeded the LHA in Location 4 and Location 10. Concentrations of PFOA exceeded the NL in Location 4 and Location 10. Concentrations of PFOS exceeded the NL in Locations 3, 4, 10, and 12.

As required by the Order, the Work Plan identified sensitive receptors such as municipal supply wells, domestic wells, and surface water bodies within a one-mile radius of the 15 locations where AFFF has been stored, used, or released at the Airport. Woodard & Curran identified 18 public and domestic water supply wells and one surface water body. The closest sensitive receptor is the Guadalupe River on the northeastern boundary of the Airport. The public and domestic water supply wells are located further from the Airport within the one-mile radius. Based on the current understanding of northerly groundwater flow in the vicinity of the Airport, the Guadalupe River is the closest sensitive receptor to impacted groundwater at the eight locations investigated.

1. INTRODUCTION

Woodard & Curran has prepared this Per- and Polyfluoroalkyl Substances (PFAS) Preliminary Investigation Sampling and Analysis Report (Completion Report) for the Norman Y. Mineta San José International Airport (Airport or SJC) in response to requirements from the State Water Resources Control Board (SWRCB) and the San Francisco Bay Regional Water Quality Control Board (Regional Water Board).

On March 20, 2019, the SWRCB issued Water Code Section 13267 *Order WQ-2019-0005-DWQ Determination of the Presence of Per- and Polyfluoroalkyl Substances* (Order) (SWRCB, 2019a) to certain airports in California. SJC received the Order on March 25, 2019. The Order applies to Title 14, Code of Federal Regulations, Part 139 certified airports that are required to provide aircraft rescue and firefighting services and that are certified by the Federal Aviation Administration (FAA) to use Aqueous Film-Forming Foam (AFFF). The Order required the City of San José (City) to submit a work plan for a one-time preliminary investigation of potential PFAS impacts at SJC to the Regional Water Board no later than 60 days following the date of the Order (i.e., by May 19, 2019) and a final sampling and analysis report no later than 90 days following acceptance of the work plan. In response to requests by the California Airports Council, the SWRCB approved time extensions for the work plan and report on May 9, 2019 (SWRCB, 2019d). On June 14, 2019, the Airport submitted the *PFAS Preliminary Investigation Work Plan* (Work Plan), prepared on its behalf by Woodard & Curran, to the Regional Water Board (Woodard & Curran, 2019).

On July 18, 2019, the Regional Water Board provided a conditional approval of the Work Plan to the Airport (Regional Water Board, 2019a). The Regional Water Board also required the Airport to address specific comments provided with the conditional approval letter in a final report which was required to be submitted by October 18, 2019. On September 16, 2019, the Regional Water Board approved the submittal of a final report by November 15, 2019, as originally proposed in the Work Plan (Regional Water Board, 2019b). On December 9, 2019, the Regional Water Board approved the Airport's extension request dated November 12, 2019 (SJC, 2019) for submittal of a final report by January 31, 2020 (Regional Water Board, 2019c). Correspondence referenced above is provided in Appendix A.

The Order identifies the minimum information to be included in a final report (i.e., Completion Report). These requirements and the corresponding location of the information in this Completion Report are listed below:

- Description of sampling activities (Section 3);
- Summary tables of analytical results (Tables 4 to 7);
- Copies of Chain-of-Custody forms (Appendix B);
- Field sampling logs (Table 3);
- Soil boring logs and temporary well construction details (Appendix C and Section 3);
- Site maps showing the sampling/monitoring locations (Figures 4a to 4g); and
- Laboratory analytical reports (Appendix D).

In accordance with the Order, this Completion Report has been submitted to the Regional Water Board in a searchable electronic format, with transmittal letter from the Airport, text, tables, figures, laboratory analytical data, and appendices in Portable Document Format (PDF) format (one PDF for the entire report) as well as in electronic data deliverable (EDD) format. The Work Plan, Completion Report, analytical laboratory reports, and EDD has been uploaded to GeoTracker via the Electronic Submittal of Information Portals, as stipulated by California State law.

2. SITE BACKGROUND & RELEASE HISTORY

2.1 Location and General Characteristics

The Airport is located on an approximately 1,050-acre site in Santa Clara County, California, bounded to the north by Highway 101, to the south by Highway 880, to the northeast by the Guadalupe River, and to the west by Coleman Avenue (Figure 1). The public Airport is owned and operated as a Department of the City. The Airport operates two runways, 12L/30R and 12R/30L, with dimensions of 11,000 feet by 150 feet. The east side of the Airport supports commercial flights that depart from Terminals A and B, while the west side of the Airport is dedicated to fixed based operators. Cargo aircraft also utilize areas in the northeast and southeast of the Airport.

The topography of the Airport is essentially flat with surface water flow generally to the north and east. The Guadalupe River is the receiving water for stormwater discharges. Safe drains, which are closed during dry periods, have been installed in most storm drain inlets.

2.2 AFFF Storage, Use, and Release History

As part of Work Plan development, the Airport identified 15 locations where AFFF was stored, used, or released by the Airport and tenants. Approximate locations were used by the Airport for aircraft rescue and firefighting (ARFF) equipment testing, locations of incidents where AFFF was deployed in response to emergencies, and locations of accidental spills and discharges by the Airport and tenants. These 15 locations are identified below and shown on Figure 2.

Location 1: Fire Station #20, located at 1433 Airport Boulevard in the southeastern area of SJC.

Location 2: Building 1000, located immediately southeast of Fire Station #20.

Location 3: Former Fire Training Area 1, located in the northeastern area of SJC.

Location 4: Former Fire Training Area 2, located immediately south of the Air Traffic Control Tower on the west side of SJC.

Location 5: Signature Flight Support Hangars 1 to 7, located at 323 Martin Avenue in the northwest area of SJC.

Location 6: Atlantic Aviation Hangars A to D, located at 1250 Aviation Avenue on the west side of SJC.

Location 7a: Swissport Fueling airside fuel rack, located in the northeastern area of SJC.

Location 7b: Swissport Fueling offsite tank farm, located at 2500 Seaboard Avenue northeast of SJC across Highway 101.

Location 8: Ground Support Equipment Wash Rack with Oil-water Separator, located at 1207 Airport Boulevard in the southeast area of SJC.

Location 9: A release of AFFF during fire apparatus testing on December 19, 2018 at Location 8.

Location 10: AFFF discharges northwest of the Ground Support Equipment Wash Rack in the southeast area of SJC, near the intersection of Taxiways B and Z.

Location 11: Incident on 6/24/12 in the southeast area of SJC.

Location 12: Incident on 3/24/16 in the central area of SJC.

Location 13: Gate 18 tug fire on 10/19/18 on the east side of SJC.

Location 14: Accidental releases on 11/18/16 and 2/6/18 in the northwestern area of SJC.

Location 15: Hewlett Packard Enterprise Hangar, located near Aviation Avenue in the south-western area of SJC.

Descriptions of these locations are provided in Section 3. The Airport currently uses ChemGuard 3% AFFF Airport ARFF emergency response.

According to the Airport, two additional discharges of AFFF occurred after the Work Plan was submitted on June 14, 2019. On October 8, 2019 an emergency discharge of AFFF occurred in response to a fuel truck fire at Gate 31. Facilities staff immediately conducted cleanup via sweeper truck of all residual AFFF and disposed of it in the oil-water separator (Location 8). The Airport's hazardous materials/waste contractor was immediately contacted and the contents of the oil-water separator was pumped out and disposed of offsite as hazardous waste on the same day. On October 9th, directly related to the emergency incident on October 8th, a minimal amount of dilute residual AFFF was discharged onto the pavement in front of Fire Station #20 on the Airside as part of routine water apparatus testing. Based on the minimal amount of dilute discharge, confirmation that the discharge remained on the pavement and a de minimus amount of foam observed, the Airport's hazardous materials/waste contractor was not dispatched to conduct a cleanup.

On December 12, 2019 the required annual testing of ARFF trucks was conducted at the oil-water separator (Location 8). Testing was coordinated with the Airport's hazardous materials/waste contractor to ensure proper containment, cleanup, and offsite disposal of all discharged AFFF.

2.3 Sensitive Receptors

As required by the Order, the Work Plan provided the identification of sensitive receptors such as municipal supply wells, domestic wells, and surface water bodies within a one-mile radius of the locations where AFFF has been stored, used, or released by the Airport and tenants (Figure 3). Woodard & Curran identified 18 public or domestic water supply wells and one surface water body within the one-mile radius. The closest sensitive receptor is the Guadalupe River. The water supply wells are located further from the Airport. The well locations shown on Figure 3 should be considered approximate because many of the federal- and state-identified well locations were mapped based on California Department of Water Resources Well Completion Reports, which may be incomplete or inaccurate. Additional information regarding the use and construction of each well is provided in the Work Plan.

3. SUMMARY OF PRELIMINARY INVESTIGATION ACTIVITIES

3.1 Investigation Approach

Consistent with the approved Work Plan, soil and groundwater samples were collected in eight locations where AFFF was used or released to the land surface to evaluate the presence and preliminary characterization of PFAS compounds at the Airport.

Three discrete soil samples from each soil boring were collected at approximate depths of 1, 5, and 10 feet below ground surface (bgs) to characterize the lateral and vertical extent of PFAS compounds and, specifically, to assess vertical attenuation in soil above the water table. Grab groundwater samples were collected from 10 temporary monitoring wells installed in one or more soil borings in the hydraulically downgradient portion of each location (i.e., north-northwest). The rationale for sampling the eight locations is summarized below. Soil and groundwater samples were collected during the day or night on October 16 to October 18, 2019 at Locations 10, 11 and 12 and October 22 to October 24, 2019 at Locations 3, 4, 8, 9 and 14.

> **Locations 3 and 4**: Selected for sampling because of the history of fire training with AFFF at these approximate locations. Fire training was reportedly conducted in a concrete-lined pit in both locations. Fire training at Location 3, located in the northeastern area of SJC, was reportedly discontinued prior to 1983 after which it was covered with an 18inch-thick concrete apron. Location 4, located immediately south of the Air Traffic Control Tower on the west side of SJC, was reportedly discontinued prior to 1996 after which the area was paved for aircraft parking.
>
> **Locations 8 and 9**: Selected for sampling because of the history of ARFF testing with AFFF and discharge of water from cleanup activities at locations where AFFF was used and released. Location 8 consists of a concrete-lined wash rack for the Airport's ground support equipment. The wash pad drains to a below ground oil-water separator which drains to the City's sanitary sewer system. Historically, the wash rack drain inlet for the oil-water separator was used as a disposal location for excess AFFF and rinsate from the ARFF. Location 9 consists of an area around Location 8 where a release of AFFF occurred during ARFF testing in 2018. Foam directed towards the wash rack drain inlet overshot the wash rack and spread to the adjacent vehicle access road and maintenance yard.
>
> **Location 10:** Selected for sampling because of the history of discharging rinse water from ARFF equipment testing in this unpaved area near the intersection of Taxiways B and Z. Fire trucks containing AFFF reportedly sprayed rinse water from tanks and fire hoses in this area.
>
> **Locations 11 and 12:** Selected for sampling because of AFFF use in these areas. The use of AFFF at Location 11, located in the southeast area of SJC, was the result of an incident at the intersection of Runway 30L and Taxiway B where the landing gear tires of an aircraft caught on fire. The use of AFFF at Location 12, located in the central area of SJC, was the result of an incident on Runway 30L where the landing gear tires of a small aircraft caught on fire. At both locations, AFFF was deployed to distinguish the fires and was subsequently sprayed with water to remove it from the runway resulting in the discharge of AFFF to adjacent unpaved areas.
>
> **Location 14:** Selected for sampling because of an accidental release of AFFF outside Hangar 7. The release was due to an accidental activation of the AFFF sprinkler system inside the hangar. The accidental release resulted in AFFF spreading outside the hangar to paved areas, including Martin Avenue, and landscaped areas adjacent to Martin Avenue.

Details of soil and groundwater sampling conducted at each location are provided below.

3.2 Field Quality Control

Field quality control measures were implemented to minimize the potential for cross-contamination during sampling. These measures were also implemented to verify whether any cross-contamination occurred during the mobilization of drilling and sampling equipment to the Airport and during the transportation of samples from the Airport to the analytical laboratory. Those measures are summarized in this section.

3.2.1 Designated Work Areas

At each location, three areas were designated prior to the commencement of work, including:

- Sample area within the immediate vicinity of soil borings, an approximately 20-foot by 20-foot footprint around each soil boring;
- Staging area immediately beyond the sampling area; and
- Support area immediately beyond the staging area.

Only PFAS-free materials and decontaminated equipment was allowed in the sampling area to the maximum extent practical taking into consideration health and safety requirements. The staging area was used for donning and removing personal protective equipment (PPE), applying sunscreen, and decontamination of drill rods and all non-dedicated downhole equipment. Vehicles and all PFAS-containing materials, including food and beverage packaging, remained in support areas during sampling activities.

3.2.2 Personal Protective Equipment and Field Supplies

PPE and field supplies allowed in the sampling area were consistent with the recommended materials listed in the *Per- and Polyfluoroalkyl (PFAS) Substances Sampling Guidelines* (SWRCB, 2019b). PPE included:

- Well-laundered synthetic or 100% cotton clothing (with most recent launderings not using fabric softeners);
- PFAS-free sunscreen (Banana Boat© Sport Performance© Lotion SPF 30);
- Powderless nitrile gloves;
- Head lamp;
- Hard hat;
- Safety glasses;
- Reflective safety vest;
- Steel-toed boots; and
- Ear plugs.

PFAS-free Field supplies included:

- Polypropylene resealable bags;
- Aluminum clipboards;
- Non-waterproofed paper;
- Laboratory-provided sample coolers and regular (wet) ice;

- Untreated paper towels;
- Ball point pens, pencils and Ultra-Fine Point Sharpie® markers; and
- Stainless steel tools.

3.2.3 Decontamination

Soil and groundwater sampling equipment was thoroughly decontaminated between the collection of each sample. Each piece of sampling equipment was washed with Liquinox® and triple rinsed with laboratory-supplied, PFAS-free water. Larger equipment (e.g., drill rig and rods) was scrubbed with a PVC brush to remove particulates, triple washed with Liquinox® detergent in three separate stainless-steel buckets, and triple rinsed with laboratory-supplied, PFAS-free water.

3.2.4 Quality Assurance and Quality Control Samples

Consistent with the approved Work Plan, quality assurance and quality control (QA/QC) samples were collected to evaluate data reliability pertaining to sample representativeness. The following QC samples were collected:

- **Field Duplicates** – One field duplicate for groundwater was collected each day of sampling for analysis of PFAS compounds.
- **Field Blanks** – One field blank for groundwater was collected each day of sampling for analysis of PFAS compounds. These samples were collected by pouring laboratory-supplied PFAS-free deionized water into an empty sample container with the intention of exposing the sample to the same field environment as the actual samples.
- **Equipment Blanks** – Equipment blanks were collected from the sampling equipment prior to the start of drilling activities for the analysis of PFAS compounds. Two additional equipment blanks were collected, one after approximately one-half of the groundwater samples were collected and the other at the end of the field program.
- **Trip Blanks** – Three trip blanks included in the sample coolers for analysis of PFAS compounds. The trip blanks were prepared in the laboratory using PFAS-free deionized water.

3.3 Soil Sampling

Woodard & Curran retained PeneCore Drilling Inc. of Woodland, California, a State of California-licensed water well driller (California C-57 License), for drilling and sampling services. A Woodard & Curran State of California-licensed Professional Geologist provided supervision of drilling and sampling activities.

In accordance with the approved Work Plan, soil samples were collected at eight locations where AFFF was used or released. As summarized in Table 1, a total of 28 soil borings were advanced for the collection of 84 discrete soil samples in these eight locations for the characterization of the presence and extent of PFAS compounds. The number of soil borings ranged from three borings in small locations (e.g., Location 10) to six borings in the largest location (i.e., Location 14). Three discrete soil samples were collected from each boring at depths of approximately 1 foot, 5 feet and 10 feet bgs. At Location 3 where the concrete and gravel fill are approximately 28 inches thick, soil samples were collected at 2.5 feet, 6.5 feet and 11.5 feet bgs.

Soil borings were advanced with a GeoProbe® direct push rig to total boring depth. The 2 ½-inch outer diameter core barrel was equipped with approximately 1 3/8-inch-diameter clear DT 22 acetate liners for the collection of continuous cores to total boring depth. Soil borings at Location 4 and one or more at Locations 8/9 and 14, required the removal of 4-inch-diameter concrete cores prior to advancement of the soil borings with the GeoProbe rig.

Soil samples were removed from the acetate liners with a clean stainless spoon and placed directly in 8-ounce High Density Polyethylene (HDPE) jars with an unlined HDPE cap provided by Vista Analytical Laboratory (Vista Laboratory) of El Dorado Hills, California. Vista Laboratory is certified through the National Environmental Laboratory Accreditation Program (NELAP). Each soil sample was assigned a unique sample identification number in the format "Location Number – Soil Boring Number – Sample Depth." For example, sample identification number L4-2-1 was used for the soil sample collected at Location 4, soil boring 2, at a depth of one-foot bgs. Soil sample containers were labelled using an Ultra-Fine Point Sharpie® with the sample identification number, date and time of sample collection, initials of the sampler(s), and requested analyses. Samples were stored with regular (wet) ice in an ice chest and shipped overnight to Vista Laboratory under chain-of-custody procedures at the end of each day or night of sampling.

Soil borings advanced at each Location are summarized below.

Location 3: Former Fire Training Area 1 (Figure 4a). Three soil borings were advanced in the estimated footprint of the former AFFF fire training area.

Location 4: Former Fire Training Area 2 (Figure 4b). Three soil borings were advanced in the estimated footprint of the former AFFF fire training area.

Location 8: Ground Support Equipment Wash Rack with Oil-Water Separator (Figure 4c). Two soil borings were advanced adjacent to and downgradient of the equipment wash rack used for ARFF testing (L8/9-3 and L8/9-4, respectively).

Location 9: AFFF Testing Release on 12/19/18 (Figure 4c). Three soil borings were advanced throughout the estimated footprint of the AFFF release.

Location 10: Dilute AFFF Discharges (Figure 4d). Three soil borings were advanced in the estimated unpaved area used for discharge of AFFF after ARFF testing at Location 8. One soil boring (L10-3) was advanced adjacent to a storm drain.

Location 11: Incident on 6/24/12 (Figure 4e). Four soil borings were advanced in two unpaved areas adjacent to Runway 30L where AFFF was washed off the runway.

Location 12: Incident on 3/24/16 (Figure 4f). Same as Location 11.

Location 14: Accidental Release on 11/18/16 (Figure 4g). Six soil borings were advanced in the estimated footprint of the AFFF release. Three soil borings were advanced in a paved parking area (L14-1, L14-2, and L14-4). The other three soil borings were advanced in the landscaping planter adjacent to Martin Avenue.

Two of the six soil borings at Location 14 were originally located adjacent to Martin Avenue. Due to delays in permitting by the subcontractor for a lane closure in Martin Avenue, the Regional Water Board verbally approved the Airport's request to move these two borings to the current locations of L14-2 and L14-5 (Personal Communication, 2019).

All soil borings were backfilled with a neat cement slurry from total depth to ground surface in unpaved areas. In paved areas, borings were backfilled with a neat cement slurry from total depth to the bottom of the aggregate base beneath the pavement. The borings were backfilled to ground surface with high-strength, rapid-set concrete colored to match the existing surface pavement.

3.4 Temporary Well Installation and Groundwater Sampling

A total of 10 temporary monitoring wells were installed in the eight locations for the collection of grab groundwater samples to characterize the potential presence of PFAS compounds. Nine of the soil borings were advanced to a depth of 20 feet bgs. One soil boring (L8/9-4) was advanced to 25 feet bgs to ensure an adequate volume of groundwater for sampling.

3.4.1 Temporary Well Installation

As summarized in Table 1 and shown on Figures 4a to 4g, one to three soil borings in the hydraulically downgradient portion of the eight locations (i.e., north-northwest) were completed with a temporary groundwater monitoring well. The temporary monitoring wells were constructed with a 3/4-inch-diameter Schedule 40 PVC blank casing and 10 feet of 0.010-inch factory slotted well screen at 10 to 20 feet bgs with two exceptions. The well screens for temporary monitoring wells L3-3 and L8/9-4 were set at 11.5 to 21.5 feet bgs and 15 to 25 feet bgs, respectively.

The PVC well casing and screen were removed from the temporary well locations following sample collection. Soil borings with temporary groundwater monitoring wells were backfilled with a neat cement slurry consistent with the soil borings described above.

3.4.2 Groundwater Sampling

The temporary groundwater monitoring wells were purged and sampled using low-flow techniques generally consistent with the *Low Stress (low flow) Purging and Sampling Procedure for the Collection of Groundwater Samples from Monitoring Wells* (United States Environmental Protection Agency [USEPA], 2017c). A peristaltic pump was connected with HDPE tubing to an in-line flow cell which contains a multi-parameter instrument (YSI® ProDSS) that continuously measured field water quality parameters during purging. Field parameters recorded using the multi-parameter instrument at approximately five-minute intervals included temperature, specific conductivity, pH, turbidity, oxidation-reduction potential, and dissolved oxygen. Initial and final depth to groundwater measurements using an electronic water-level interface probe (Solinst® Model 101) were recorded for total drawdown during purging.

Temporary groundwater monitoring wells were purged for a minimum of 20 minutes to reduce turbidity prior to sampling. Upon completion of purging, final field water quality parameter readings were recorded. The HDPE tubing was disconnected from the flow cell and discarded. New HDPE tubing was connected to the pump head tubing. Samples were collected from the new HDPE tubing directly into two 250-milliliter HPDE sample containers with unlined HDPE caps provided by Vista Laboratory. One 500-milliliter HDPE sample container for analysis of general chemistry was also collected. Groundwater samples were assigned a unique identification number in the format “Location Number – Soil Boring Number – GW.” For example, sample identification number L4-2-GW was used for a groundwater sample collected from Location 4 at soil boring 2. Groundwater sample containers were labelled with an Ultra-Fine Point Sharpie® including the sample identification number, date and time of sample collection, initials of the sampler(s), and requested analyses. Samples were packed on regular (wet) ice in an ice chest and shipped overnight to Vista Laboratory for analysis of PFAS compounds consistent with the SWRCB’s *Revised Table 1. PFAS Analytes Subject to* Analysis issued on April 5, 2019 (SWRCB, 2019c). The 500-milliliter HDPE sample containers were shipped overnight to NELAP-certified California Laboratory Services of Rancho Cordova, California for analysis of general chemistry constituents. Samples were shipped under chain-of-custody procedures at the end of each day or night of sampling.

3.5 Investigation-derived Waste

Investigation-derived waste (IDW) generated during the work included soil cuttings, purge water and decontamination water. The solid and liquid IDWs were contained separately in US Department of Transportation-certified 55-gallon drums labeled with the date of generation, contents, and soil boring and/or temporary monitoring well identification number. The drums were placed in a secure hazardous waste storage cage designated by SJC. Other IDW generated during the work, including PVC pipe and screen, tubing, disposable PPE, and trash was disposed of with regular Airport solid waste.

4. GEOLOGY AND HYDROGEOLOGY

4.1 Regional Geology

The Airport is located in the Santa Clara Valley physiographic province, a structural trough filled in by continental and marine sediments associated with the south end of the San Francisco Bay, which is characterized by northwesterly trending valleys and mountains.

Based on review of the California Department of Conservation, Division of Mines and Geology, *Geologic Map of the San Francisco - San José Quadrangle* (1991), the Santa Clara Valley is bounded by three of the larger fault zones in the region; the San Andreas (approximately 13 miles west) and the Hayward and Calaveras (approximately 5 miles east).

According to the Santa Clara Valley Water District (SCVWD) document *Standards for the Construction and Destruction of Wells and Other Deep Excavations in Santa Clara County* (SCVWD, 1989), Santa Clara Valley is a down-dropped structural block, filled in by continental and marine sediments. Due to tectonic uplift to the south and west, and subsidence in the older valley sediments, deposits are frequently down warped, reworked, and subsequently covered with more recent deposits. The depositional environments and resulting sediments occurring at different times in the geologic record vary depending on the height of sea level relative to the valley block and the erosion rate of the surrounding mountain ranges.

The California Geological Survey, *Geologic Map of California*, dated 2010 (California Geological Survey, 2010), indicates the Airport is underlain with Quaternary-age alluvium, lake, playa, and terrace deposits; unconsolidated and semi-consolidated sediments; and mostly non-marine sediments.

According to the US Department of Agriculture, Natural Resources Conservation Service, Web Soil Survey (USDA, 2019) soils beneath the Airport are classified as Hagerone Complex soils in the central and northeastern portions of the Airport and Campbell Complex soils in the southwestern area of the Airport. Hagerone Complex soils consist primarily of poorly drained clay with moderate infiltration rates. Campbell Complex soils consist primarily of moderately well-drained silt loam and silty clay with moderate infiltration rates.

4.2 Observations from Preliminary Investigation Activities

Woodard & Curran described the soil lithology using the Unified Soil Classification System (ASTM D2488) and a Munsell Soil Color Book (Munsell, 2015).

The native lithology encountered at the sampling locations was primarily fine-grained soils (silts and clays) with varying amounts of fine-grained sands. At Location 14, however, fine-grained soils abruptly transition to poorly sorted gravelly sands and sandy gravels at about 10 feet bgs, indicating buried stream channel deposits within the predominately fine-grained soils. Depth to groundwater at the eight locations typically rose above the depth of saturated soils observed during advancement of the borings (10.5 to 14 feet bgs), indicating semi-confined to confined groundwater conditions beneath the Airport.

Location 3: The subsurface lithology encountered to depths of 21.5 feet bgs generally consists of native soils overlain by 16 inches of concrete and 12 inches of gravel fill. Native soils are primarily fine-grained including clay, silty clay, and clayey silt textures. The clay-rich soils ranged from medium stiff to stiff with low to medium plasticity; silt-rich soils had low to no plasticity. At this location, clay content tends to increase with depth. Fine-grained sand is present in clays from approximately 10 to 14 feet bgs. Colors range from black to grayish brown, with varying degrees of iron oxide staining below 15 feet bgs. Saturated soil was first encountered at approximately 11.5 feet bgs. The stabilized depth to groundwater was measured at 8.87 feet bgs.

Location 4: The subsurface lithology encountered to depths of 20 feet bgs generally consists of native soils overlain by 4 inches of asphalt and approximately 5 feet of non-native gravelly sand fill. Native soils consist of clay, silty clay, and clayey silts with some fine-grained sands encountered at approximately 15 feet bgs. The clay-rich soils were soft with moderate to high plasticity; silt-rich soils had low plasticity. Colors range from dark brown to dark gray. Saturated soil was first encountered at approximately 11 feet bgs. The stabilized depth to groundwater was measured at 10.41 feet bgs.

Location 8/9: The subsurface lithology encountered to depths of 25 feet bgs generally consists of native soils overlain by 4 inches of asphalt and 8 inches of gravel fill. One boring (L8/9-3) located adjacent to the Wash Rack encountered 12 inches of concrete over approximately 12 inches of gravel fill above native soils. Native soils primarily include clay, silty clay, fine-grained sandy clay and fine-grained sand textures. Clay-rich soils were soft with low to high plasticity increasing with depth. Fine-grained sandy clay is present from approximately 6 to 9 feet bgs and fine-grained sand lenses (approximately 6 inches thick) are present in clays from 16 to19 feet bgs. Colors range from dark brown to light olive brown. Saturated soil was encountered at approximately 13.5 to 14 feet bgs (L8/9-5 and L8/9-4). The stabilized depth to groundwater was measured from 15.2 feet bgs (L8/9-4) to 18.5 feet bgs (L8/9-5).

Location 10: The subsurface lithology encountered to depths of 20 feet bgs consists of native soils beneath topsoil and sparse vegetation. Native soils are generally fine-grained and include clay, silty clay and clayey silt, silt and sandy silt textures. The clay-rich soils tend to range from soft to medium stiff with medium to high plasticity; silt-rich soils were stiff with low to no plasticity. At this location, silt- and clay-rich layers tend to alternate with depth. Colors range from black to very dark grayish brown, with varying degrees of iron oxide staining below 10 feet bgs. Saturated soil was encountered at approximately 12.5 feet bgs. The stabilized depth to groundwater was measured at 11.9 feet bgs.

Location 11: The subsurface lithology encountered to depths of 20 feet bgs consists of native soil beneath topsoil and sparse vegetation. Native soils are generally fine-grained and include clay, silty clay, clayey silt, silt and silty fine-grained sand textures. The clay-rich soils range from soft with medium to low plasticity; silt-rich soils were stiff with low to no plasticity. Similar to Location 10, silt- and clay-rich layers tend to alternate with depth. Clayey fine-grained sand was encountered at depths of approximately 7 to 12 feet bgs. Colors range from black to light olive/yellow brown. Saturated soil was encountered at approximately 10.5 feet bgs. The stabilized depth to groundwater was measured at 6.6 feet bgs.

Location 12: The subsurface lithology encountered to depths of 20 feet bgs consists of native soils beneath topsoil and sparse vegetation. Native soils are generally fine-grained and include clay, silty clay and clayey silt and silt textures. The clayey soils were soft with high plasticity. Silty soils were medium stiff to stiff with little to no plasticity. Silty soils were encountered to depths of approximately 10 feet bgs, grading to clayey soils with further depth. Colors range from dark brown to light gray. Saturated soil was encountered at approximately 12 feet bgs. The stabilized depth to groundwater was measured at 11.5 feet bgs.

Location 14: The subsurface lithology encountered to depths to 20 feet bgs generally consists of native soils beneath 4 inches of asphalt and 8 inches of gravel fill (L14-1, L14-2, and L14-4) or topsoil and sparse vegetation (L14-3, L14-5, and L14-6). Native soils are a mix of fine- and coarse-grained soils including clay, sandy clay, gravelly sand and sandy gravel textures. Fine-grained soils range from soft to medium stiff with low to high plasticity. Coarse-grained soils are loose, poorly sorted gravels and sands. At this location, clay is generally encountered to depths of 10 feet bgs where the lithology abruptly transitions to poorly sorted gravelly sands and sandy gravels, indicating buried stream channel deposits within the predominantly fine-grained soils. Root casts were observed in soils above 5 feet bgs. Colors range from black to light olive brown with varying degrees of iron oxide staining to total depth. Saturated soil was first encountered at approximately 11 feet bgs (L14-4) to 12 feet bgs (L14-1 and L14-2). The stabilized depth to groundwater was measured at 7.9 feet bgs (L14-1) to 7.56 feet bgs (L14-4).

5. SUMMARY OF FINDINGS

This section presents the analytical results from the investigation and an overview of the current understanding of the nature and extent of subsurface PFAS impacts. Soil and groundwater samples were analyzed for the 23 PFAS compounds listed in Table 2 as well as general chemistry parameters. Eight locations were targeted for sampling at the Airport based on current and former AFFF uses and/or releases. Figures 5a through 5g show the distribution of PFAS analytical results at each soil boring and temporary monitoring well. Soil and groundwater analytical results for each location are provided in Tables 5a through 5g. Groundwater analytical results are summarized in Table 4 (general chemistry) and Table 6 (all PFAS results). Laboratory analytical reports are provided in Appendix D.

No federal or State regulatory standards exist for PFAS compounds in soil and groundwater. Therefore, the analytical results provided in this Completion Report cannot be compared to any standards for an assessment of potential risks to human health and the environment.

Federal and State standards have been established for two PFAS compounds in drinking water. The USEPA has adopted a Lifetime Health Advisory (LHA) of 70 nanograms per liter (ng/L) for PFOA and PFOS individually and combined (i.e., summation of the two compounds) (USEPA 2016a and 2016b). The California Environmental Protection Agency, Office of Environmental Health Hazard Assessment (OEHHA) has established a Notification Level (NL) for PFOA of 5.1 ng/L and 6.5 ng/L for PFOS (California EPA, 2019). Federal and State standards have not been established other PFAS compounds. In the absence of regulatory standards applicable to groundwater, PFAS detections are compared to these drinking water standards.

5.1 Data Usability Assessment

5.1.1 Field and Laboratory Quality Control Samples

Field QC sampling was conducted as outlined in the Work Plan and described above in Section 3.2.4. Sampling included the collection of field duplicates, field blanks, equipment blanks, and trip blanks for analysis of PFAS. Field duplicates were collected from five of the eight sample locations as follows:

Primary Sample ID	Associated Field Duplicate
L4-2-GW	L4-20-GW
L8/9-4-GW	L8/9-40-GW
L10-1-GW	L10-10-GW
L12-3-GW	L12-30-GW
L14-2-GW	L14-20-GW

Vista Laboratory followed its internal QA/QC standards which included method blanks, surrogate recoveries, blank spike/blank spike duplicates, and matrix spike/matrix spike duplicates (MS/MSD). QC samples were used to verify the precision of the methods applied and confirm the validity of the data as described below.

5.1.2 Data Validation

Data validation evaluated the precision and accuracy of the PFAS analytical results. The data validation procedures were generally consistent with those referenced in the 2017 National Functional Guidelines for Inorganic Methods Data Review (USEPA, 2017a) and the 2017 National Functional Guidelines for Organic Methods Data Review (USEPA, 2017b). As outlined in the Work Plan, data were validated for the following:

- Trip blanks, field blanks, and equipment blanks were reviewed for detections above laboratory reporting limits;
- Methods blanks were reviewed for detections above the laboratory reporting limits and surrogate recoveries were compared to laboratory control limits;
- Blank spike/blank spike duplicates had percent recoveries and relative percent differences calculated and compared to laboratory control limits; and
- MS/MSDs had percent recoveries and relative percent differences calculated and compared to laboratory control limits and surrogate recoveries were compared to laboratory control limits.

Detailed data validation results for the individual laboratory reports are provided in Appendix E. The QA review did not identify any aspects of the analytical data that required qualification beyond the qualifications identified in the laboratory reports.

5.2 General Chemistry Results

Groundwater samples collected from the 10 temporary monitoring wells were analyzed for the following general chemistry parameters: TDS, sulfate, nitrate, chloride, calcium, magnesium, potassium, sodium, carbonate, and bicarbonate. The results are summarized as follows:

- TDS was detected above laboratory reporting limits in all groundwater samples at concentrations ranging from 680 to 1,800 milligrams per liter (mg/L). The lowest concentrations occurred in samples collected from Location 14; the highest concentrations occurred in the sample collected from Location 12.
- Sulfate was detected above laboratory reporting limits in all groundwater samples at concentrations ranging from 130 to 630 mg/L. The lowest concentration occurred in samples collected from Location 14; the highest concentration occurred in the sample collected from Location 12.
- Nitrate was detected above laboratory reporting limits in 7 of the 10 groundwater samples at concentrations ranging from 0.5 to 6.1 mg/L. The lowest concentrations occurred in the samples collected at Locations 8 and 9; the highest concentration occurred in the sample collected at Location 10.
- Chloride was detected above laboratory reporting limits in all groundwater samples at concentrations ranging from 8.5 to 95 mg/L. The lowest concentration occurred in the sample collected from Location 11; the highest concentration occurred in a sample collected from Locations 8 and 9.
- Calcium was detected above laboratory reporting limits in all groundwater samples at concentrations ranging from 24 to 410 mg/L. The lowest concentration occurred in the sample collected from Location 4; the highest concentration occurred in a sample collected from Locations 8 and 9.
- Magnesium was detected above laboratory reporting limits in all groundwater samples at concentrations ranging from 55 to 450 mg/L. The lowest concentration occurred in the samples collected from Location 14; the highest concentration occurred in a sample collected from Locations 8 and 9.

- Potassium was detected above laboratory reporting limits in 7 of the 10 groundwater samples at concentrations ranging from 2.6 to 66 mg/L. The lowest concentration occurred in the sample collected at Location 10; the highest concentration occurred in a sample collected at Locations 8 and 9.
- Sodium was detected above laboratory reporting limits in all groundwater samples at concentrations ranging from 16 to 100 mg/L. The lowest concentration occurred in the sample collected from Location 11; the highest concentration occurred in the sample collected from Location 10.
- Alkalinity was detected as bicarbonate above laboratory reporting limits in all groundwater samples at concentrations ranging from 390 to 1,100 mg/L. The lowest concentration occurred in the sample collected from Location 11; the highest concentrations occurred in the samples collected from Locations 8 and 9. Carbonate was not detected above laboratory reporting limits in any of the groundwater samples.

5.3 PFAS Analytical Results

The soil and groundwater results for PFHxS, PFOA, PFOS, NMeFOSAA, and NEtFOSAA include both linear and branched isomers. Results for all other PFAS compounds include the linear isomers only.

5.3.1 Locations 3 & 4

Locations 3 and 4 were selected for sampling because of the history of fire training at these approximate locations. Three soil borings were advanced in each location with one soil boring completed as a temporary monitoring well. Soil samples at each location were collected from three depth intervals in each boring, 1, 5, and 10 feet bgs. Figures 5a and 5b display the analytical results for Location 3 and Location 4, respectively. Tables 5a and 5b provide the complete soil and groundwater analytical results for Location 3 and Location 4, respectively.

5.3.1.1 Soil

At Location 3, soil samples were collected from borings L3-1, L3-2, and L3-3. Concentrations of PFAS compounds were not detected above laboratory reporting limits with the following exceptions:

- At soil borings L3-1 and L3-3, concentrations of PFOS were detected above laboratory reporting limits from the samples collected from 1-foot bgs. PFOS was reported at 14.8 ng/L in sample L3-1-1 and 4.67 ng/L in sample L3-3-1.
- At soil boring L3-2, concentrations of PFHxS and PFOS were detected above laboratory reporting limits in the sample collected from 1-foot bgs (L3-2-1; 9.56 and 26.7 ng/L, respectively) and concentrations of PFHxA, PFBS, and PFHxS were detected in the 5-foot sample (L3-2-5; 5.16 ng/L, 3.09 ng/L, and 2.19 ng/L, respectively).

At Location 4, soil samples were collected from borings L4-1, L4-2, and L4-3. Concentrations of PFAS compounds were not detected above laboratory reporting limits with the following exceptions:

- Soil boring L4-1:
    - The 5-foot sample (L4-1-5) had concentrations of PFHxA and PFHxS at 2.71 ng/L and 3.14 ng/L, respectively.
    - The sample collected from 10-feet bgs (L4-1-10) had concentrations of PFHxS and PFOS of 4.53 ng/L and 82.5 ng/L, respectively.

- Soil boring L4-2:
    - PFOS was detected in the samples collected from 1-foot bgs (L4-2-1; 5.69 ng/L) and 10-feet bgs (L4-2-10; 9.99 ng/L).
    - The 5-foot sample from L4-2 (L4-2-5) had concentrations of the following Perfluoroalkylcarboxylic Acids (PFCAs): PFBA (2.21 ng/L), PFPeA (4.10 ng/L) and PFHxA (10.1 ng/L) in addition to concentrations of the following Perfluoroalkyl Sulfonic Acids (PFSAs): PFBS (6.36 ng/L), PFPeS (3.50 ug/L), PFHxS (5.24 ng/L).
- Soil boring L4-3:
    - The 5-foot sample (L4-3-5) had concentrations of the following PFCAs: PFBA, PFPeA, PFHxA, PFHpA, and PFOA ranging from 3.59 ng/L (PFHpA) to 26.0 ng/L (PFHxA); concentrations of the following PFSAs: PFBS, PFPeS, PFHxS, PFHpS, and PFOS ranging from 10.1 ng/L (PFHps) to 482 ng/L (PFOS); and 6:2 FTS (9.99 ng/L).
    - The 10-foot sample from L4-3 (L4-3-10) had concentrations of PFHxS (8.57 ng/L) and PFOS (63.0 ng/L).

5.3.1.2 Groundwater

Groundwater samples were collected from one temporary monitoring well installed at the northernmost soil boring at each location. Both samples were collected from an intake depth of 18 feet bgs. At Location 3, a groundwater sample was collected from soil boring L3-3. Results showed concentrations detected above laboratory reporting limits for 10 of the 23 PFAS compounds. The detected compounds generally included the following PFCAs: PFBA, PFPeA, PFHxA, PFHpA, and PFOA at concentrations ranging from 3.28 ng/L (PFHpA) to 29.7 ng/L (PFOA); the following PFSAs: PFBS, PFPeS, PFHxS, and PFOS at concentrations ranging from 5.55 ng/L (PFPeS) to 37.9 ng/L (PFOS); and 6:2 FTS fluorotelomer at a concentration of 2.58 ng/L. The total PFOA and PFOS concentration was calculated at 67.6 ng/L, below the USEPA LHA of 70 ng/L.

At Location 4, a groundwater sample was collected from soil boring L4-2. Results showed concentrations detected above laboratory reporting limits for 13 of the 23 PFAS compounds. The detected compounds generally included the following PFCAs: PFBA, PFPeA, PFHxA, PFHpA, PFOA and PFNA at concentrations ranging from 14.3 ng/L (PFHpA) to 168 ng/L (PFHxA); the following PFSAs: PFBS, PFPeS, PFHxS, PFHpS and PFOS at concentrations ranging from 30.9 ng/L (PFHpS) to 1,740 ng/L (PFOS); and the 6:2 FTS and 8:2 FTS fluorotelomers at concentrations of 12.4 ng/L and 9.83 ng/L, respectively. The total PFOA and PFOS concentration was calculated at 1,766 ng/L. The reported concentrations of PFOS and Total PFOA and PFOS exceed the USEPA LHA of 70 ng/L.

5.3.2 Locations 8 & 9

Locations 8 and 9 were selected for sampling because of the history of ARFF testing. Five soil borings were advanced at Locations 8 and 9 with two borings completed as temporary monitoring wells. Soil samples at each boring were collected from three depth intervals, 1, 5, and 10 feet bgs. Figure 5c displays the analytical results for Locations 8 and 9. Table 5c provides the complete soil and groundwater analytical results.

5.3.2.1 Soil

Results indicate that none of the 23 PFAS compounds were detected above laboratory reporting limits in samples collected from boring locations L8/9-1 and L8/9-2. Concentrations of PFAS compounds were not detected above laboratory reporting limits in samples collected at the remaining boring locations with the following exceptions:

- Soil boring L8/9-3:
    - In the 1-foot sample (L8/9-3-1), concentrations of 5 of the 23 PFAS compounds were detected above laboratory reporting limits including the following PFCAs: PFBA, PFPeA, PFHxA, and PFHpA at concentrations ranging from 2.1 ng/L (PFBA) to 15.5 ng/L (PFPeA) and the 6:2 FTS telomer (161 ng/L).
    - In the 5-foot sample (L8/9-3-5), concentrations PFBA (1.39 ng/L) and PFPeA (5.93 ng/L) only were detected above laboratory reporting limits.
    - In the 10-foot sample (L8/9-3-10), concentrations of PFPeA (9.21 ng/L) and PFHxA (4.29 ng/L) only were detected above laboratory reporting limits.
- Soil boring L8/9-4: Concentrations of 5 of the 23 PFAS compounds were detected above laboratory reporting limits in the sample collected from 1-foot bgs (L8/9-4-1) including the following PFCAs: PFBA, PFPeA, PFHxA, and PFHpA at concentrations ranging from 2.51 ng/L (PFHpA) to 23.7 ng/L (PFPeA) and the 6:2 FTS telomer (81.4 ng/L).
- Soil boring L8/9-5: Concentrations of PFBA (7.95 ng/L), PFPeA (26.3 ng/L), PFHxA (11.1 ng/L) and 6:2 FTS (2.53 ng/L) were detected above laboratory reporting limits in the 1-foot sample (L8/9-5-1).

5.3.2.2 Groundwater

Groundwater samples at Locations 8 and 9 were collected from two temporary groundwater monitoring wells installed at sample locations L8/9-4 and L8/9-5. The groundwater sample collected at L8/9-4 was collected from a depth of 23 ft bgs. Results from this sample showed concentrations detected above laboratory reporting limits for 8 of the 23 PFAS compounds. The detected compounds generally included the following PFCAs: PFBA, PFPeA, PFHxA, PFHpA, and PFOA at concentrations ranging from 2.4 ng/L (PFOA) to 231 ng/L (PFPeA); PFBS at a concentration of 6.58 ng/L; and the 6:2 FTS and 8:2 FTS fluorotelomers at concentrations of 81.3 ng/L and 2.2 ng/L, respectively. Total PFOA and PFOS was calculated at 2.4 ng/L. No exceedances of the USEPA LHA of 70 ng/L were reported.

The groundwater sample collected from L8/9-5 was collected from a depth of 18 feet bgs. Results from this sample showed concentrations detected above laboratory reporting limits for 11 of the 23 PFAS compounds. The detected compounds generally included the following PFCAs: PFBA, PFPeA, PFHxA, PFHpA, and PFOA at concentrations ranging from 4.75 ng/L (PFOA) to 4,970 ng/L (PFPeA); the following PFSAs: PFBS, PFPeS, and PFHxS at concentrations ranging from 11.9 ng/L (PFHxS) to 44.5 ng/L (PFBS); and the 4:2 FTS, 6:2 FTS and 8:2 FTS fluorotelomers at concentrations of 2.48 ng/L, 560 ng/L and 4.88 ng/L, respectively. The total PFOA and PFOS concentration was calculated at 4.75 ng/L, below the USEPA LHA of 70 ng/L.

5.3.3 Location 10

Location 10 was selected for sampling because of discharges of rinse water from ARFF equipment. Three soil borings were advanced at Location 10 with one soil boring being completed as a temporary monitoring well. Soil samples at each boring location were collected from three depth intervals, 1, 5, and 10 feet bgs. Figure 5d provides the analytical results for Location 10. Table 5d provides the complete soil and groundwater analytical results for Location 10.

5.3.3.1 Soil

Soil samples collected from Location 10 had concentrations of PFAS compounds detected above laboratory reporting limits in each of the samples collected. These results are summarized as follows:

- Soil boring L10-1:
    - In the 1-foot sample (L10-1-1), concentrations of 8 of the 23 PFAS compounds were detected above laboratory reporting limits including the following PFCAs: PFPeA, PFHxA, PFOA and PFDA at concentrations ranging from 5.1 ng/L (PFOA) to 10.8 ng/L (PFHxA); PFHxS and PFOS at concentrations of 7.69 ng/L and 368 ng/L, respectively; and the 6:2 FTS and 8:2 FTS fluorotelomers at concentrations of 322 ng/L and 286 ng/L, respectively.
    - In the 5-foot sample (L10-1-5), concentrations of 5 of the 23 PFAS compounds were detected above laboratory reporting limits including PFPeA (7.74 ng/L), PFHxA (12.2 ng/L), PFOA (7.29 ng/L), PFHxS (30 ng/L) and 6:2 FTS (606 ng/L).
    - In the 10-foot sample (L10-1-10), concentrations of PFPeA (7.67 ng/L), PFHxA (7.75 ng/L), PFOA (2.91 ng/L), PFHxS (14 ng/L) and 6:2 FTS (323 ng/L) were detected above laboratory reporting limits.
- Soil boring L10-2:
    - In the1-foot sample (L10-2-1), concentrations of 10 of the 23 PFAS compounds were detected above laboratory reporting limits including the following PFCAs: PFBA, PFPeA, PFHxA, PFHpA and PFOA at concentrations ranging from 6.13 ng/L (PFHpA) to 61.4 ng/L (PFHxA); the following PFSAs: PFBS, PFPeS, PFHxS, and PFOS at concentrations ranging from 2.97 ng/L (PFOS) to 45.8 ng/L (PFHxS); and the 6:2 FTS Telomer at a concentration of 762 ng/L.
    - In the 5-foot sample (L10-2-5), concentrations of 6 of the 23 PFAS compounds were detected above laboratory reporting limits including the following PFCAs: PFBA, PFPeA, PFHxA, and PFHpA at concentrations ranging from 4.6 ng/L (PFHpA) to 76.8 ng/L (PFHxA); PFBS at a concentration of 4.24 ng/L; and 6:2 FTS at a concentration of 7.73 ng/L.
    - In the 10-foot sample (L10-2-10) concentrations of PFBA (3.59 ng/L), PFPeA (17.4 ng/L), PFHxA (19.6 ng/L), PFHxS (2.36 ng/L) and 6:2 FTS (62.9 ng/L) were detected at concentrations above laboratory reporting limits.
- Soil boring L10-3:
    - In the 1-foot sample (L10-3-1), concentrations of 9 of the 23 PFAS compounds were detected above laboratory reporting limits including the following PFCAs: PFPeA, PFHxA, PFOA, PFNA and PFDA at concentrations ranging from 3.98 ng/L (PFNA) to 6.67 ng/L (PFDA); PFHxS and PFOS at concentrations of 8.82 ng/L and 369 ng/L, respectively; and the 6:2 FTS and 8:2 FTS fluorotelomers at concentrations of 122 ng/L and 157 ng/L, respectively.
    - In the 5-foot sample (L10-3-5), concentrations of 8 of the 23 PFAS compounds were detected above laboratory reporting limits including the following PFCAs: PFPeA, PFHxA and PFOA at concentrations ranging from 5.31 ng/L (PFHxA) to 6.79 ng/L (PFPeA); the following PFASs: PFHxS, PFHpS and PFOS at concentrations ranging from 2.02 ng/L (PFHpS) to 62.1 ng/L (PFOS); and the 6:2 FTS and 8:2 FTS fluorotelomers at concentrations of 205 ng/L and 13.5 ng/L, respectively.
    - In the 10-foot sample (L10-3-10) concentrations of PFPeA (3.6 ng/L), PFHxA (2.76 ng/L), PFOS (9.72 ng/L), 6:2 FTS (29.8 ng/L) and 8:2 FTS (53.6 ng/L) were detected above laboratory reporting limits.

5.3.3.2 Groundwater

The groundwater sample at Location 10 was collected from a temporary groundwater monitoring well installed at sample location L10-1 from a depth of 18 feet bgs. Results from this sample had concentrations detected above laboratory reporting limits for 15 of the 23 PFAS compounds. The detected compounds generally included the following PFCAs: PFBA, PFPeA, PFHxA, PFHpA, PFOA, PFNA and PFDA at concentrations ranging from 2.24 ng/L (PFDA) to 7,980 ng/L (PFHxA); the following PFSAs: PFBS, PFPeS, PFHxS, PFHpS and PFOS at concentrations ranging from 49.8 ng/L (PFHpS) to 3,850 ng/L (PFHxS); and the 4:2 FTS, 6:2 FTS and 8:2 FTS fluorotelomers at concentrations ranging from 40.2 ng/L (4:2 FTS) to 8,880 ng/L (6:2 FTS).

The concentration of PFOA was reported at 585 ng/L. The concentration of PFOS was reported at 163 ng/L. The Total PFOA and PFOS concentration was calculated at 748 ng/L. The individual and total concentrations exceed the USEPA LHA of 70 ng/L.

5.3.4 Locations 11 & 12

Locations 11 and 12 were selected for sampling because of the history of AFFF use in these areas. Four soil borings were advanced in each Location with one soil boring completed as a temporary monitoring well. Soil samples at each location were collected from three depth intervals, 1, 5, and 10 feet bgs. Figures 5e and 5f display the analytical results for Location 11 and Location 12, respectively. Tables 5e and 5f provide the complete soil and groundwater analytical results for Location 11 and Location 12, respectively.

5.3.4.1 Soil

Results indicate that concentrations of PFAS compounds were not detected above laboratory reporting limits in soil samples collected from all four borings at Location 11. Similarly, concentrations of PFAS compounds were not detected above laboratory reporting limits in soil samples collected from all four borings at Location 12 with one exception. The sample collected at 1-foot bgs at boring L12-1 (L12-1-1) had concentrations of PFHpA (2.02 ng/L), PFOA (2.32 ng/L), PFNA (2.25 ng/L), PFDA (6.24 ng/L) and PFOS (2.49 ng/L) reported above laboratory reporting limits.

5.3.4.2 Groundwater

Groundwater samples were collected from a temporary monitoring well installed in one soil boring at each location. Both samples were collected from an intake depth of 18 feet bgs. At Location 11, the groundwater sample was collected from boring L11-3. Results showed concentrations detected above laboratory reporting limits for PFBA (10.2 ng/L) and PFOA (3.14 ng/L) only. The total PFOA and PFOS concentration was calculated to be 3.14 ng/L, below the USEPA LHA of 70 ng/L.

At Location 12, a groundwater sample was collected from boring L12-3. Results showed concentrations detected above laboratory reporting limits for 6 of the 23 PFAS compounds. The detected compounds generally included the following PFCAs: PFBA at a concentration of 11 ng/L and PFOA at a concentration of 3.55 ng/L, and the following PFSAs: PFBS, PFPeS, PFHxS, and PFOS at concentrations ranging from 12.3 ng/L (PFBS) to 41.7 ng/L (PFHxS). The total PFOA and PFOS concentration was calculated at 44.05 ng/L, below the USEPA LHA of 70 ng/L.

5.3.5 Location 14

Location 14 was selected for sampling because of a large accidental release of AFFF. Six soil borings (L14-1 through L14-6) were advanced at Location 14 with three soil borings completed as temporary monitoring wells (L14-1, L14-2 and L14-4). Soil samples at each boring were collected from three depth intervals: 1, 5, and 10 feet bgs.

Soil analytical results from samples collected at Location 14 had concentrations of PFAS compounds below laboratory reporting limits with the exception of concentrations of PFOS detected in the 1-foot sample at borings L14-2 (L14-2-1: 3.91 ng/L), L14-3 (L14-3-1: 3.07 ng/L) and L14-4 (L14-4-1: 5.57 ng/L). PFAS compounds were not detected above laboratory reporting limits in groundwater samples collected at Location 14.

Figure 5g displays the analytical results for Location 14. Table 5g provides the complete soil and groundwater analytical results for Location 14.

5.4 Summary of PFAS Analytical Results

5.4.1 Comparison to Available Regulatory Standards

Groundwater analytical results exceeded the USEPA LHA of 70 ng/L for PFOA, PFOS and/or the summation of the two compounds in samples collected from Location 4 and Location 10. Elevated concentrations of PFAS were reported in groundwater samples collected from Locations 8 and 9, however, the primary constituents at these locations were PFPeA and PFHxA.

Groundwater analytical results for PFAS at all locations are summarized in Table 6. Table 7 provides a comparison of the concentrations of PFOA and PFOS at each location to the USEPA LHA and State NLs. Concentrations of PFOA exceeded the NL of 5.1 ng/L in groundwater samples collected from Location 4 and Location 10. Concentrations of PFOS exceeded the NL of 6.5 ng/L in groundwater samples collected from Locations 3, 4, 10, and 12.

5.4.2 Distribution of PFAS Compounds

Analytical results show concentrations of a variety of PFAS compounds detected at concentrations above laboratory reporting limits at the Airport. PFCAs and PFSAs were the most frequently detected compounds, followed by the fluorotelomers. The precursor compounds, including PFOSAm, NMeFOSAA, and NEtFOSAA, were not detected above laboratory reporting limits in soil or groundwater samples. The distribution of PFAS compounds detected at the eight investigation locations is summarized as follows:

- In general, a variety of PFCAs, PFSAs, and certain fluorotelomers were detected in groundwater samples collected at Location 3, and in both soil and groundwater samples collected at Location 4. Soil samples collected at Location 3 contain almost exclusively PFSAs.
- At Locations 8 and 9, soil samples contain PFCAs and fluorotelomers only. Relatively low concentrations of certain PFSAs were detected in groundwater samples collected at these locations.
- Elevated concentrations of a wide variety of PFCAs, PFSAs, and fluorotelomers were reported in both soil and groundwater samples collected at Location 10.
- Low-level concentrations of some PFCAs were reported in the groundwater sample collected at Location 11.
- At Location 12, concentrations of PFSAs, primarily, were detected in groundwater with relatively low-level concentrations of PFCAs. The limited detections in soil samples at Location 12 contain almost exclusively very low-level concentrations of PFCAs.
- Low-level concentrations of PFOS, only, were reported in soil samples collected at Location 14.

In summary, PFAS compounds were detected in soil and groundwater at each of the eight investigation locations with two exceptions: soil samples collected at Location 11 and groundwater samples collected at Location 14. Analytical results from soil samples collected at Location 4, Locations 8 and 9, and Location 10 were generally elevated (i.e., concentrations of single PFAS compounds greater than100 ng/L) compared to soil samples collected at the other investigation locations. In general, groundwater results at each investigation location show a higher number of PFAS compounds detected above laboratory reporting limits than soil results at the same location. Similarly, PFAS compounds detected in soil were generally also detected in groundwater at each location. The highest number of different PFAS compounds detected in soil samples (14 of 23 PFAS compounds) and groundwater samples (15 of 23 PFAS compounds) were collected at Location 10. The highest concentrations of PFAS compounds in soil were generally reported in samples collected from the upper 5 feet of each boring.

6. RESPONSES TO COMMENTS ON THE WORK PLAN

This section provides responses to the Specific Comments in Attachment 1 of the Regional Water Board's Conditional Approval letter (Regional Water Board, 2019).

6.1 Comment 1

Page 2-1: The Workplan states that the Guadalupe River is the receiving water for stormwater discharges. Given the fact that PFAS have been shown to stick to surfaces (e.g., concrete and asphalt), they have the potential to act as a long-term source of PFAS to the environment. As such, it is appropriate for an evaluation of potential surface water impacts due to stormwater discharges and provide recommendations for site assessment. Further assessment of this pathway may include sediment and surface water sampling of stormwater lines and ditches that lead to the river, and/or sampling of sediment and surface water at outfalls along Guadalupe River.

Response: The locations selected for sampling in this preliminary investigation were based on the documentation of actual discharges of AFFF to unpaved and paved surfaces. The focus on unpaved surfaces was intended to address the concern expressed by the Regional Water Board that PFAS may infiltrate into the soils and leach to groundwater. The storm drainage system at the Airport accepts large flows from offsite/non-airport drainage areas. Most of the storm drain pipelines where samples could be collected receive commingled storm water runoff from offsite locations, including many industrial areas. The stormwater outfalls along the Guadalupe River at the Airport generally do not drain only Airport industrial activity areas. For this reason, most sampling locations in the Airport's Stormwater Pollution Prevention Plan were relocated to collect surface flows that are representative of Airport industrial runoff. Discharges of AFFF for emergency responses on paved surfaces at the Terminals were cleaned from the pavement by Airport personnel via sweeper truck.

6.2 Comment 2

Page 3-1: The Workplan states that the current volume of AFFF stored at SJC does not include AFFF owned by Airport tenants. Please clarify if additional AFFF storage and use areas are present but not addressed by the Workplan. If additional AFFF storage and use areas are present, provide detailed information regarding storage, use, disposal, and potential spills or releases to lands of your facility and recommendations for additional site assessment.

Response: The Airport provided all known locations and quantities of AFFF stored on Airport property in the Work Plan (Woodard & Curran, 2019).

6.3 Comment 3

Page 3-1: The Workplan indicates that ARFF engine water proportioning and fire testing was conducted offsite at a City of San Jose (City) location. Provide additional documentation regarding off-site ARFF engine and fire testing (e.g., location and approximate frequency of use). Clarify if vehicle maintenance was also conducted at this facility and if not, where the ARFF vehicles are maintained.

Response: ARFF fire engine testing occurred at the City's Central Service Yard located at 1661 Senter Road from 2010 to 2017 twice a year, generally in February/March and August/September. During these tests, AFFF was discharged to a vacant lot located near the northwest corner of the Central Service Yard. ARFF and other City vehicle maintenance activities, have historically been conducted and continue to be conducted at the Central Service Yard.

Offsite ARFF testing was also conducted at a Fire Department training facility located at 255 South Montgomery Street in San Jose. This location is already being investigated for PFAS contamination by the City's Environmental Services Department under oversight by the Regional Water Board.

6.4 Comment 4

Page 3-2: The Workplan provides information regarding SJCs intent to research containment processes and procedures to ensure AFFF associated with future ARFF engine and fire testing will be contained and properly disposed. The Water Board appreciates this discussion regarding airport foam management plans.

Response: The Airport is currently moving forward with the procurement of a No Foam Testing Trailer from No Foam Systems. The No Foam Trailer will allow the Airport to conduct the required annual ARFF tests without discharging AFFF.

As noted in Section 2.2, the FAA-required annual testing of ARFF trucks took place at the oil-water separator (Location 8) on 12/12/19. The testing was coordinated with the Airport's hazardous materials/waste contractor to ensure proper containment, cleanup, and offsite disposal of all discharged AFFF.

For large quantities of AFFF discharged during an emergency response, the Airport will coordinate cleanup with the hazardous materials/waste contractor to ensure proper containment, cleanup, and offsite disposal of all discharged AFFF.

6.5 Comment 5

Pages 3-2, 3-3, 4-1: The Workplan provides a detailed summary of AFFF storage, use, and release locations that are not proposed for sampling because the areas are paved and there have been no reported releases or spills (except for Location 13 where a release was documented). In areas where releases were not reported, incidental spills could have occurred and resulted in impacts to soil and groundwater. Additionally, PFAS have been shown to stick to concrete surfaces and act as a long-term source of PFAS to the environment. Further consideration of site investigation in these areas is recommended to confirm that soil and groundwater are not impacted.

Response: As noted above, the eight locations selected for sampling in the preliminary investigation focused primarily on unpaved surfaces where documented discharges occurred to address the concern expressed by the Regional Water Board that PFAS may infiltrate into soils and leach to groundwater. Two paved locations, 3 and 4, may potentially have been unpaved or partially paved while ARFF testing was conducted. Three unpaved locations, 10, 11, and 12, were unpaved during the discharge(s) of AFFF. These five locations are thought to have the highest probability of soil and groundwater impacts from PFAS compounds.

However, three paved locations, 8, 9, and 14, were also selected for soil and groundwater sampling. These paved areas were selected because of the higher probability of soil and groundwater impacts based on the documented release or releases. Location 8 is well-paved but was selected because of the high number of AFFF discharges to the oil-water separator relative to all other paved areas. Locations 9 and 14 were selected because of the size of the one-time AFFF discharges. Sampling was also conducted in the landscaped portion of Location 14. These three paved areas were also sampled more than the other locations. A total of 11 soil borings were advanced at locations 8, 9, and 14 for the collection of 33 soil samples. Five of the 10 temporary monitoring wells (i.e., 50 percent) were also sampled in these paved areas.

The other seven areas identified in the Work Plan and Section 2.2 of this Completion Report (except for Location 13) only store AFFF and have no documented releases, unlike the release at Location 14. Location 13 was not selected for sampling because the discharge of AFFF occurred once and the residual foam was cleaned up by Airport staff using a sweeper truck. The foam removed from the pavement was discharged to the oil-water separator, Location 8, which was sampled.

6.6 Comment 6

Page 3-3: The Workplan states that the oil-water separator at Location 8 has been a disposal location for excess AFFF and rinsate. Soil and groundwater sample collection is proposed at Location 8. In addition to the proposed investigation activities, provide a detailed summary of waste management procedures associated with the oil-water separator.

Response: In the past, the City's Department of Transportation (CSJ DOT) has maintained and pumped-out the oil-water separator using a Vactor truck. The liquid contents were disposed in the sanitary sewer dump station at the City's Mabury Yard located at 1404 Mabury Road. If solids were present, the liquid was decanted and disposed as described, and the separated solids were disposed as general municipal, non-hazardous waste.

6.7 Comment 7

Page 6-6: The Workplan states that the final report, analytical reports, and an electronic data deliverable (EDD) will be uploaded to GeoTracker via the Electronic Submittal of Information (ESI) Portals. Ensure that the EDD submittal includes the minimum requirements for survey data summarized in the document titled, GeoTracker Survey XYZ, Well Data, and Site Map Guidelines & Restrictions, Revision 6.1 dated April 2005 available at https://www.waterboards.ca.gov/water_issues/programs/ust/electronic_submittal/docs/geotrackersurvey_xyz_4_14_05.pdf.

Response: The EDD submittal will include the minimum requirements for survey data for upload to GeoTracker as summarized in the reference guidance document.

6.8 Additional Recommendation and Request in the Regional Water Board's Conditional Approval letter (Regional Water Board, 2019)

It is recommended that additional potential sources of PFAS other than AFFF be considered, including onsite maintenance facilities that may have operation processes that generate PFAS-containing waste (e.g., metal plating, aircraft maintenance including the use of hydraulic fluids). Additionally, Water Board staff request additional information regarding the potential for PFAS to be present in the high-expansion fire suppressant foams present in Hangar 7.

Response: The Airport understands the Order from the SWRCB (2019a) was issued to SJC and other FAA-regulated airports in California for the express purpose of conducting a one-time preliminary investigation of potential PFAS impacts to soil and groundwater from the use or accidental release of AFFF. While it is known that PFAS compounds have been used in countless industrial, commercial, and residential products, the dominant source of PFAS compounds at the Airport is in AFFF.

Another potential major source of PFAS noted in the above-referenced letter is metal plating which is not conducted at SJC. Heavy maintenance of commercial aircraft is also not conducted at SJC. However, some maintenance is conducted on private aircraft on the west side of the Airport. With limited resources, the Airport feels the focus of the investigation should remain on the use and release of AFFF consistent with the intent of the Order.

As per as-built plans and record drawings, the Signature Hangars use Ansulite 3% AFFF in the fire suppression systems.

7. CONCLUSIONS

This Completion Report presents the results of preliminary PFAS investigation activities conducted at the Airport in response to requirements in the Order from the SWRCB (2019a). Field sampling was conducted from October 16 to October 24, 2019 in accordance with the Work Plan (Woodard & Curran, 2019) which was conditionally approved by the Regional Water Board (2019a). Conclusions from the findings of the preliminary investigation are presented below.

Preliminary investigation activities were conducted in eight locations where AFFF was used or released to the land surface to evaluate the presence and preliminary characterization of PFAS compounds at the Airport. The investigation included the advancement of 28 soil borings and installation of 10 temporary groundwater monitoring wells in eight locations (3, 4, 8, 9, 10, 11, 12, and 14). Three soil samples were collected from each soil boring at approximate depths of 1, 5, and 10 feet bgs to characterize the lateral and vertical extent of PFAS compounds and, specifically, to assess vertical attenuation in soil above the water table. Grab groundwater samples were collected from temporary monitoring wells installed in one or more soil borings in the hydraulically downgradient portion of each location (i.e., north-northwest).

The subsurface lithology at these locations consists of fine-grained silts and clays with varying amounts of fine-grained sands. At Location 14, however, the fine-grained soils abruptly transition to poorly sorted gravelly sands and sandy gravels at about 10 feet bgs, indicating buried stream channel deposits within the predominantly fine-grained soils. Depth to groundwater at the eight locations typically rose above the depth of saturated soils observed during advancement of the borings (10.5 to 14 feet bgs), indicating semi-confined to confined groundwater conditions beneath the Airport.

PFAS compounds were detected in soil and groundwater in each of the investigation locations except for soil samples collected at Location 11 and groundwater samples collected at Location 14. PFAS concentrations were elevated in soil samples collected at Location 4, Locations 8 and 9, and Location 10 compared to concentrations in other investigation locations. Groundwater analytical results indicated a higher number of PFAS compounds detected above laboratory reporting limits than soil analytical results at the same location. Correspondingly, PFAS compounds detected in soil were generally also detected in groundwater at each location. The PFAS compounds detected in soil and groundwater are consistent with the composition of AFFF.

In the absence of regulatory standards applicable to groundwater, PFAS detections are compared to federal and state standards established for two PFAS compounds in drinking water. The USEPA has adopted an LHA of 70 ng/L for PFOA and PFOS individually and combined (i.e., summation of the two compounds). California has established NLs of 5.1 ng/L for PFOA and 6.5 ng/L for PFOS. Groundwater analytical results for PFOA and PFOS individually or combined exceeded the LHA in Location 4 and Location 10. Concentrations of PFOA exceeded the NL in in Location 4 and Location 10. Concentrations of PFOS exceeded the NL in Locations 3, 4, 10, and 12.

Sensitive receptors such as municipal supply wells, domestic wells, and surface water bodies were identified within a one-mile radius of the 15 locations where AFFF has been stored, used, or released at the Airport. The closest sensitive receptor is the Guadalupe River on the northeastern boundary of the Airport. Eighteen public and domestic water supply wells are located further from the Airport within the one-mile radius. Based on the current understanding of northerly groundwater flow in the vicinity of the Airport, the Guadalupe River is the closest sensitive receptor to impacted groundwater from the locations investigated at the Airport.

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TABLES

Table 1
Soil and Groundwater Sampling and Analysis Program
Norman Y. Mineta San José International Airport
1701 Airport Boulevard, San Jose, California

Sample Location	Sampling Rationale	Number of Soil Borings	Number of Soil Samples[1]	Number of Temporary Wells/Groundwater Samples[2]
Location 3	Former Fire Training Area 1	3	9	1
Location 4	Former Fire Training Area 2	3	9	1
Locations 8 & 9	Ground Support Equipment Wash Rack with Oil-Water Separator[3] and AFFF Testing Release on 12/19/18	5	15	2
Location 10	Dilute AFFF Discharge	3	9	1
Location 11	Incident on 6/24/12	4	12	1
Location 12	Incident on 3/24/16	4	12	1
Location 14	Accidental Release on 11/18/16	6	18	3
		Total	**Total**	**Total**
		28	84	10

Notes:

AFFF = Aqueous Film-Forming Foam

[1] Soil sample depths below concrete and road base, as applicable: 1 foot, 5 feet and 10 feet. Analyzed for PFAS compounds.

[2] Temporary wells constructed to a total depth of 20 feet with a 5- to 10-foot screen interval. Analyzed for PFAS compounds and general chemistry parameters.

[3] Current Fire Testing/Disposal Area

Table 2
PFAS Analyte List
Norman Y. Mineta San José International Airport
1701 Airport Boulevard, San Jose, California

Analyte Name	CAS Number	Acronym	Flourinated Alkane Carbon Chain Length
Perfluoroalkylcarboxylic acids (PFCAs)			
Perfluorobutanoic acid	375-22-4	PFBA	C4
Perfluoropentanoic acid	2706-90-3	PFPeA	C5
Perfluorohexanoic acid	307-24-4	PFHxA	C6
Perfluoroheptanoic acid	375-85-9	PFHpA	C7
Perfluorooctanoic acid	335-67-1	PFOA	C8
Perfluorononanoic acid	375-95-1	PFNA	C9
Perfluorodecanoic acid	335-76-2	PFDA	C10
Perfluoroundecanoic acid	2058-94-8	PFUnDA	C11
Perfluorododecanoic acid	307-55-1	PFDoDA	C12
Perfluorotridecanoic acid	72629-94-8	PFTrDA	C13
Perfluorotetradecanoic acid	376-06-7	PFTeDA	C14
Perfluorinated sulfonic acids (PFSAs)			
Perfluorobutanesulfonic acid	375-73-5	PFBS	C4
Perfluoropentanesulfonic acid	2706-91-4	PFPeS	C5
Perfluorohexanesulfonic acid	355-46-4	PFHxS	C6
Perfluoroheptanesulfonic acid	375-92-8	PFHpS	C7
Perfluorooctanesulfonic acid	1763-23-1	PFOS	C8
Perfluorodecanesulfonic acid	335-77-3	PFDS	C10
Perfluoroocante Sulfonamide and Sulfonoamidoacetic Acids			
Perfluorooctanesulfonamide	754-91-6	PFOSAm	C8
N-methylperfluorooctanesulfonamidoacetic acid	2355-31-9	NMeFOSAA	C8 Precursor
N-ethylperfluorooctanesulfonamidoacetic acid	2991-50-6	NEtFOSAA	C8 Precursor
Fluorotelomer sulfonates (FTS)			
4:2 Flourotelomer sulfonic acid	757124-72-4	4:2 FTS	C4* Precursor
6:2 Flourotelomer sulfonic acid	27619-97-2	6:2 FTS	C6* Precursor
8:2 Flourotelomer sulfonic acid	39108-34-4	8:2 FTS	C8* Precursor

Notes:
PFAS = Per- & Polyfluoroalkyl Substances.
* = and shorter carbon chain length terminal degradation products.

Table 3
Summary of Groundwater Field Parameters
Norman Y. Mineta San José International Airport
1701 Airport Boulevard, San Jose, California

Sample ID		Purge Log and Groundwater Parameters												
	Sampler Initials	Initial Depth to Water (feet bgs)	Final Depth to Water (feet bgs)	Date	Time	Temperature (C)	pH	Specific Conductivity (µS/cm)	Oxidation-Reduction Potential (mV)	Dissolved Oxygen (mg/L)	Turbidity (NTU)	Purge Rate (mL/min)	Total Volume Purged (mL)	Purge Notes
L3-3-GW	CL	10.41	10.21	10/23/2019	1255	23.1	7.74	1,859	-301.1	0.48	3,454.0	200	400	--
					1300	23.4	7.48	1,858	-304.6	0.48	3,954.0	200	1,400	--
					1305	22.9	7.38	1,858	-271.5	0.38	2,022.5	200	2,400	--
					1310	22.9	7.33	1,896	-296.9	0.37	1,672.3	200	3,400	--
					1315	22.8	7.32	1,896	-243.5	0.37	1,598.4	200	4,400	--
L4-2-GW	KA	8.81	9.05	10/22/2019	0410	22.9	7.11	2,690	-9.4	3.43	5,677.3	150	750	Cloudy
					0415	23.2	7.08	2,707	-34.5	2.44	5,646.4	150	1,500	Cloudy
					0420	23.2	7.07	2,709	-37.6	2.10	4,604.4	150	2,250	Cloudy
					0425	23.6	7.03	2,732	-38.7	1.37	2,531.0	150	3,000	Cloudy
					0430	23.5	7.02	2,806	-40.8	1.14	1,877.0	150	3,750	Cloudy
L8/9-4-GW	CL	15.15	15.91	10/24/2019	1156	23.5	7.61	3,508	-16.8	1.45	2,585.1	200	200	--
					1201	23.3	7.35	3,515	-177.5	0.66	1,911.2	200	1,200	--
					1206	23.3	7.25	3,508	-182.5	0.55	872.5	200	2,200	--
					1211	23.1	7.27	3,479	-176.4	0.50	2,192.3	200	3,200	--
					1216	23.1	7.26	3,462	-166.4	0.52	771.4	200	4,200	--
L8/9-5-GW[a]	CL	18.56	19.31	10/24/2019	1007	22.7	7.46	2,877	-9.5	2.03	1,240.2	210	210	--
L10-1-GW[b]	KA	11.85	12.69	10/16/2019	2301	21.0	6.91	2,210	-24.2	1.47	1,909.0	500	2,500	Cloudy
					2330	20.8	7.16	2,401	-27.6	1.68	118.3	250	7,000	Clear
L11-3-GW	KA	6.55	7.06	10/16/2019	0245	20.7	6.53	2,227	-139.1	0.62	906.4	200	1,000	Cloudy
					0250	20.9	6.48	2,087	-153.3	0.51	295.4	200	2,000	Slightly Cloudy
					0255	20.9	6.40	2,218	-156.5	0.49	206.1	200	3,000	Slightly Cloudy
					0300	21.0	6.38	2,189	-175.3	0.47	148.9	200	4,000	Clear
L12-3-GW	KA	11.54	11.56	10/18/2019	0050	18.8	6.87	2,742	-183.4	0.69	3,850.2	200	1,000	Cloudy
					0055	18.3	6.79	2,701	-175.3	0.56	3,892.1	200	2,000	Cloudy
					0100	18.7	6.76	2,726	-174.8	0.51	3,427.3	200	3,000	Cloudy
					0105	18.9	6.75	2,744	-168.6	0.45	2,302.8	200	4,000	Slightly Cloudy
					0110	18.6	6.73	2,727	-165.8	0.43	1,616.7	200	5,000	Slightly Cloudy
					0115	18.7	6.72	2,733	-167.6	0.42	1,491.4	200	6,000	Slightly Cloudy
					0120	18.8	6.72	2,746	-164.5	0.41	1,152.4	200	7,000	Slightly Cloudy
					0125	18.9	6.71	3,101	-163.8	0.41	984.5	200	8,000	Slightly Cloudy
L14-1-GW	CL	7.90	7.86	10/23/2019	0821	20.9	7.46	1,770	-227.5	0.80	3,294.5	200	200	--
					0826	21.0	7.19	1,775	-284.6	0.51	3,443.4	200	1,200	--
					0831	20.9	7.13	1,781	-270.2	0.45	1,243.7	200	2,200	--
					0836	20.9	7.12	1,783	-241.8	0.46	839.4	200	3,200	--

Table 3
Summary of Groundwater Field Parameters
Norman Y. Mineta San José International Airport
1701 Airport Boulevard, San Jose, California

Sample ID		Purge Log and Groundwater Parameters												
	Sampler Initials	Initial Depth to Water (feet bgs)	Final Depth to Water (feet bgs)	Date	Time	Temperature (C)	pH	Specific Conductivity (µS/cm)	Oxidation-Reduction Potential (mV)	Dissolved Oxygen (mg/L)	Turbidity (NTU)	Purge Rate (mL/min)	Total Volume Purged (mL)	Purge Notes
L14-2-GW	CL	7.15	7.12	10/23/2019	0934	21.6	7.72	1,808	-241.3	NR	5,219.0	200	0	--
					0939	21.1	7.10	1,704	-201.0	NR	2,730.1	200	1,000	--
					0944	20.9	7.04	1,781	-268.0	NR	2,125.3	200	2,000	--
					0949	20.9	7.02	1,783	-259.2	NR	1,700.2	200	3,000	--
L14-4-GW	CL	7.59	7.58	10/23/2019	1459	21.9	7.57	1,783	-256.7	0.68	75.9	200	400	Clear
					1504	21.7	7.22	1,778	-250.6	0.51	89.8	200	1,400	Clear
					1509	21.6	7.10	1,776	-268.5	0.44	102.4	200	2,400	Clear
					1514	21.4	7.09	1,776	-266.0	0.42	65.1	200	3,400	Clear
					1519	21.3	7.08	1,772	-244.0	0.40	28.2	200	4,400	Clear

Notes:

[a]: Well pumped dry at 1008 and was allowed to recharge for 7 minutes prior to sample collection.

[b]: Well pumped dry at 2306 and was allowed to recharge for 19 minutes prior to final parameter readings and sample collection.

Field parameters reflect the final parameter measurement at each location during well purging.

Abbreviations:

C: Degrees Celsius
feet bgs: feet below ground surface
µS/cm: microsiemens per centimeter
mg/L: milligrams per liter
mL: milliliter
mL/min: milliliters per minute
mV: millivolt
NTU: Nephelometric Turbidity Units
NR: Not recorded

Table 4

General Chemistry Groundwater Analytical Results

Norman Y. Mineta San José International Airport

1701 Airport Boulevard, San Jose, California

Sample ID	Sample Date	Sample Intake Depth (feet bgs)	Analytical Results (mg/L)									
			Total Dissolved Solids	Sulfate as SO_4	Nitrate as N	Chloride	Calcium	Magnesium	Potassium	Sodium	Carbonate, HT-5	Bicarbonate, HT-5
L3-3-GW	10/23/2019	18	740	210	2.2	59	180	84	13.0	48	<5	450
L4-2-GW	10/22/2019	18	1,300	510	<0.40	93	24	78	11	57	<5	500
L8/9-4-GW	10/24/2019	23	1,200	230	0.5	95	180	220	4.5	64	<5	1,100
L8/9-5-GW	10/24/2019	18	1,100	190	0.54	74	410	450	66	56	<5	970
L10-1-GW	10/16/2019	18	930	160	6.1	39	110	82	2.6	100	<5	750
L11-3-GW	10/17/2019	18	1,100	560	<0.40	8.5	200	90	4.0	16	<5	390
L12-3-GW	10/18/2019	18	1,800	630	<0.40, HT-1	70	290	94	9.2	50	<5	620
L14-1-GW	10/23/2019	18	680	140	3.7	68	170	68	<10, A-COM	38	<5	440
L14-2-GW	10/23/2019	18	700	140	3.8	69	140	73	<10, A-COM	40	<5	410
L14-4-GW	10/23/2019	18	680	130	3.8	69	130	55	<10, A-COM	36	<5	440

Notes:

< : indicates analyte not detected above the laboratory reporting limit following the "<"

Abbreviations:

feet bgs: feet below ground surface

mg/L: milligrams per liter

CCV: Continuing Calibration Verification

Analytical Qualifiers

HT-1: The sample was received outside of the EPA recommended hold time.

HT-5: The samples were analyzed outside of the EPA recommended hold time.

A-COM: The reporting limit was raised for this analyte because the sample was originally analyzed with no dilution but the CCVs were ouside the method criteria. The sample was re-analyzed with a dilution and the CCVs were in control.

Table 5a
PFAS Analytical Results at Location 3
Norman Y. Mineta San José International Airport
1701 Airport Boulevard, San Jose, California

Sample ID	Sample Date	Sample Intake Depth (feet bgs)	Groundwater Analytical Results (ng/L)																						
			PFBA	PFPeA	PFHxA	PFHpA	PFOA	PFNA	PFDA	PFUnDA	PFDoDA	PFTrDA	PFTeDA	PFBS	PFPeS	PFHxS	PFHpS	PFOS	PFDS	PFOSAm	NMeFOSAA	NEtFOSAA	4:2 FTS	6:2 FTS	8:2 FTS
L3-3-GW	10/23/2019	18	**10.2**	**7.78**	**15.1**	**3.28**	**29.7**	<2.10	<2.10	<2.10	<2.10	<2.10	<2.10	**12.6**	**5.55**	**37.2**	<2.10	**37.9**	<2.10	<2.10	<2.10	<2.10	<2.10	**2.58**	<2.10

Notes

< : indicates analyte not detected above the laboratory reporting limit following the "<".

Bold indicates analytes detected above the laboratory reporting limit.

Abbreviations:

feet bgs: feet below ground surface

ng/L: nanograms per liter

Sample ID	Sample Date	Sample Depth (feet bgs)	Soil Analytical Results (ng/g)																						
			PFBA	PFPeA	PFHxA	PFHpA	PFOA	PFNA	PFDA	PFUnDA	PFDoDA	PFTrDA	PFTeDA	PFBS	PFPeS	PFHxS	PFHpS	PFOS	PFDS	PFOSAm	NMeFOSAA	NEtFOSAA	4:2 FTS	6:2 FTS	8:2 FTS
L3-1-1	10/23/2019	1	<1.96	<1.96	<1.96	<1.96	<1.96	<1.96	<1.96	<1.96	<1.96	<1.96	<1.96	<1.96	<1.96	<1.96	<1.96	**14.8**	<1.96	<1.96	<1.96	<1.96	<1.96	<1.96	<1.96
L3-1-5	10/23/2019	5	<1.97	<1.97	<1.97	<1.97	<1.97	<1.97	<1.97	<1.97	<1.97	<1.97	<1.97	<1.97	<1.97	<1.97	<1.97	<1.97	<1.97	<1.97	<1.97	<1.97	<1.97	<1.97	<1.97
L3-1-10	10/23/2019	10	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00
L3-2-1	10/23/2019	1	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	**9.56**	<1.99	**26.7**	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99
L3-2-5	10/23/2019	5	<2.00	<2.00	**5.16**	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	**3.09**	<2.00	**2.19 Q**	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00
L3-2-10	10/23/2019	10	<2.01	<2.01	<2.01	<2.01	<2.01	<2.01	<2.01	<2.01	<2.01	<2.01	<2.01	<2.01	<2.01	<2.01	<2.01	<2.01	<2.01	<2.01	<2.01	<2.01	<2.01	<2.01	<2.01
L3-3-1	10/23/2019	1	<1.97	<1.97	<1.97	<1.97	<1.97	<1.97	<1.97	<1.97	<1.97	<1.97	<1.97	<1.97	<1.97	<1.97	<1.97	**4.67**	<1.97	<1.97	<1.97	<1.97	<1.97	<1.97	<1.97
L3-3-5	10/23/2019	5	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99
L3-3-10	10/23/2019	10	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99

Notes

< : indicates analyte not detected above the laboratory reporting limit following the "<".

Bold indicates analytes detected above the laboratory reporting limit.

Analytical Qualifiers

Q: The ion transition ratio is outside of the acceptance criteria.

Abbreviations:

feet bgs: feet below ground surface

ng/g: nanograms per gram

Table 5b
PFAS Analytical Results at Location 4
Norman Y. Mineta San José International Airport
1701 Airport Boulevard, San Jose, California

Sample ID	Sample Date	Sample Intake Depth (feet bgs)	Groundwater Analytical Results (ng/L)																						
			PFBA	PFPeA	PFHxA	PFHpA	PFOA	PFNA	PFDA	PFUnDA	PFDoDA	PFTrDA	PFTeDA	PFBS	PFPeS	PFHxS	PFHpS	PFOS	PFDS	PFOSAm	NMeFOSAA	NEtFOSAA	4:2 FTS	6:2 FTS	8:2 FTS
L4-2-GW	10/22/2019	18	**31.4**	**39.5**	**168**	**14.3**	**25.6**	**21.8**	<2.16	<2.16	<2.16	<2.16	<2.16	**152**	**90.6**	**442**	**30.9**	**1,740**	<2.16	<2.16	<2.16	<2.16	<2.16	**12.4**	**9.83**
L4-20-GW	10/22/2019	18	**32.1**	**42.2**	**170**	**13.9**	**26.0**	**23.2**	<2.12	<2.12	<2.12	<2.12	<2.12	**149**	**87.4**	**448**	**36.9**	**2,190 D**	<2.12	<2.12	<2.12	<2.12	<2.12	**11.7**	**12.6**

Notes

< : indicates analyte not detected above the laboratory reporting limit following the "<".

Bold indicates analytes detected above the laboratory reporting limit.

Analytical Qualifiers

D: Sample was diluted.

Abbreviations:

feet bgs: feet below ground surface

ng/L: nanograms per liter

Sample ID	Sample Date	Sample Depth (feet bgs)	Soil Analytical Results (ng/g)																						
			PFBA	PFPeA	PFHxA	PFHpA	PFOA	PFNA	PFDA	PFUnDA	PFDoDA	PFTrDA	PFTeDA	PFBS	PFPeS	PFHxS	PFHpS	PFOS	PFDS	PFOSAm	NMeFOSAA	NEtFOSAA	4:2 FTS	6:2 FTS	8:2 FTS
L4-1-1	10/22/2019	1	<1.94	<1.94	<1.94	<1.94	<1.94	<1.94	<1.94	<1.94	<1.94	<1.94	<1.94	<1.94	<1.94	<1.94	<1.94	<1.94	<1.94	<1.94	<1.94	<1.94	<1.94	<1.94	<1.94
L4-1-5	10/22/2019	5	<1.98	<1.98	**2.71 Q**	<1.98	<1.98	<1.98	<1.98	<1.98	<1.98	<1.98	<1.98	<1.98	<1.98	**3.14**	<1.98	<1.98	<1.98	<1.98	<1.98	<1.98	<1.98	<1.98	<1.98
L4-1-10	10/22/2019	10	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	**4.53**	<1.99	**82.5**	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99
L4-2-1	10/22/2019	1	<1.95	<1.95	<1.95	<1.95	<1.95	<1.95	<1.95	<1.95	<1.95	<1.95	<1.95	<1.95	<1.95	<1.95	<1.95	**5.69**	<1.95	<1.95	<1.95	<1.95	<1.95	<1.95	<1.95
L4-2-5	10/22/2019	5	**2.21**	**4.10**	**10.1 Q**	<1.98	<1.98	<1.98	<1.98	<1.98	<1.98	<1.98	<1.98	**6.36**	**3.50**	**5.24**	<1.98	<1.98	<1.98	<1.98	<1.98	<1.98	<1.98	<1.98	<1.98
L4-2-10	10/22/2019	10	<1.95	<1.95	<1.95	<1.95	<1.95	<1.95	<1.95	<1.95	<1.95	<1.95	<1.95	<1.95	<1.95	<1.95	<1.95	**9.99**	<1.95	<1.95	<1.95	<1.95	<1.95	<1.95	<1.95
L4-3-1	10/22/2019	1	<1.93	<1.93	<1.93	<1.93	<1.93	<1.93	<1.93	<1.93	<1.93	<1.93	<1.93	<1.93	<1.93	<1.93	<1.93	<1.93	<1.93	<1.93	<1.93	<1.93	<1.93	<1.93	<1.93
L4-3-5	10/22/2019	5	**4.34**	**8.12**	**26.0 Q**	**3.59 Q**	**9.10**	<2.01	<2.01	<2.01	<2.01	<2.01	<2.01	**14.6**	**16.1 Q**	**165**	**10.1**	**482 D**	<2.01	<2.01	<2.01	<2.01	<2.01	**9.99**	<2.01
L4-3-10	10/22/2019	10	<1.96	<1.96	<1.96	<1.96	<1.96	<1.96	<1.96	<1.96	<1.96	<1.96	<1.96	<1.96	<1.96	**8.57**	<1.96	**63.0**	<1.96	<1.96	<1.96	<1.96	<1.96	<1.96	<1.96

Notes

< : indicates analyte not detected above the laboratory reporting limit following the "<".

Bold indicates analytes detected above the laboratory reporting limit.

Analytical Qualifiers

Q: The ion transition ratio is outside of the acceptance criteria.

D: Sample was diluted.

Abbreviations:

feet bgs: feet below ground surface

ng/g: nanograms per gram

Table 5c
PFAS Analytical Results at Location 8 & 9
Norman Y. Mineta San José International Airport
1701 Airport Boulevard, San Jose, California

Sample ID	Sample Date	Sample Intake Depth (feet bgs)	Groundwater Analytical Results (ng/L)																						
			PFBA	PFPeA	PFHxA	PFHpA	PFOA	PFNA	PFDA	PFUnDA	PFDoDA	PFTrDA	PFTeDA	PFBS	PFPeS	PFHxS	PFHpS	PFOS	PFDS	PFOSAm	NMeFOSAA	NEtFOSAA	4:2 FTS	6:2 FTS	8:2 FTS
L8/9-4-GW	10/24/2019	23	**85.6**	**231**	**75.0**	**3.58 Q**	**2.40**	<2.14	<2.14	<2.14	<2.14	<2.14	<2.14	**6.58**	<2.14	<2.14	<2.14	<2.14	<2.14	<2.14	<2.14	<2.14	<2.14	**81.3**	**2.20**
L8/9-40-GW	10/24/2019	23	**85.5**	**232**	**70.2**	**3.66 Q**	**2.20**	<2.09	<2.09	<2.09	<2.09	<2.09	<2.09	**6.06**	<2.09	<2.09	<2.09	<2.09	<2.09	<2.09	<2.09	<2.09	<2.09	**79.6**	**2.36**
L8/9-5-GW	10/24/2019	18	**814**	**4,970 D**	**1,620**	**134**	**4.75**	<2.23	<2.23	<2.23	<2.23	<2.23	<2.23	**44.5**	**11.9**	**15.0**	<2.23	<2.23	<2.23	<2.23	<2.23	<2.23	**2.48**	**560**	**4.88**

Notes

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Bold indicates analytes detected above the laboratory reporting limit.

Analytical Qualifiers

D: Sample was diluted.

Q: The ion transition ratio is outside of the acceptance criteria.

Abbreviations:

feet bgs: feet below ground surface

ng/L: nanograms per liter

Sample ID	Sample Date	Sample Depth (feet bgs)	Soil Analytical Results (ng/g)																						
			PFBA	PFPeA	PFHxA	PFHpA	PFOA	PFNA	PFDA	PFUnDA	PFDoDA	PFTrDA	PFTeDA	PFBS	PFPeS	PFHxS	PFHpS	PFOS	PFDS	PFOSAm	NMeFOSAA	NEtFOSAA	4:2 FTS	6:2 FTS	8:2 FTS
L8/9-1-1	10/24/2019	1	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00
L8/9-1-5	10/24/2019	5	<2.01	<2.01	<2.01	<2.01	<2.01	<2.01	<2.01	<2.01	<2.01	<2.01	<2.01	<2.01	<2.01	<2.01	<2.01	<2.01	<2.01	<2.01	<2.01	<2.01	<2.01	<2.01	<2.01
L8/9-1-10	10/24/2019	10	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99
L8/9-2-1	10/24/2019	1	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99
L8/9-2-5	10/24/2019	5	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00
L8/9-2-10	10/24/2019	10	<1.98	<1.98	<1.98	<1.98	<1.98	<1.98	<1.98	<1.98	<1.98	<1.98	<1.98	<1.98	<1.98	<1.98	<1.98	<1.98	<1.98	<1.98	<1.98	<1.98	<1.98	<1.98	<1.98
L8/9-3-1	10/24/2019	1	**2.10**	**15.5**	**10.2**	**3.58**	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	**161**	<2.00
L8/9-3-5	10/24/2019	5	**1.39**	**5.93**	<1.98	<1.98	<1.98	<1.98	<1.98	<1.98	<1.98	<1.98	<1.98	<1.98	<1.98	<1.98	<1.98	<1.98	<1.98	<0.994	<1.98	<1.98	<1.98	<1.98	<1.98
L8/9-3-10	10/24/2019	10	<1.98	**9.21**	**4.29**	<1.98	<1.98	<1.98	<1.98	<1.98	<1.98	<1.98	<1.98	<1.98	<1.98	<1.98	<1.98	<1.98	<1.98	<0.997	<1.98	<1.98	<1.98	<1.98	<1.98
L8/9-4-1	10/24/2019	1	**5.49**	**23.7**	**15.6**	**2.51 Q**	<1.97	<1.97	<1.97	<1.97	<1.97	<1.97	<1.97	<1.97	<1.97	<1.97	<1.97	<1.97	<1.97	<0.996	<1.97	<1.97	<1.97	**81.4**	<1.97
L8/9-4-5	10/24/2019	5	<0.993	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<0.993	<2.00	<2.00	<2.00	<2.00	<2.00
L8/9-4-10	10/24/2019	10	<1.00	<1.93	<1.93	<1.93	<1.93	<1.93	<1.93	<1.93	<1.93	<1.93	<1.93	<1.93	<1.93	<1.93	<1.93	<1.93	<1.93	<1.00	<1.93	<1.93	<1.93	<1.93	<1.93
L8/9-5-1	10/24/2019	1	**7.95**	**26.3**	**11.1**	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	<0.999	<1.99	<1.99	<1.99	**2.53**	<1.99
L8/9-5-5	10/24/2019	5	<0.999	<1.95	<1.95	<1.95	<1.95	<1.95	<1.95	<1.95	<1.95	<1.95	<1.95	<1.95	<1.95	<1.95	<1.95	<1.95	<1.95	<0.999	<1.95	<1.95	<1.95	<1.95	<1.95
L8/9-5-10	10/24/2019	10	<0.994	<1.96	<1.96	<1.96	<1.96	<1.96	<1.96	<1.96	<1.96	<1.96	<1.96	<1.96	<1.96	<1.96	<1.96	<1.96	<1.96	<0.994	<1.96	<1.96	<1.96	<1.96	<1.96

Notes

< : indicates analyte not detected above the laboratory reporting limit following the "<".

Bold indicates analytes detected above the laboratory reporting limit.

Analytical Qualifiers

Q: The ion transition ratio is outside of the acceptance criteria.

Abbreviations:

feet bgs: feet below ground surface

ng/g: nanograms per gram

Table 5d
PFAS Analytical Results at Location 10
Norman Y. Mineta San José International Airport
1701 Airport Boulevard, San Jose, California

Sample ID	Sample Date	Sample Intake Depth (feet bgs)	Groundwater Analytical Results (ng/L)																				
			PFBA	PFPeA	PFHxA	PFHpA	PFOA	PFNA	PFDA	PFUnDA	PFDoDA	PFTrDA	PFTeDA	PFBS	PFPeS	PFHxS	PFHpS	PFOS	PFDS	PFOSAm	NMeFOSAA	NEtFOSAA	4:2 FTS	6:2 FTS	8:2 FTS
L10-1-GW	10/16/2019	18	**2,340 D**	**7,730 D**	**7,980 D**	**1330**	**585**	**3.96**	**2.24**	<2.09	<2.09	<2.09	<2.09	**518**	**497**	**3,850 D**	**49.8**	**163**	<2.09	<2.09	<2.09	<2.09	**40.2**	**8,880 D**	**61.7**
L10-10-GW	10/16/2019	18	**2,180 D**	**7,080 D**	**8,820 D**	**1240**	**456**	<2.17	**2.19**	<2.17	<2.17	<2.17	<2.17	**515**	**477**	**3,560 D**	**40.5**	**137 Q**	<2.17	<2.17	<2.17	<2.17	**45.1**	**9,040 D**	**56.4**

Notes

< : indicates analyte not detected above the laboratory reporting limit f

Bold indicates analytes detected above the laboratory reporting limit.

Analytical Qualifiers

D: Sample was diluted.

Q: The ion transition ratio is outside of the acceptance criteria.

Abbreviations:

feet bgs: feet below ground surface

ng/L: nanograms per liter

Sample ID	Sample Date	Sample Depth (feet bgs)	Soil Analytical Results (ng/g)																				
			PFBA	PFPeA	PFHxA	PFHpA	PFOA	PFNA	PFDA	PFUnDA	PFDoDA	PFTrDA	PFTeDA	PFBS	PFPeS	PFHxS	PFHpS	PFOS	PFDS	PFOSAm	NMeFOSAA	NEtFOSAA	4:2 FTS	6:2 FTS	8:2 FTS
L10-1-1	10/16/2019	1	<1.99	**6.77**	**10.8**	<1.99	**5.10**	<1.99	**7.48**	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	**7.69**	<1.99	**368**	<1.99	<1.99	<1.99	<1.99	<1.99	**322**	**286**
L10-1-5	10/16/2019	5	<1.98	**7.74**	**12.2**	<1.98	**7.29**	<1.98	<1.98	<1.98	<1.98	<1.98	<1.98	<1.98	<1.98	**30.0**	<1.98	<1.98	<1.98	<1.98	<1.98	<1.98	<1.98	**606 D**	<1.98
L10-1-10	10/16/2019	10	<2.00	**7.67**	**7.75**	<2.00	**2.91**	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	**14.0**	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	**323**	<2.00
L10-2-1	10/17/2019	1	**8.59**	**50.4**	**61.4**	**6.13**	**9.96**	<1.95	<1.95	<1.95	<1.95	<1.95	<1.95	**7.43**	**5.21**	**45.8**	<1.95	**2.97 Q**	<1.95	<1.95	<1.95	<1.95	<1.95	**762 D**	<1.95
L10-2-5	10/17/2019	5	**10.4**	**59.2**	**76.8 Q**	**4.60 Q**	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	**4.24**	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	**7.73**	<2.00
L10-2-10	10/17/2019	10	**3.59**	**17.4**	**19.6**	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	**2.36**	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	**62.9**	<2.00
L10-3-1	10/17/2019	1	<2.00	**5.27**	**4.36**	<2.00	**4.02**	**3.98**	**6.67**	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	**8.82**	<2.00	**369**	<2.00	<2.00	<2.00	<2.00	<2.00	**122**	**157**
L10-3-5	10/17/2019	5	<2.00	**6.79**	**5.31**	<2.00	**6.29**	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	**23.9**	**2.02**	**62.1**	<2.00	<2.00	<2.00	<2.00	<2.00	**205**	**13.5**
L10-3-10	10/17/2019	10	<1.96	**3.60**	**2.76**	<1.96	<1.96	<1.96	<1.96	<1.96	<1.96	<1.96	<1.96	<1.96	<1.96	<1.96	<1.96	**9.72**	<1.96	<1.96	<1.96	<1.96	<1.96	**29.8**	**53.6**

Notes

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Analytical Qualifiers

D: Sample was diluted.

Q: The ion transition ratio is outside of the acceptance criteria.

Abbreviations:

feet bgs: feet below ground surface

ng/g: nanograms per gram

Table 5e
PFAS Analytical Results at Location 11
Norman Y. Mineta San José International Airport
1701 Airport Boulevard, San Jose, California

Sample ID	Sample Date	Sample Intake Depth (feet bgs)	Groundwater Analytical Results (ng/L)																						
			PFBA	PFPeA	PFHxA	PFHpA	PFOA	PFNA	PFDA	PFUnDA	PFDoDA	PFTrDA	PFTeDA	PFBS	PFPeS	PFHxS	PFHpS	PFOS	PFDS	PFOSAm	NMeFOSAA	NEtFOSAA	4:2 FTS	6:2 FTS	8:2 FTS
L11-3-GW	10/17/2019	18	**10.2**	<2.10	<2.10	<2.10	**3.14**	<2.10	<2.10	<2.10	<2.10	<2.10	<2.10	<2.10	<2.10	<2.10	<2.10	<2.10	<2.10	<2.10	<2.10	<2.10	<2.10	<2.10	<2.10

Notes

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Bold indicates analytes detected above the laboratory reporting limit.

Abbreviations:

feet bgs: feet below ground surface

ng/L: nanograms per liter

Sample ID	Sample Date	Sample Depth (feet bgs)	Soil Analytical Results (ng/g)																						
			PFBA	PFPeA	PFHxA	PFHpA	PFOA	PFNA	PFDA	PFUnDA	PFDoDA	PFTrDA	PFTeDA	PFBS	PFPeS	PFHxS	PFHpS	PFOS	PFDS	PFOSAm	NMeFOSAA	NEtFOSAA	4:2 FTS	6:2 FTS	8:2 FTS
L11-1-1	10/17/2019	1	<1.96	<1.96	<1.96	<1.96	<1.96	<1.96	<1.96	<1.96	<1.96	<1.96	<1.96	<1.96	<1.96	<1.96	<1.96	<1.96	<1.96	<1.96	<1.96	<1.96	<1.96	<1.96	<1.96
L11 -1-5	10/17/2019	5	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00
L11-1-10	10/17/2019	10	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00
L11-2-1	10/17/2019	1	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99
L11-2-5	10/17/2019	5	<1.96	<1.96	<1.96	<1.96	<1.96	<1.96	<1.96	<1.96	<1.96	<1.96	<1.96	<1.96	<1.96	<1.96	<1.96	<1.96	<1.96	<1.96	<1.96	<1.96	<1.96	<1.96	<1.96
L11-2-10	10/17/2019	10	<1.94	<1.94	<1.94	<1.94	<1.94	<1.94	<1.94	<1.94	<1.94	<1.94	<1.94	<1.94	<1.94	<1.94	<1.94	<1.94	<1.94	<1.94	<1.94	<1.94	<1.94	<1.94	<1.94
L11-3-1	10/17/2019	1	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00
L11-3-5	10/17/2019	5	<1.93	<1.93	<1.93	<1.93	<1.93	<1.93	<1.93	<1.93	<1.93	<1.93	<1.93	<1.93	<1.93	<1.93	<1.93	<1.93	<1.93	<1.93	<1.93	<1.93	<1.93	<1.93	<1.93
L11-3-10	10/17/2019	10	<1.98	<1.98	<1.98	<1.98	<1.98	<1.98	<1.98	<1.98	<1.98	<1.98	<1.98	<1.98	<1.98	<1.98	<1.98	<1.98	<1.98	<1.98	<1.98	<1.98	<1.98	<1.98	<1.98
L11-4-1	10/17/2019	1	<1.97	<1.97	<1.97	<1.97	<1.97	<1.97	<1.97	<1.97	<1.97	<1.97	<1.97	<1.97	<1.97	<1.97	<1.97	<1.97	<1.97	<1.97	<1.97	<1.97	<1.97	<1.97	<1.97
L11-4-5	10/17/2019	5	<1.97	<1.97	<1.97	<1.97	<1.97	<1.97	<1.97	<1.97	<1.97	<1.97	<1.97	<1.97	<1.97	<1.97	<1.97	<1.97	<1.97	<1.97	<1.97	<1.97	<1.97	<1.97	<1.97
L11-4-10	10/17/2019	10	<1.95	<1.95	<1.95	<1.95	<1.95	<1.95	<1.95	<1.95	<1.95	<1.95	<1.95	<1.95	<1.95	<1.95	<1.95	<1.95	<1.95	<1.95	<1.95	<1.95	<1.95	<1.95	<1.95

Notes

< : indicates analyte not detected above the laboratory reporting limit following the "<".

Bold indicates analytes detected above the laboratory reporting limit.

Abbreviations:

feet bgs: feet below ground surface

ng/g: nanograms per gram

Table 5f
PFAS Analytical Results at Location 12
Norman Y. Mineta San José International Airport
1701 Airport Boulevard, San Jose, California

Sample ID	Sample Date	Sample Intake Depth (feet bgs)	Groundwater Analytical Results (ng/L)																						
			PFBA	PFPeA	PFHxA	PFHpA	PFOA	PFNA	PFDA	PFUnDA	PFDoDA	PFTrDA	PFTeDA	PFBS	PFPeS	PFHxS	PFHpS	PFOS	PFDS	PFOSAm	NMeFOSAA	NEtFOSAA	4:2 FTS	6:2 FTS	8:2 FTS
L12-3-GW	10/18/2019	18	**11.0**	<2.14	<2.14	<2.14	**3.55**	<2.14	<2.14	<2.14	<2.14	<2.14	<2.14	**12.3**	**7.85**	**41.7**	<2.14	**40.5**	<2.14	<2.14	<2.14	<2.14	<2.14	<2.14	<2.14
L12-30-GW	10/18/2019	18	**10.5**	<2.13	<2.13	<2.13	**3.00**	<2.13	<2.13	<2.13	<2.13	<2.13	<2.13	**12.5**	**9.05**	**45.1**	<2.13	**3.43**	<2.13	<2.13	<2.13	<2.13	<2.13	<2.13	<2.13

Notes

< : indicates analyte not detected above the laboratory reporting limit following the "<".

Bold indicates analytes detected above the laboratory reporting limit.

Abbreviations:

feet bgs: feet below ground surface

ng/L: nanograms per liter

Sample ID	Sample Date	Sample Depth (feet bgs)	Soil Analytical Results (ng/g)																						
			PFBA	PFPeA	PFHxA	PFHpA	PFOA	PFNA	PFDA	PFUnDA	PFDoDA	PFTrDA	PFTeDA	PFBS	PFPeS	PFHxS	PFHpS	PFOS	PFDS	PFOSAm	NMeFOSAA	NEtFOSAA	4:2 FTS	6:2 FTS	8:2 FTS
L12-1-1	10/18/2019	1	<1.95	<1.95	<1.95	**2.02**	**2.32**	**2.25**	**6.24**	<1.95	<1.95	<1.95	<1.95	<1.95	<1.95	**2.49**	<1.95	<1.95	<1.95	<1.95	<1.95	<1.95	<1.95	<1.95	<1.95
L12-1-5	10/18/2019	5	<1.94	<1.94	<1.94	<1.94	<1.94	<1.94	<1.94	<1.94	<1.94	<1.94	<1.94	<1.94	<1.94	<1.94	<1.94	<1.94	<1.94	<1.94	<1.94	<1.94	<1.94	<1.94	<1.94
L12-1-10	10/18/2019	10	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00
L12-2-1	10/18/2019	1	<1.96	<1.96	<1.96	<1.96	<1.96	<1.96	<1.96	<1.96	<1.96	<1.96	<1.96	<1.96	<1.96	<1.96	<1.96	<1.96	<1.96	<1.96	<1.96	<1.96	<1.96	<1.96	<1.96
L12-2-5	10/18/2019	5	<1.96	<1.96	<1.96	<1.96	<1.96	<1.96	<1.96	<1.96	<1.96	<1.96	<1.96	<1.96	<1.96	<1.96	<1.96	<1.96	<1.96	<1.96	<1.96	<1.96	<1.96	<1.96	<1.96
L12-2-10	10/18/2019	10	<1.95	<1.95	<1.95	<1.95	<1.95	<1.95	<1.95	<1.95	<1.95	<1.95	<1.95	<1.95	<1.95	<1.95	<1.95	<1.95	<1.95	<1.95	<1.95	<1.95	<1.95	<1.95	<1.95
L12-3-1	10/18/2019	1	<1.97	<1.97	<1.97	<1.97	<1.97	<1.97	<1.97	<1.97	<1.97	<1.97	<1.97	<1.97	<1.97	<1.97	<1.97	<1.97	<1.97	<1.97	<1.97	<1.97	<1.97	<1.97	<1.97
L12-3-5	10/18/2019	5	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99
L12-3-10	10/18/2019	10	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00
L12-4-1	10/18/2019	1	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99
L12-4-5	10/18/2019	5	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00
L12-4-10	10/18/2019	10	<1.92	<1.92	<1.92	<1.92	<1.92	<1.92	<1.92	<1.92	<1.92	<1.92	<1.92	<1.92	<1.92	<1.92	<1.92	<1.92	<1.92	<1.92	<1.92	<1.92	<1.92	<1.92	<1.92

Notes

< : indicates analyte not detected above the laboratory reporting limit following the "<".

Bold indicates analytes detected above the laboratory reporting limit.

Abbreviations:

feet bgs: feet below ground surface

ng/g: nanograms per gram

Table 5g

PFAS Analytical Results at Location 14

Norman Y. Mineta San José International Airport

1701 Airport Boulevard, San Jose, California

Sample ID	Sample Date	Sample Intake Depth (feet bgs)	Groundwater Analytical Results (ng/L)																						
			PFBA	PFPeA	PFHxA	PFHpA	PFOA	PFNA	PFDA	PFUnDA	PFDoDA	PFTrDA	PFTeDA	PFBS	PFPeS	PFHxS	PFHpS	PFOS	PFDS	PFOSAm	NMeFOSAA	NEtFOSAA	4:2 FTS	6:2 FTS	8:2 FTS
L14-1-GW	10/23/2019	18	<2.09	<2.09	<2.09	<2.09	<2.09	<2.09	<2.09	<2.09	<2.09	<2.09	<2.09	<2.09	<2.09	<2.09	<2.09	<2.09	<2.09	<2.09	<2.09	<2.09	<2.09	<2.09	<2.09
L14-2-GW	10/23/2019	18	<2.15	<2.15	<2.15	<2.15	<2.15	<2.15	<2.15	<2.15	<2.15	<2.15	<2.15	<2.15	<2.15	<2.15	<2.15	<2.15	<2.15	<2.15	<2.15	<2.15	<2.15	<2.15	<2.15
L14-20-GW	10/23/2019	18	<2.15	<2.15	<2.15	<2.15	<2.15	<2.15	<2.15	<2.15	<2.15	<2.15	<2.15	<2.15	<2.15	<2.15	<2.15	<2.15	<2.15	<2.15	<2.15	<2.15	<2.15	<2.15	<2.15
L14-4-GW	10/23/2019	18	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99

Notes

< : indicates analyte not detected above the laboratory reporting limit following the "<".

Bold indicates analytes detected above the laboratory reporting limit.

Abbreviations:

feet bgs: feet below ground surface

ng/L: nanograms per liter

Sample ID	Sample Date	Sample Depth (feet bgs)	Soil Analytical Results (ng/g)																						
			PFBA	PFPeA	PFHxA	PFHpA	PFOA	PFNA	PFDA	PFUnDA	PFDoDA	PFTrDA	PFTeDA	PFBS	PFPeS	PFHxS	PFHpS	PFOS	PFDS	PFOSAm	NMeFOSAA	NEtFOSAA	4:2 FTS	6:2 FTS	8:2 FTS
L14-1-1	10/23/2019	1	<2.01	<2.01	<2.01	<2.01	<2.01	<2.01	<2.01	<2.01	<2.01	<2.01	<2.01	<2.01	<2.01	<2.01	<2.01	<2.01	<2.01	<2.01	<2.01	<2.01	<2.01	<2.01	<2.01
L14-1-5	10/23/2019	5	<1.97	<1.97	<1.97	<1.97	<1.97	<1.97	<1.97	<1.97	<1.97	<1.97	<1.97	<1.97	<1.97	<1.97	<1.97	<1.97	<1.97	<1.97	<1.97	<1.97	<1.97	<1.97	<1.97
L14-1-10	10/23/2019	10	<1.93	<1.93	<1.93	<1.93	<1.93	<1.93	<1.93	<1.93	<1.93	<1.93	<1.93	<1.93	<1.93	<1.93	<1.93	<1.93	<1.93	<1.93	<1.93	<1.93	<1.93	<1.93	<1.93
L14-2-1	10/23/2019	1	<1.95	<1.95	<1.95	<1.95	<1.95	<1.95	<1.95	<1.95	<1.95	<1.95	<1.95	<1.95	<1.95	<1.95	<1.95	**3.91 Q**	<1.95	<1.95	<1.95	<1.95	<1.95	<1.95	<1.95
L14-2-5	10/23/2019	5	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99
L14-2-10	10/23/2019	10	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00
L14-3-1	10/24/2019	1	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	**3.07 Q**	<2.00	<0.991	<2.00	<2.00	<2.00	<2.00	<2.00
L14-3-5	10/24/2019	5	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<0.997	<2.00	<2.00	<2.00	<2.00	<2.00
L14-3-10	10/24/2019	10	<1.98	<1.98	<1.98	<1.98	<1.98	<1.98	<1.98	<1.98	<1.98	<1.98	<1.98	<1.98	<1.98	<1.98	<1.98	<1.98	<1.98	<0.990	<1.98	<1.98	<1.98	<1.98	<1.98
L14-4-1	10/23/2019	1	<1.95	<1.95	<1.95	<1.95	<1.95	<1.95	<1.95	<1.95	<1.95	<1.95	<1.95	<1.95	<1.95	<1.95	<1.95	**5.57 Q**	<1.95	<1.95	<1.95	<1.95	<1.95	<1.95	<1.95
L14-4-5	10/23/2019	5	<1.94	<1.94	<1.94	<1.94	<1.94	<1.94	<1.94	<1.94	<1.94	<1.94	<1.94	<1.94	<1.94	<1.94	<1.94	<1.94	<1.94	<1.94	<1.94	<1.94	<1.94	<1.94	<1.94
L14-4-10	10/23/2019	10	<1.93	<1.93	<1.93	<1.93	<1.93	<1.93	<1.93	<1.93	<1.93	<1.93	<1.93	<1.93	<1.93	<1.93	<1.93	<1.93	<1.93	<1.93	<1.93	<1.93	<1.93	<1.93	<1.93
L14-5-1	10/24/2019	1	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	<0.995	<1.99	<1.99	<1.99	<1.99	<1.99
L14-5-5	10/24/2019	5	<1.94	<1.94	<1.94	<1.94	<1.94	<1.94	<1.94	<1.94	<1.94	<1.94	<1.94	<1.94	<1.94	<1.94	<1.94	<1.94	<1.94	<0.992	<1.94	<1.94	<1.94	<1.94	<1.94
L14-5-10	10/24/2019	10	<1.98	<1.98	<1.98	<1.98	<1.98	<1.98	<1.98	<1.98	<1.98	<1.98	<1.98	<1.98	<1.98	<1.98	<1.98	<1.98	<1.98	<0.992	<1.98	<1.98	<1.98	<1.98	<1.98
L14-6-1	10/24/2019	1	<1.96	<1.96	<1.96	<1.96	<1.96	<1.96	<1.96	<1.96	<1.96	<1.96	<1.96	<1.96	<1.96	<1.96	<1.96	<1.96	<1.96	<0.992	<1.96	<1.96	<1.96	<1.96	<1.96
L14-6-5	10/24/2019	5	<1.96	<1.96	<1.96	<1.96	<1.96	<1.96	<1.96	<1.96	<1.96	<1.96	<1.96	<1.96	<1.96	<1.96	<1.96	<1.96	<1.96	<0.992	<1.96	<1.96	<1.96	<1.96	<1.96
L14-6-10	10/24/2019	10	<1.95	<1.95	<1.95	<1.95	<1.95	<1.95	<1.95	<1.95	<1.95	<1.95	<1.95	<1.95	<1.95	<1.95	<1.95	<1.95	<1.95	<0.994	<1.95	<1.95	<1.95	<1.95	<1.95

Notes

< : indicates analyte not detected above the laboratory reporting limit following the "<".

Bold indicates analytes detected above the laboratory reporting limit.

Analytical Qualifiers

Q: The ion transition ratio is outside of the acceptance criteria.

Abbreviations:

feet bgs: feet below ground surface

ng/g: nanograms per gram

Table 6
PFAS Analytical Results for Groundwater
Norman Y. Mineta San José International Airport
1701 Airport Boulevard, San Jose, California

Location Number	Sample ID	Sample Date	Sample Intake Depth (feet bgs)	Groundwater Analytical Results (ng/L)																						
				PFBA	PFPeA	PFHxA	PFHpA	PFOA	PFNA	PFDA	PFUnDA	PFDoDA	PFTrDA	PFTeDA	PFBS	PFPeS	PFHxS	PFHpS	PFOS	PFDS	PFOSAm	NMeFOSAA	NEtFOSAA	4:2 FTS	6:2 FTS	8:2 FTS
3	L3-3-GW	10/23/2019	18	**10.2**	**7.78**	**15.1**	**3.28**	**29.7**	<2.10	<2.10	<2.10	<2.10	<2.10	<2.10	**12.6**	**5.55**	**37.2**	<2.10	**37.9**	<2.10	<2.10	<2.10	<2.10	<2.10	**2.58**	<2.10
4	L4-2-GW	10/22/2019	18	**31.4**	**39.5**	**168**	**14.3**	**25.6**	**21.8**	<2.16	<2.16	<2.16	<2.16	<2.16	**152**	**90.6**	**442**	**30.9**	**1,740**	<2.16	<2.16	<2.16	<2.16	<2.16	**12.4**	**9.83**
	L4-20-GW	10/22/2019	18	**32.1**	**42.2**	**170**	**13.9**	**26.0**	**23.2**	<2.12	<2.12	<2.12	<2.12	<2.12	**149**	**87.4**	**448**	**36.9**	**2,190 D**	<2.12	<2.12	<2.12	<2.12	<2.12	**11.7**	**12.6**
8/9	L8/9-4-GW	10/24/2019	23	**85.6**	**231**	**75.0**	**3.58 Q**	**2.40**	<2.14	<2.14	<2.14	<2.14	<2.14	<2.14	**6.58**	<2.14	<2.14	<2.14	<2.14	<2.14	<2.14	<2.14	<2.14	<2.14	**81.3**	**2.20**
	L8/9-40-GW	10/24/2019	23	**85.5**	**232**	**70.2**	**3.66 Q**	**2.20**	<2.09	<2.09	<2.09	<2.09	<2.09	<2.09	**6.06**	<2.09	<2.09	<2.09	<2.09	<2.09	<2.09	<2.09	<2.09	<2.09	**79.6**	**2.36**
	L8/9-5-GW	10/24/2019	18	**814**	**4,970 D**	**1,620**	**134**	**4.75**	<2.23	<2.23	<2.23	<2.23	<2.23	<2.23	**44.5**	**11.9**	**15.0**	<2.23	<2.23	<2.23	<2.23	<2.23	<2.23	**2.48**	**560**	**4.88**
10	L10-1-GW	10/16/2019	18	**2,340 D**	**7,730 D**	**7,980 D**	**1,330**	**585**	**3.96**	**2.24**	<2.09	<2.09	<2.09	<2.09	**518**	**497**	**3,850 D**	**49.8**	**163**	<2.09	<2.09	<2.09	<2.09	**40.2**	**8,880 D**	**61.7**
	L10-10-GW	10/16/2019	18	**2,180 D**	**7,080 D**	**8,820 D**	**1,240**	**456**	<2.17	**2.19**	<2.17	<2.17	<2.17	<2.17	**515**	**477**	**3,560 D**	**40.5**	**137 Q**	<2.17	<2.17	<2.17	<2.17	**45.1**	**9,040 D**	**56.4**
11	L11-3-GW	10/17/2019	18	**10.2**	<2.10	<2.10	<2.10	**3.14**	<2.10	<2.10	<2.10	<2.10	<2.10	<2.10	<2.10	<2.10	<2.10	<2.10	<2.10	<2.10	<2.10	<2.10	<2.10	<2.10	<2.10	<2.10
12	L12-3-GW	10/18/2019	18	**11.0**	<2.14	<2.14	<2.14	**3.55**	<2.14	<2.14	<2.14	<2.14	<2.14	<2.14	**12.3**	**7.85**	**41.7**	<2.14	**40.5**	<2.14	<2.14	<2.14	<2.14	<2.14	<2.14	<2.14
	L12-30-GW	10/18/2019	18	**10.5**	<2.13	<2.13	<2.13	**3.00**	<2.13	<2.13	<2.13	<2.13	<2.13	<2.13	**12.5**	**9.05**	**45.1**	<2.13	**3.43**	<2.13	<2.13	<2.13	<2.13	<2.13	<2.13	<2.13
14	L14-1-GW	10/23/2019	18	<2.09	<2.09	<2.09	<2.09	<2.09	<2.09	<2.09	<2.09	<2.09	<2.09	<2.09	<2.09	<2.09	<2.09	<2.09	<2.09	<2.09	<2.09	<2.09	<2.09	<2.09	<2.09	<2.09
	L14-2-GW	10/23/2019	18	<2.15	<2.15	<2.15	<2.15	<2.15	<2.15	<2.15	<2.15	<2.15	<2.15	<2.15	<2.15	<2.15	<2.15	<2.15	<2.15	<2.15	<2.15	<2.15	<2.15	<2.15	<2.15	<2.15
	L14-20-GW	10/23/2019	18	<2.15	<2.15	<2.15	<2.15	<2.15	<2.15	<2.15	<2.15	<2.15	<2.15	<2.15	<2.15	<2.15	<2.15	<2.15	<2.15	<2.15	<2.15	<2.15	<2.15	<2.15	<2.15	<2.15
	L14-4-GW	10/23/2019	18	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99

Notes

< : indicates analyte not detected above the laboratory reporting limit following the "<".

Bold indicates analytes detected above the laboratory reporting limit.

Analytical Qualifiers

D: Sample was diluted.

Q: The ion transition ratio is outside of the acceptance criteria.

Abbreviations:

feet bgs: feet below ground surface

ng/L: nanograms per liter

Table 7

Federal and State Advisory and Notification Levels for PFOA and PFOS in Drinking Water

Norman Y. Mineta San José International Airport

1701 Airport Boulevard, San Jose, California

Location Number	Sample ID	Sample Date	Sample Intake Depth (feet bgs)	U.S. EPA LHA (PFOA + PFAS)	CA NL (PFOA)	CA NL (PFOS)	PFOA and PFOS Groundwater Analytical Results (ng/L)		
							PFOA	PFOS	PFOA + PFOS*
3	L3-3-GW	10/23/2019	18	70	5.1	6.5	**29.7**	**37.9**	**67.6**
4	L4-2-GW	10/22/2019	18	70	5.1	6.5	**25.6**	**1,740**	**1,765.6**
	L4-20-GW	10/22/2019	18	70	5.1	6.5	**26**	**2,190**	**2216**
8/9	L8/9-4-GW	10/24/2019	23	70	5.1	6.5	**2.4**	<2.14	**2.4**
	L8/9-40-GW	10/24/2019	23	70	5.1	6.5	**2.2**	<2.09	**2.2**
	L8/9-5-GW	10/24/2019	18	70	5.1	6.5	**4.75**	<2.23	**4.75**
10	L10-1-GW	10/16/2019	18	70	5.1	6.5	**585**	**163**	**748**
	L10-10-GW	10/16/2019	18	70	5.1	6.5	**456**	**137**	**593**
11	L11-3-GW	10/17/2019	18	70	5.1	6.5	**3.14**	<2.10	**3.14**
12	L12-3-GW	10/18/2019	18	70	5.1	6.5	**3.55**	**40.5**	**44.05**
	L12-30-GW	10/18/2019	18	70	5.1	6.5	**3**	**3.43**	**6.43**
14	L14-1-GW	10/23/2019	18	70	5.1	6.5	<2.09	<2.09	0
	L14-2-GW	10/23/2019	18	70	5.1	6.5	<2.15	<2.15	0
	L14-20-GW	10/23/2019	18	70	5.1	6.5	<2.15	<2.15	0
	L14-4-GW	10/23/2019	18	70	5.1	6.5	<1.99	<1.99	0

Notes

< : indicates analyte not detected above the laboratory reporting limit following the "<".

Bold indicates analytes detected above the laboratory reporting limit.

🟨 Indicates analyte was detected above the USEPA LHA (for the sum of PFOA and PFOS concentrations in groundwater).

▒ Indicates analyte was detected above the California Notification Levels (for PFOA and PFOS concentrations in groundwater, individually).

* = PFOA and PFOS analytes not detected above the laboratory reporting limit were assigned a value of 0 for calculation of the sum of PFOA and PFOS concentrations in groundwater.

Abbreviations:

feet bgs: feet below ground surface

ng/L: nanograms per liter

U.S. EPA LHA: United States Environmental Protection Agency Lifetime Health Advisory for Drinking Water.

CA NL: California Notification Level for Drinking Water.

References

United States Environmetnal Protection Agency, Office of Water, Health and Ecological Criteria Division. 2016. *Drinking Water Health Advisory for Perfluorooctanoic Acid (PFOA)* . May.

United States Environmetnal Protection Agency, Office of Water, Health and Ecological Criteria Division. 2016. *Drinking Water Health Advisory for Perfluorooctane Sulfonate (PFOS)* . May.

California Environmental Protection Agency, Office of Environmental Health Hazard Assessment, Pesticide and Environmental Toxicology Branch. 2019. *Notification Level Recommendation Perfluorooctanoic Acid and Perfluorooctane Sulfonate in Drinking Water.* August.

FIGURES

Figure 1. Site Location

1701 Airport Blvd,
San Jose, CA 95110

PFAS Completion Report

Legend

🟥 Norman Y. Mineta San Jose International Airport

0 0.5 1 2 Miles

N

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Figure 2. Site Plan

1701 Airport Blvd,
San Jose, CA 95110

PFAS Completion Report

Legend

🟥 AFFF Storage, Use and Release Locations

12 AFFF Use and Release Locations Selected for Sampling

1. Fire Station #20
2. Building 1000
3. Former Fire Training Area 1
4. Former Fire Training Area 2
5. Signature Flight Support Hangars
6. Atlantic Aviation Hangars

7a. Swissport Fueling, Airside Fuel Rack

7b. Swissport Fueling, Offsite Fuel Tank Farm

8. Ground Support Equipment Wash Rack with Oil-water Separator
9. AFFF Testing Release on 12/19/18
10. Dilute AFFF Discharge
11. Incident on 6/24/12
12. Incident on 3/24/16
13. Gate 18 Tug Fire on 10/19/18
14. Accidental Releases on 2/6/18 (inside Hangar 7) and 11/18/16 (inside and outside Hangar 7)
15. Hewlett Packard Enterprise Hangar

0 0.1 0.2 0.4 Miles

N

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Map Created: Jan. 2020

Figure Exported: 1/21/2020 By: solney Using: \\woodardcurran.net\shared\Projects\0232401.01 Kimley Horn PFAS Completion Rpt\wip\GIS\Figure 2 - Site Plan_v2.mxd

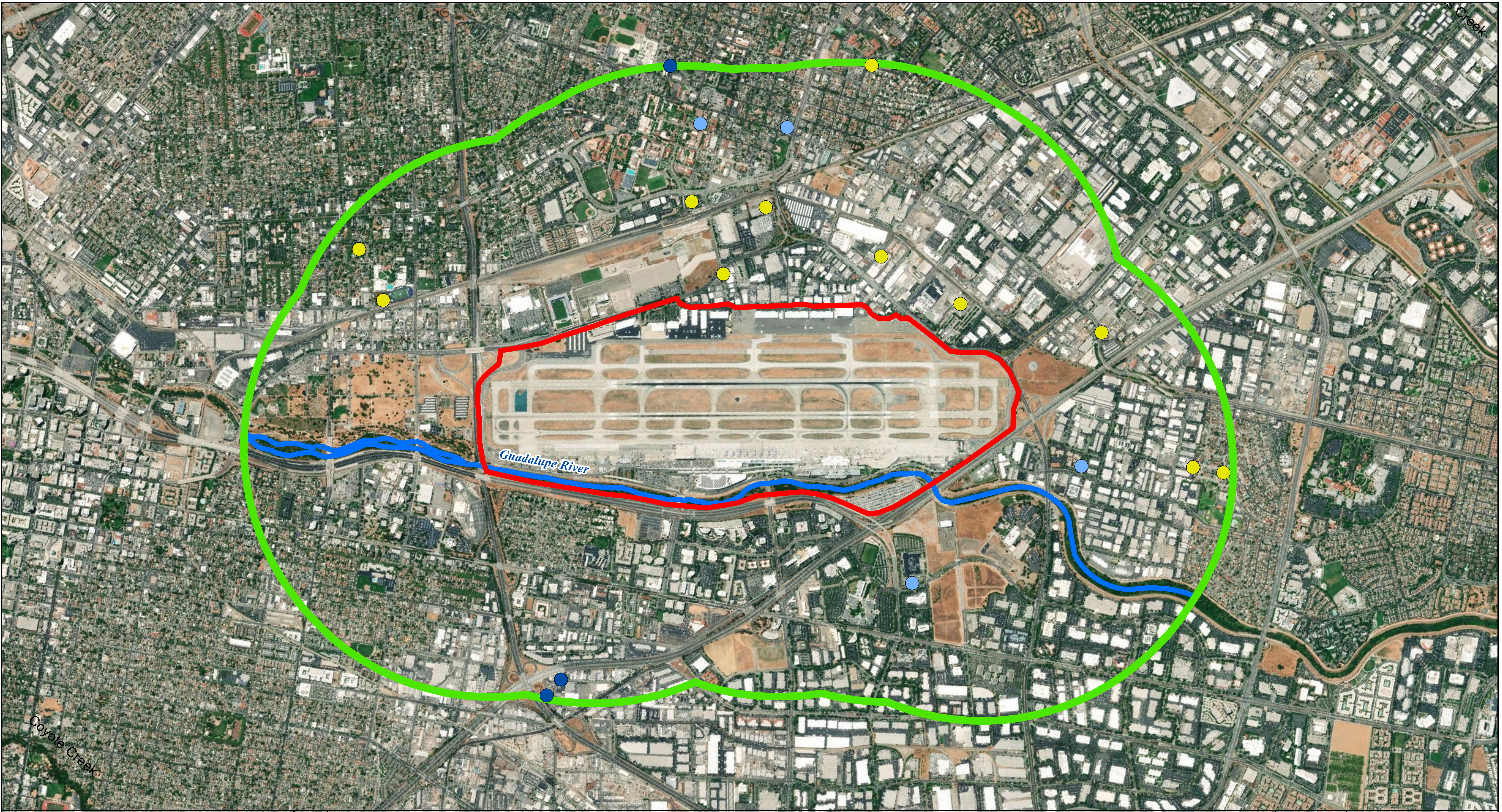

Figure 3.
Sensitive Receptors

1701 Airport Blvd,
San Jose, CA 95110

PFAS Completion Report

Legend

🟦	Surface Water
🟩	Combined 1-mile Radius Search Area for All Storage, Use and Release Locations
🟥	Norman Y. Mineta San Jose International Airport

Santa Clara Valley Water District Identified Wells

●	Water Supply

State/Federal Identified Wells

●	Water Supply Domestic
●	Water Supply Public

Note: Combined 1-mile Radius Search Area is based off the sensitive receptor survey completed in the PFAS Preliminary Investigation Work Plan (Woodard & Curran, 2019)

0 0.15 0.3 0.6
Miles

N

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Map Created: Jan. 2020

Figure Exported: 1/30/2020 By: solney Using: \\woodardcurran.net\shared\Projects\0232401.01 Kimley Horn PFAS Completion Rpt\wip\GIS\Figure 3 - Sensitive Receptor Survey.mxd

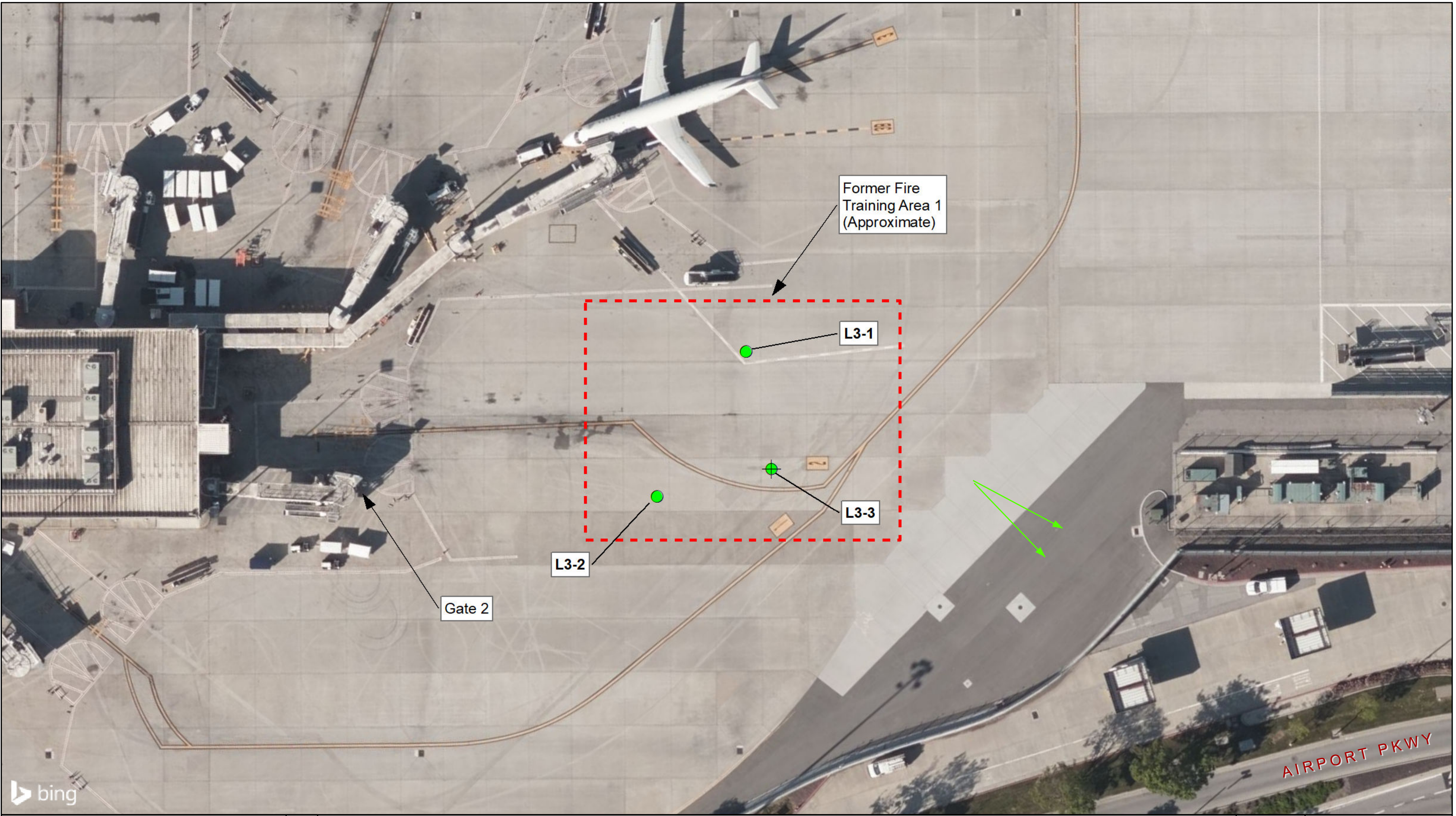

Figure 4a. Soil and Groundwater Samples at Location 3

1701 Airport Blvd,
San Jose, CA 95110

PFAS Completion Report

Legend

- 🟥 AFFF Use Location, Dashed Where Estimated
- ● Soil Boring
- ⊕ Soil Boring and Temporary Groundwater Well
- ↘ Approximate Groundwater Flow Direction

0 25 50 100 Feet

N

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Project #: 0232401.01
Map Created: Jan. 2020

Figure Exported: 1/30/2020 By: solney Using: \\woodardcurran.net\shared\Projects\0232401.01 Kimley Horn PFAS Completion Rpt\wip\GIS\Figure 4a.mxd

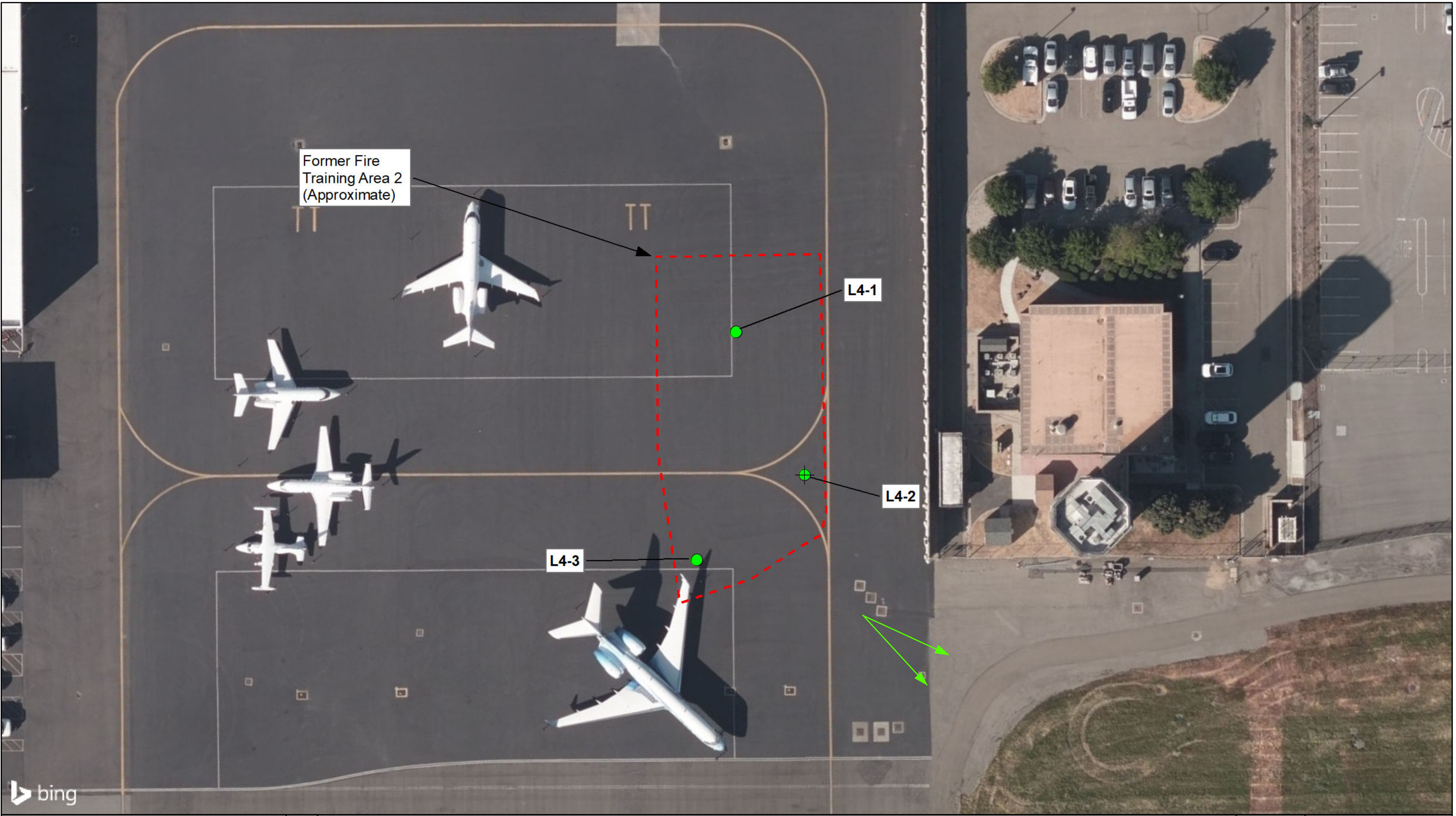

Figure 4b. Soil and Groundwater Samples at Location 4

1701 Airport Blvd,
San Jose, CA 95110

PFAS Completion Report

Legend

🟥 AFFF Use Location, Dashed Where Estimated
● Soil Boring
⊕ Soil Boring and Temporary Groundwater Well
↙ Approximate Groundwater Flow Direction

0 25 50 100 Feet

N

WOODARD &CURRAN

Project #: 0232401.01
Map Created: Jan. 2020

Figure Exported: 1/30/2020 By: solney Using: \\woodardcurran.net\shared\Projects\0232401.01 Kimley Horn PFAS Completion Rpt\wip\GIS\Figure 4b.mxd

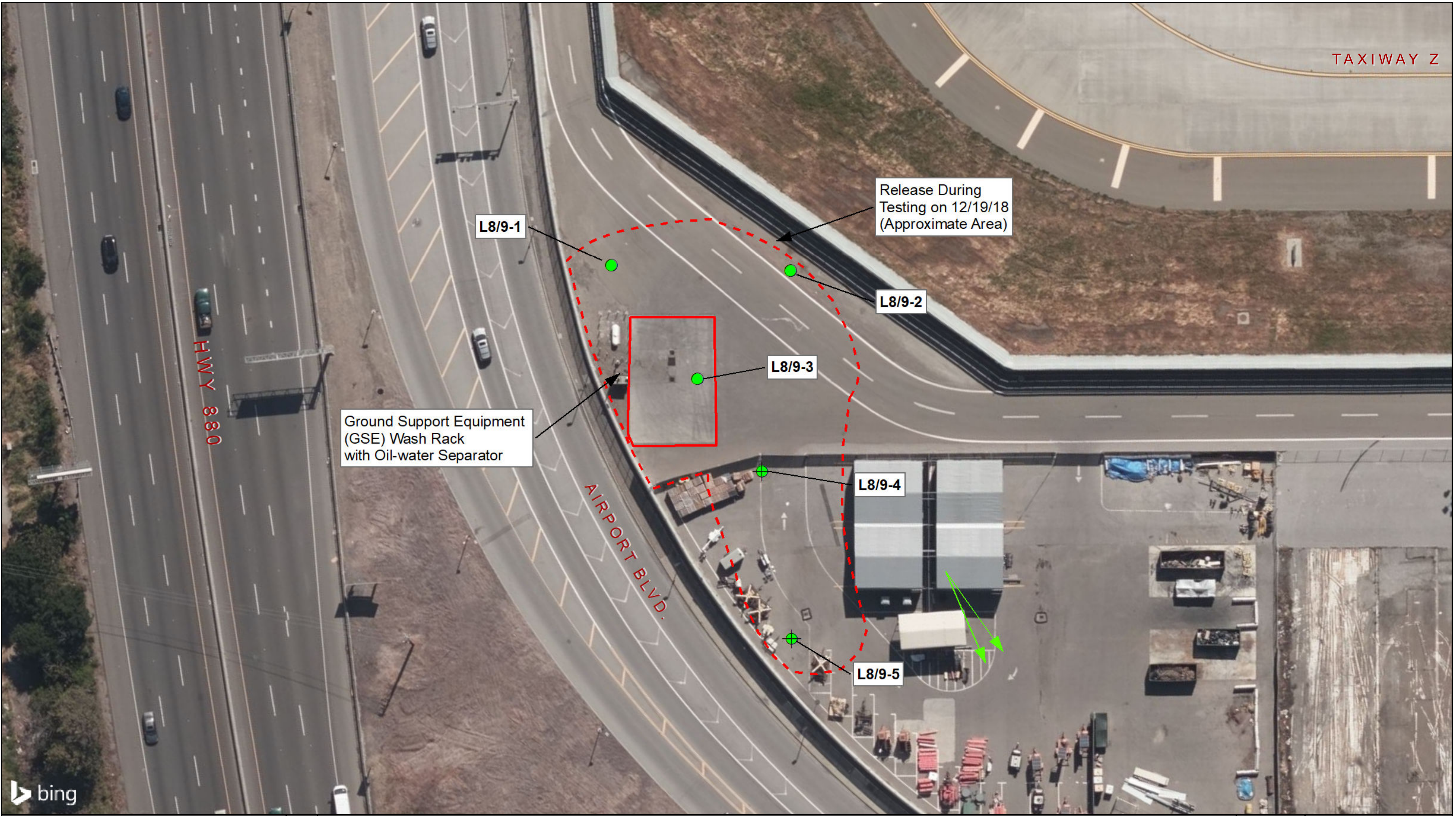

Figure 4c. Soil and Groundwater Samples at Locations 8 and 9

1701 Airport Blvd.
San Jose, CA 95110

PFAS Completion Report

Legend

- 🟥 AFFF Use Locations, Dashed Where Estimated
- ● Soil Boring
- ⊕ Soil Boring and Temporary Groundwater Well
- ↘ Approximate Groundwater Flow Direction

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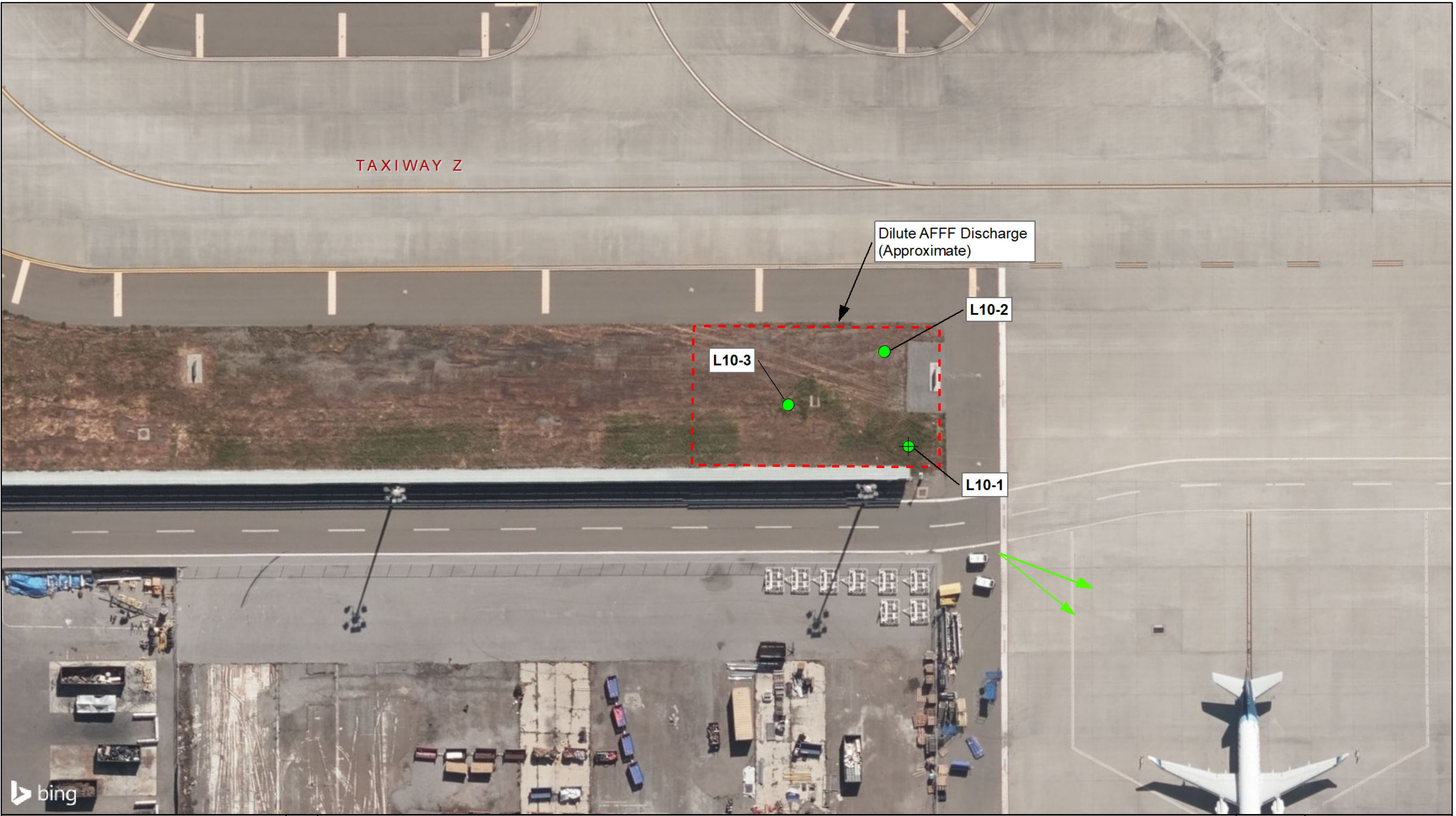

Figure 4d. Soil and Groundwater Samples at Location 10

1701 Airport Blvd.
San Jose, CA 95110

PFAS Completion Report

Legend

- 🟥 AFFF Use Location, Dashed Where Estimated
- ● Soil Boring
- ⊕ Soil Boring and Temporary Groundwater Well
- ↘ Approximate Groundwater Flow Direction

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Project #: 0232401.01
Map Created: Jan. 2020

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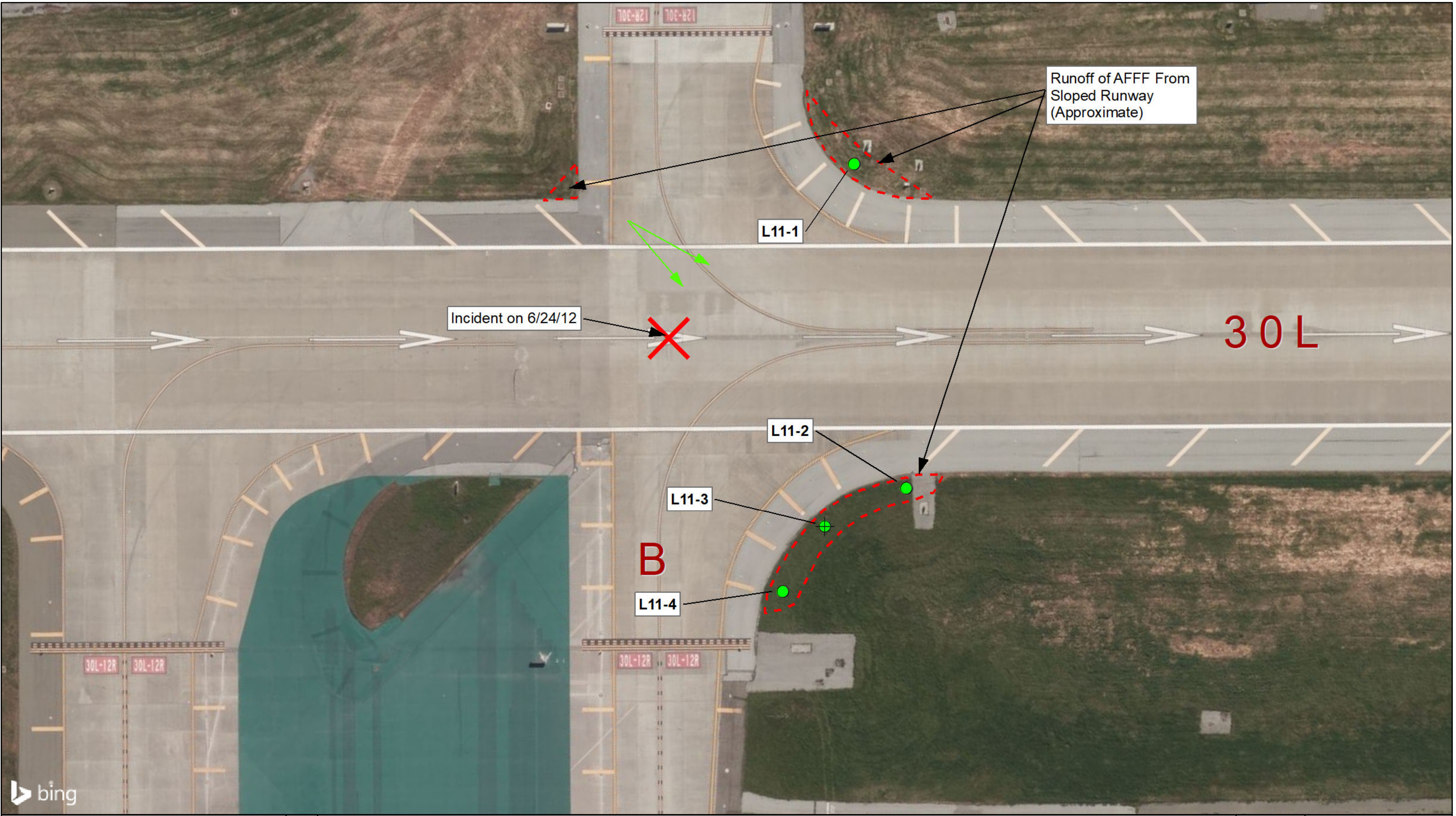

Figure 4e. Soil and Groundwater Samples at Location 11

1701 Airport Blvd.
San Jose, CA 95110

PFAS Completion Report

Legend

- 🟥 AFFF Use Location, Dashed Where Estimated
- ● Soil Boring
- ⊕ Soil Boring and Temporary Groundwater Well
- ↘ Approximate Groundwater Flow Direction

0 40 80 160
Feet

N

WOODARD &CURRAN

Project #: 0232401.01
Map Created: Jan. 2020

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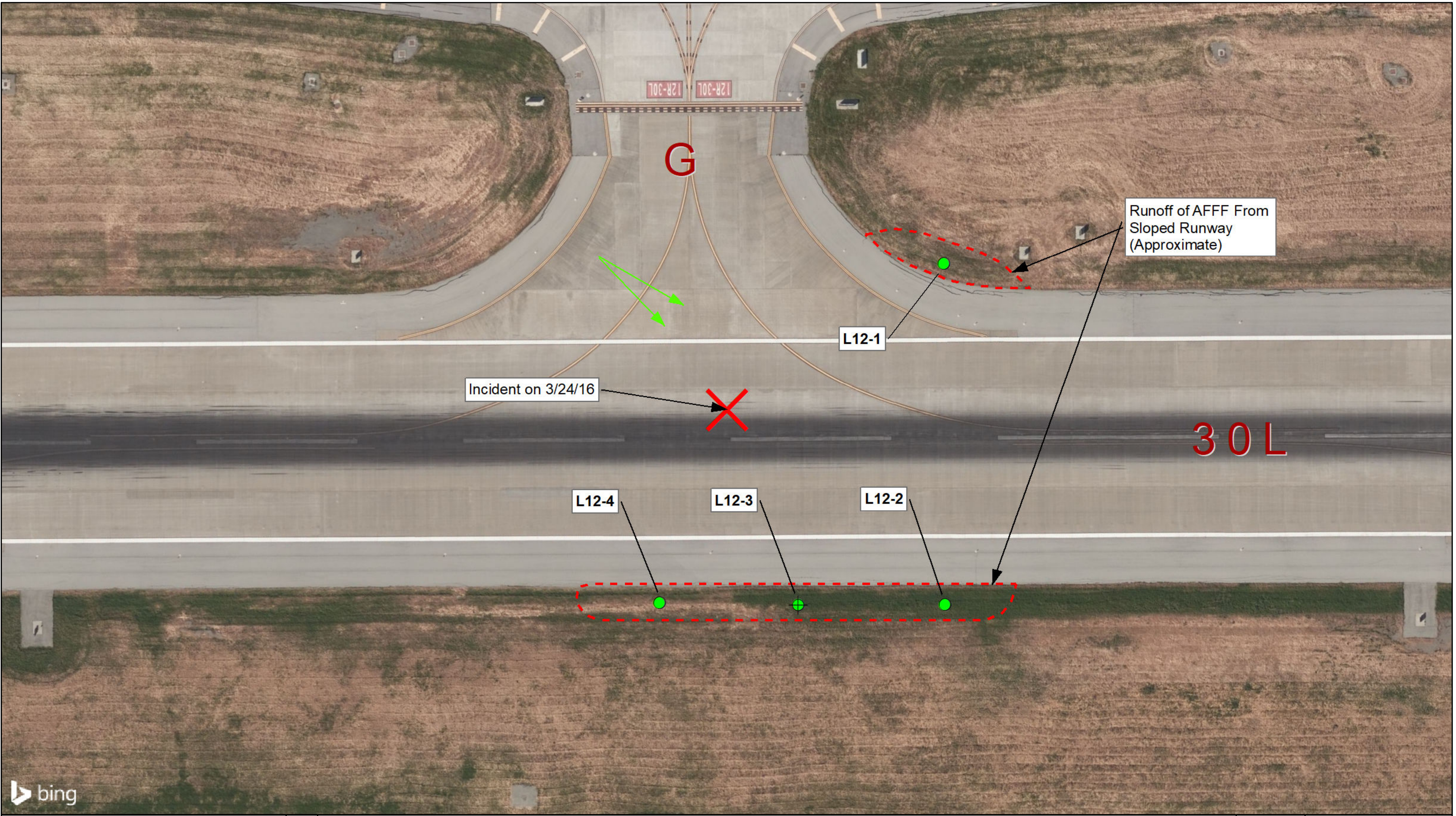

Figure 4f. Soil and Groundwater Samples at Location 12

1701 Airport Blvd.
San Jose, CA 95110

PFAS Completion Report

Legend

- 🟥 AFFF Use Location, Dashed Where Estimated
- ● Soil Boring
- ⊕ Soil Boring and Temporary Groundwater Well
- ↘ Approximate Groundwater Flow Direction

WOODARD &CURRAN
Project #: 0232401.01
Map Created: Jan. 2020

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Figure 4g. Soil and Groundwater Samples at Location 14

1701 Airport Blvd.
San Jose, CA 95110

PFAS Completion Report

Legend

- 🟥 AFFF Storage and Release Locations, Dashed Where Estimated
- ● Soil Boring
- ⊕ Soil Boring and Temporary Groundwater Well
- ↗ Approximate Groundwater Flow Direction

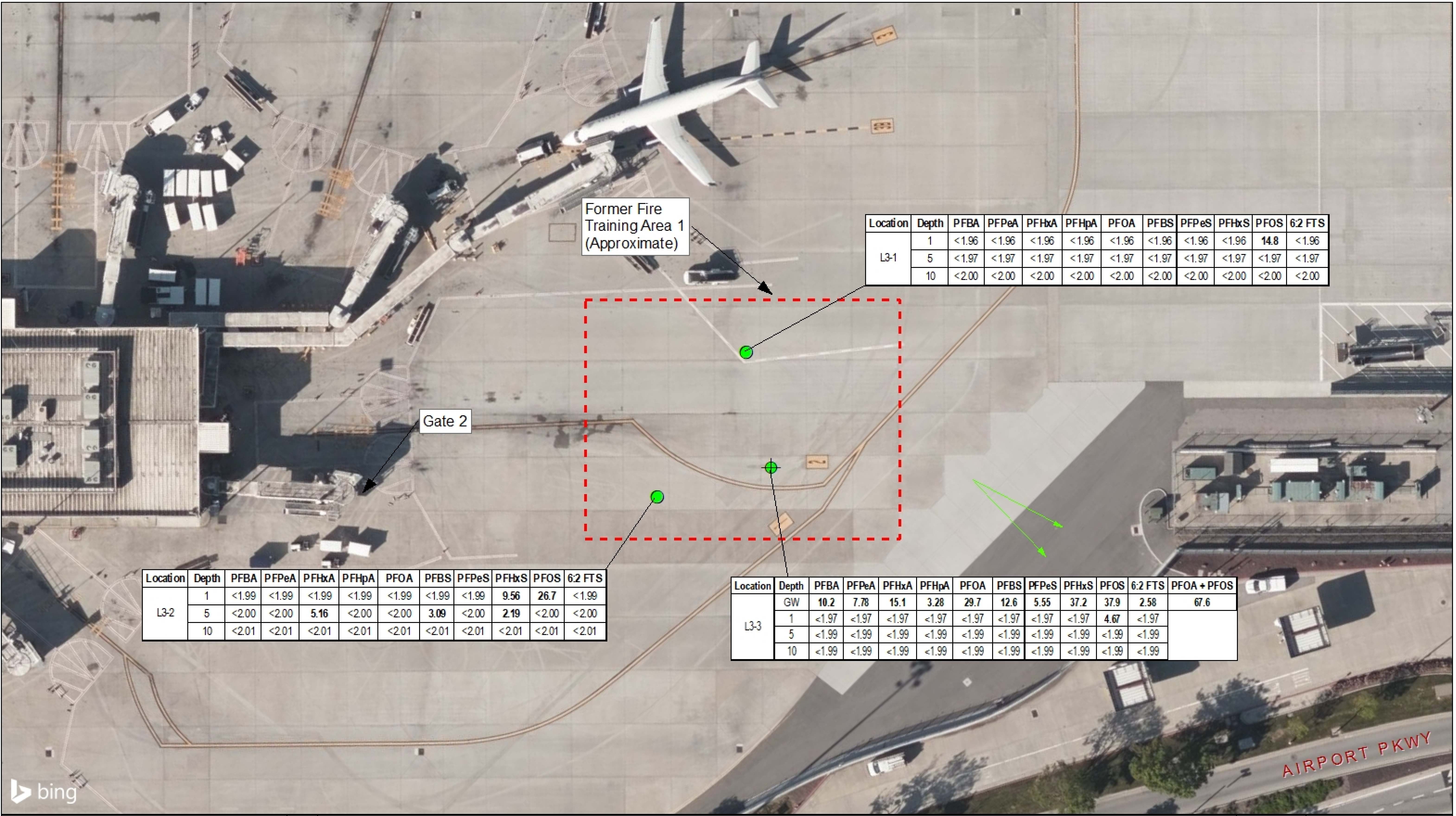
0 50 100 200
Feet

N

WOODARD & CURRAN

Project #: 0232401.01
Map Created: Jan. 2020

Figure Exported: 1/30/2020 By: solney Using: \\woodardcurran.net\shared\Projects\0232401.01 Kimley Horn PFAS Completion Rpt\wip\GIS\Figure 4g.mxd



Location	Depth	PFBA	PFPeA	PFHxA	PFHpA	PFOA	PFBS	PFPeS	PFHxS	PFOS	6:2 FTS
L3-1	1	<1.96	<1.96	<1.96	<1.96	<1.96	<1.96	<1.96	<1.96	**14.8**	<1.96
	5	<1.97	<1.97	<1.97	<1.97	<1.97	<1.97	<1.97	<1.97	<1.97	<1.97
	10	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00

Location	Depth	PFBA	PFPeA	PFHxA	PFHpA	PFOA	PFBS	PFPeS	PFHxS	PFOS	6:2 FTS
L3-2	1	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	**9.56**	**26.7**	<1.99
	5	<2.00	<2.00	**5.16**	<2.00	<2.00	**3.09**	<2.00	**2.19**	<2.00	<2.00
	10	<2.01	<2.01	<2.01	<2.01	<2.01	<2.01	<2.01	<2.01	<2.01	<2.01

Location	Depth	PFBA	PFPeA	PFHxA	PFHpA	PFOA	PFBS	PFPeS	PFHxS	PFOS	6:2 FTS	PFOA + PFOS
L3-3	GW	**10.2**	**7.78**	**15.1**	**3.28**	**29.7**	**12.6**	**5.55**	**37.2**	**37.9**	**2.58**	**67.6**
	1	<1.97	<1.97	<1.97	<1.97	<1.97	<1.97	<1.97	<1.97	**4.67**	<1.97	
	5	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	
	10	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	

Figure 5a. PFAS Analytical Results at Location 3

1701 Airport Blvd,
San Jose, CA 95110

PFAS Completion Report

Legend

- 🟥 AFFF Use Location, Dashed Where Estimated
- ● Soil Boring
- ⊕ Soil Boring and Temporary Groundwater Well
- ↘ Approximate Groundwater Flow Direction

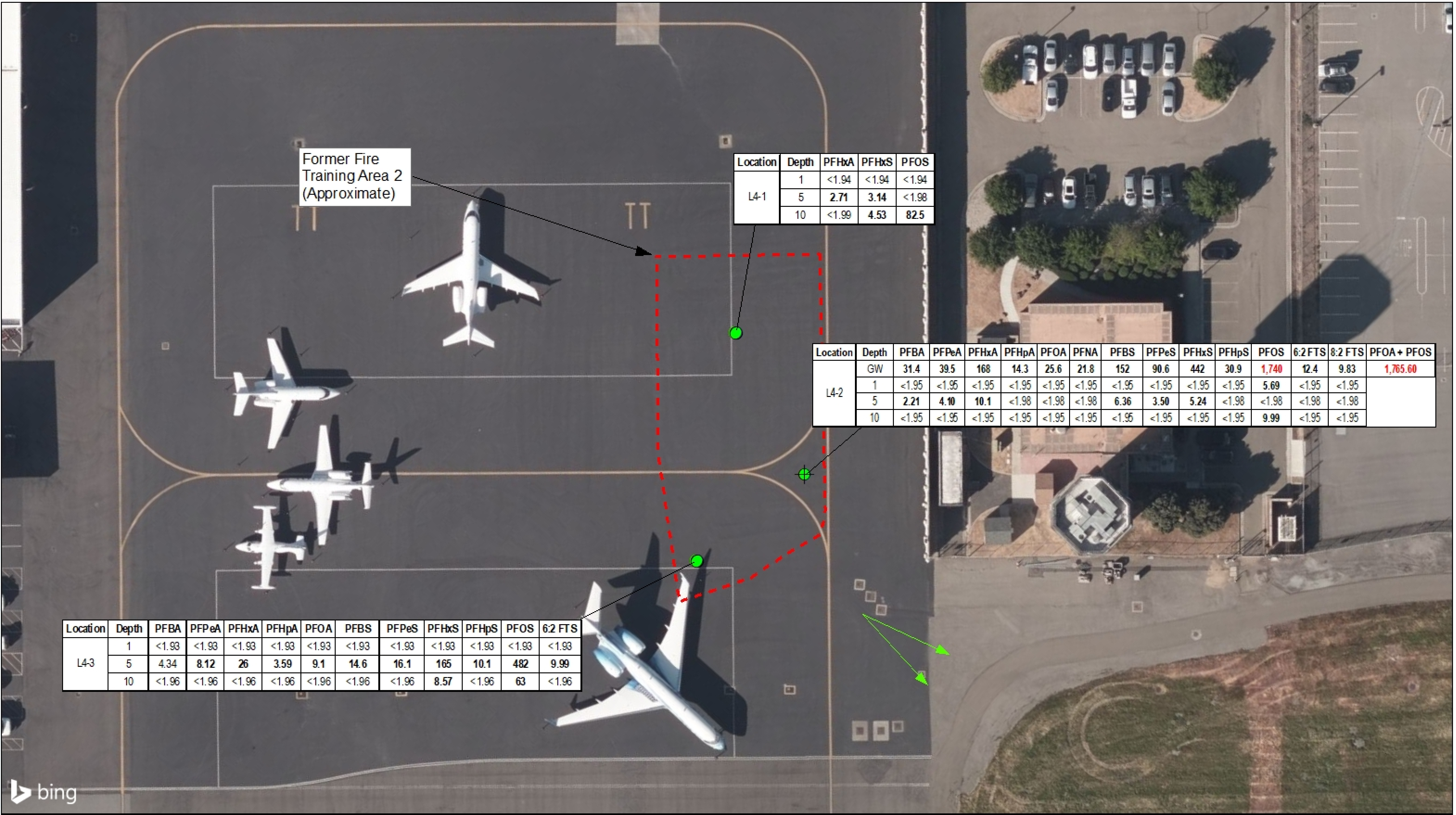
Notes:
1. Only constituents with a result detected above the laboratory reporting limit in at least one sample per location are shown.
2. Results reported in ng/L.
3. Sample depths in feet below groundsurface.

0 25 50 100 Feet

N

WOODARD & CURRAN

Project #: 0232401.01
Map Created: Jan. 2020



Location	Depth	PFHxA	PFHxS	PFOS
L4-1	1	<1.94	<1.94	<1.94
	5	2.71	3.14	<1.98
	10	<1.99	4.53	82.5

Location	Depth	PFBA	PFPeA	PFHxA	PFHpA	PFOA	PFNA	PFBS	PFPeS	PFHxS	PFHpS	PFOS	6:2 FTS	8:2 FTS	PFOA + PFOS
L4-2	GW	31.4	39.5	168	14.3	25.6	21.8	152	90.6	442	30.9	1,740	12.4	9.83	1,765.60
	1	<1.95	<1.95	<1.95	<1.95	<1.95	<1.95	<1.95	<1.95	<1.95	<1.95	5.69	<1.95	<1.95	
	5	2.21	4.10	10.1	<1.98	<1.98	<1.98	6.36	3.50	5.24	<1.98	<1.98	<1.98	<1.98	
	10	<1.95	<1.95	<1.95	<1.95	<1.95	<1.95	<1.95	<1.95	<1.95	<1.95	9.99	<1.95	<1.95	

Location	Depth	PFBA	PFPeA	PFHxA	PFHpA	PFOA	PFBS	PFPeS	PFHxS	PFHpS	PFOS	6:2 FTS
L4-3	1	<1.93	<1.93	<1.93	<1.93	<1.93	<1.93	<1.93	<1.93	<1.93	<1.93	<1.93
	5	4.34	8.12	26	3.59	9.1	14.6	16.1	165	10.1	482	9.99
	10	<1.96	<1.96	<1.96	<1.96	<1.96	<1.96	<1.96	8.57	<1.96	63	<1.96

Figure 5b. PFAS Analytical Results at Location 4

1701 Airport Blvd,
San Jose, CA 95110

PFAS Completion Report

Legend

- 🟥 AFFF Use Location, Dashed Where Estimated
- ● Soil Boring
- ⊕ Soil Boring and Temporary Groundwater Well
- ↘ Approximate Groundwater Flow Direction

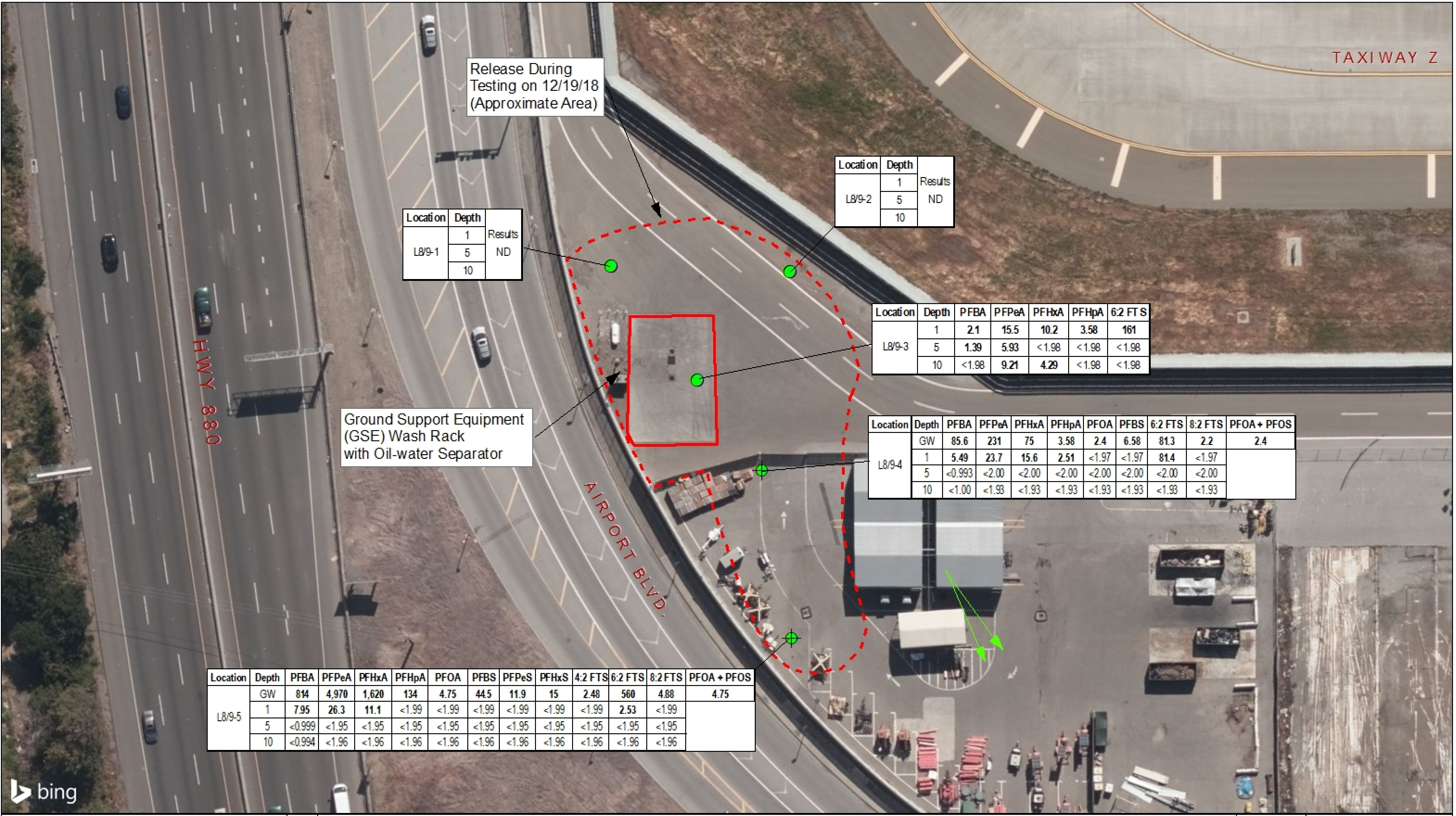
Notes:
1. Only constituents with a result detected above the laboratory reporting limit in at least one sample per location are shown.
2. Results reported in ng/L.
3. Sample depths in feet below groundsurface.
4. Concentrations in RED exceed the USEPA Health Advisory of 70 ng/L for PFOA, PFOS, and a sum of the two.

0 25 50 100 Feet

N

WOODARD & CURRAN

Project #: 0232401.01
Map Created: Jan. 2020



Location	Depth	Results
L8/9-1	1	ND
	5	
	10	

Location	Depth	Results
L8/9-2	1	ND
	5	
	10	

Location	Depth	PFBA	PFPeA	PFHxA	PFHpA	6:2 FTS
L8/9-3	1	**2.1**	**15.5**	**10.2**	**3.58**	**161**
	5	**1.39**	**5.93**	<1.98	<1.98	<1.98
	10	<1.98	**9.21**	**4.29**	<1.98	<1.98

Location	Depth	PFBA	PFPeA	PFHxA	PFHpA	PFOA	PFBS	6:2 FTS	8:2 FTS	PFOA + PFOS
L8/9-4	GW	**85.6**	**231**	**75**	**3.58**	**2.4**	**6.58**	**81.3**	**2.2**	**2.4**
	1	**5.49**	**23.7**	**15.6**	**2.51**	<1.97	<1.97	**81.4**	<1.97	
	5	<0.993	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	
	10	<1.00	<1.93	<1.93	<1.93	<1.93	<1.93	<1.93	<1.93	

Location	Depth	PFBA	PFPeA	PFHxA	PFHpA	PFOA	PFBS	PFPeS	PFHxS	4:2 FTS	6:2 FTS	8:2 FTS	PFOA + PFOS
L8/9-5	GW	**814**	**4,970**	**1,620**	**134**	**4.75**	**44.5**	**11.9**	**15**	**2.48**	**560**	**4.88**	**4.75**
	1	**7.95**	**26.3**	**11.1**	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	**2.53**	<1.99	
	5	<0.999	<1.95	<1.95	<1.95	<1.95	<1.95	<1.95	<1.95	<1.95	<1.95	<1.95	
	10	<0.994	<1.96	<1.96	<1.96	<1.96	<1.96	<1.96	<1.96	<1.96	<1.96	<1.96	

Figure 5c. PFAS Analytical Results at Locations 8 and 9

1701 Airport Blvd.
San Jose, CA 95110

PFAS Completion Report

Legend

🟥 AFFF Use Locations, Dashed Where Estimated
● Soil Boring
⊕ Soil Boring and Temporary Groundwater Well
↘ Approximate Groundwater Flow Direction

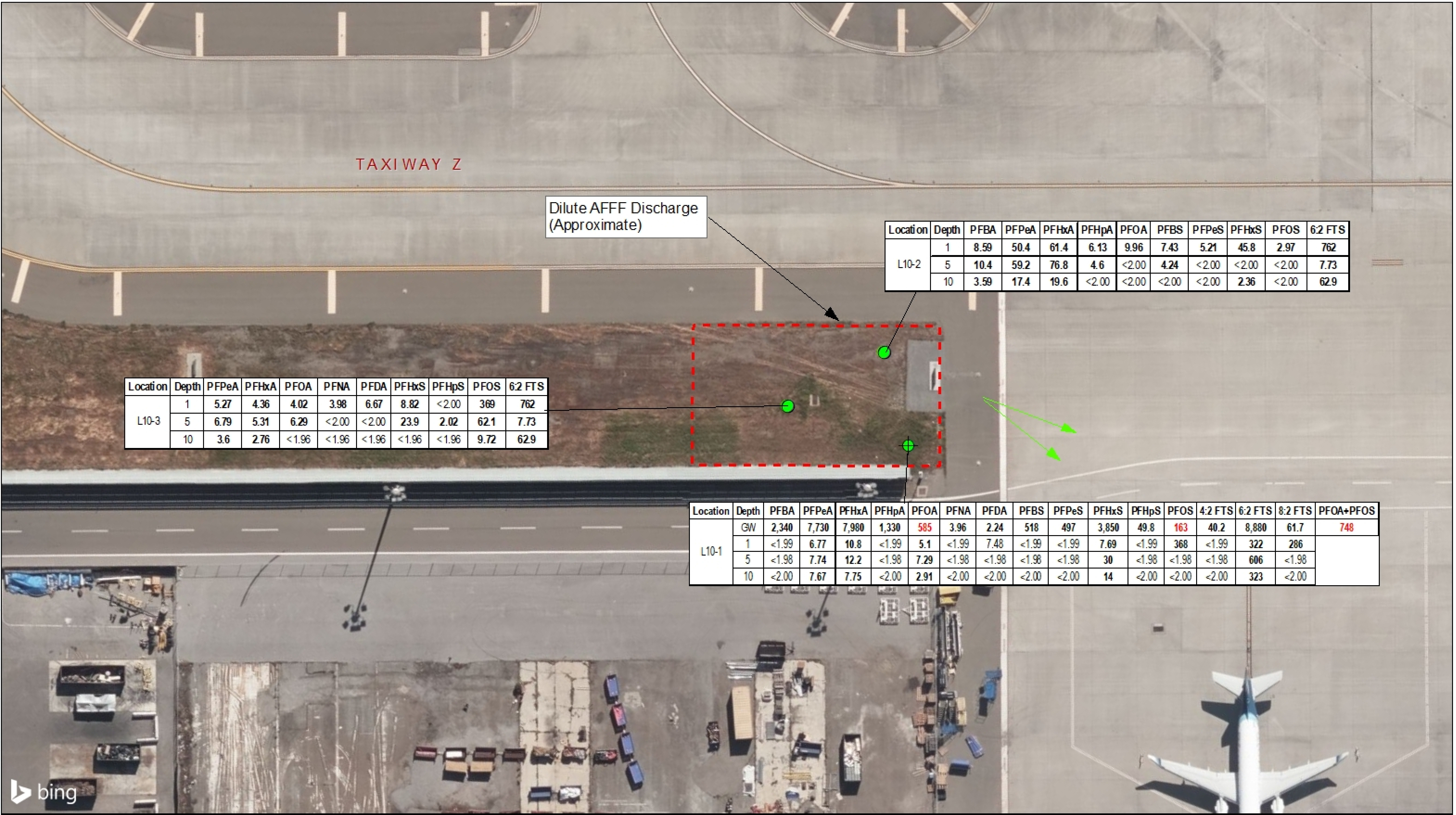
Notes:
1. Only constituents with a result detected above the laboratory reporting limit in at least one sample per location are shown.
2. Results reported in ng/L.
3. Sample depths in feet below groundsurface.

0 25 50 100 Feet

N

WOODARD & CURRAN

Project #: 0232401.01
Map Created: Jan. 2020



Location	Depth	PFBA	PFPeA	PFHxA	PFHpA	PFOA	PFBS	PFPeS	PFHxS	PFOS	6:2 FTS
L10-2	1	8.59	50.4	61.4	6.13	9.96	7.43	5.21	45.8	2.97	762
	5	10.4	59.2	76.8	4.6	<2.00	4.24	<2.00	<2.00	<2.00	7.73
	10	3.59	17.4	19.6	<2.00	<2.00	<2.00	<2.00	2.36	<2.00	62.9

Location	Depth	PFPeA	PFHxA	PFOA	PFNA	PFDA	PFHxS	PFHpS	PFOS	6:2 FTS
L10-3	1	5.27	4.36	4.02	3.98	6.67	8.82	<2.00	369	762
	5	6.79	5.31	6.29	<2.00	<2.00	23.9	2.02	62.1	7.73
	10	3.6	2.76	<1.96	<1.96	<1.96	<1.96	<1.96	9.72	62.9

Location	Depth	PFBA	PFPeA	PFHxA	PFHpA	PFOA	PFNA	PFDA	PFBS	PFPeS	PFHxS	PFHpS	PFOS	4:2 FTS	6:2 FTS	8:2 FTS	PFOA+PFOS
L10-1	GW	2,340	7,730	7,980	1,330	585	3.96	2.24	518	497	3,850	49.8	163	40.2	8,880	61.7	748
	1	<1.99	6.77	10.8	<1.99	5.1	<1.99	7.48	<1.99	<1.99	7.69	<1.99	368	<1.99	322	286	
	5	<1.98	7.74	12.2	<1.98	7.29	<1.98	<1.98	<1.98	<1.98	30	<1.98	<1.98	<1.98	606	<1.98	
	10	<2.00	7.67	7.75	<2.00	2.91	<2.00	<2.00	<2.00	<2.00	14	<2.00	<2.00	<2.00	323	<2.00	

Figure 5d. PFAS Analytical Results at Location 10

1701 Airport Blvd.
San Jose, CA 95110

PFAS Completion Report

Legend

- 🟥 AFFF Use Location, Dashed Where Estimated
- ● Soil Boring
- ⊕ Soil Boring and Temporary Groundwater Well
- ↘ Approximate Groundwater Flow Direction

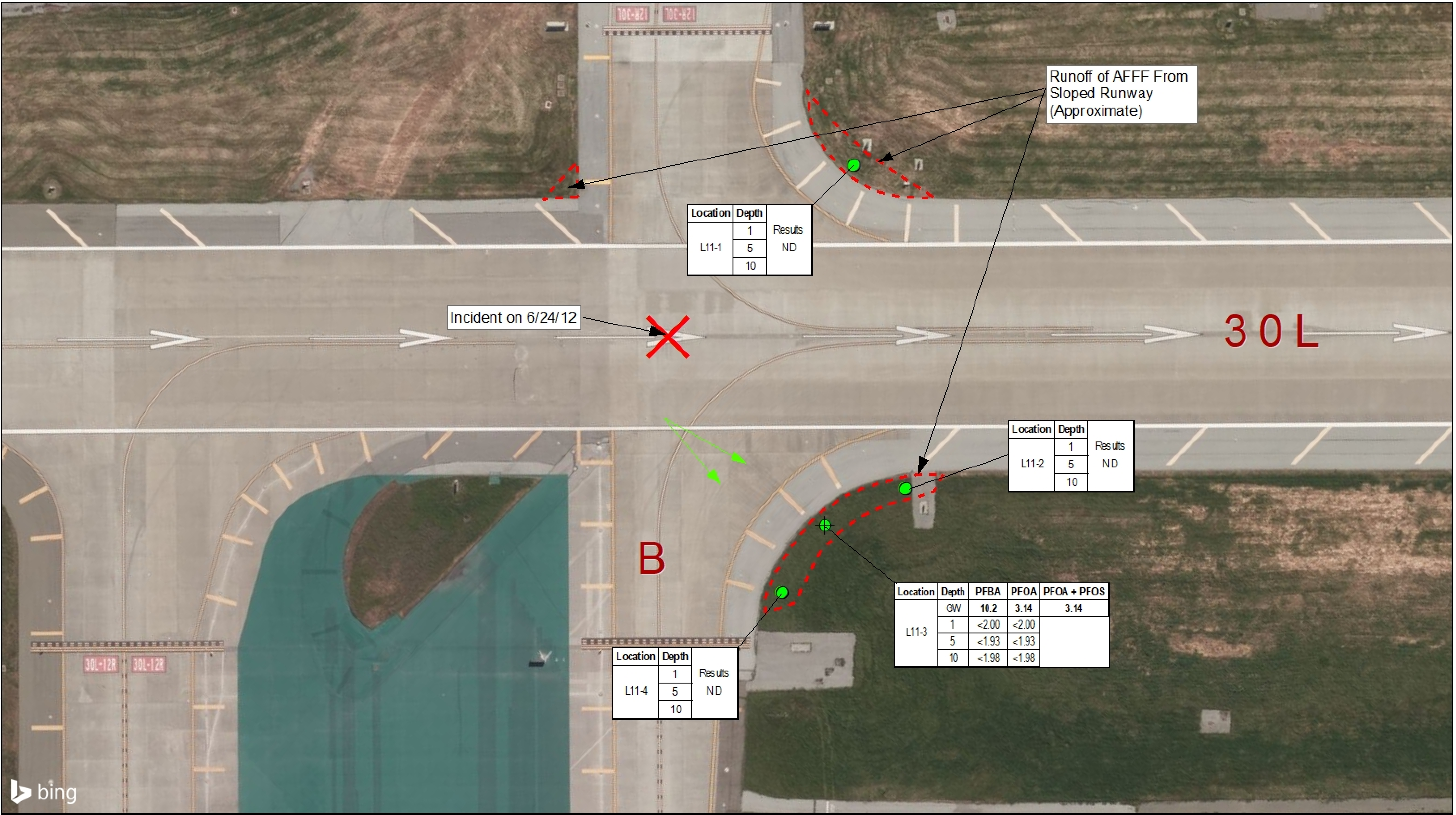
Notes:
1. Only constituents with a result detected above the laboratory reporting limit in at least one sample per location are shown.
2. Results reported in ng/L.
3. Sample depths in feet below groundsurface.
4. Concentrations in RED exceed the USEPA Health Advisory of 70 ng/L for PFOA, PFOS, and a sum of the two.

0 25 50 100 Feet

N

WOODARD & CURRAN

Project #: 0232401.01
Map Created: Jan. 2020



Location	Depth	Results
L11-1	1	ND
	5	
	10	

Location	Depth	Results
L11-2	1	ND
	5	
	10	

Location	Depth	PFBA	PFOA	PFOA + PFOS
L11-3	GW	**10.2**	**3.14**	**3.14**
	1	<2.00	<2.00	
	5	<1.93	<1.93	
	10	<1.98	<1.98	

Location	Depth	Results
L11-4	1	ND
	5	
	10	

Figure 5e. PFAS Analytical Results at Location 11

1701 Airport Blvd.
San Jose, CA 95110

PFAS Completion Report

Legend

- ▭ AFFF Use Location, Dashed Where Estimated
- ● Soil Boring
- ⊕ Soil Boring and Temporary Groundwater Well
- ↘ Approximate Groundwater Flow Direction

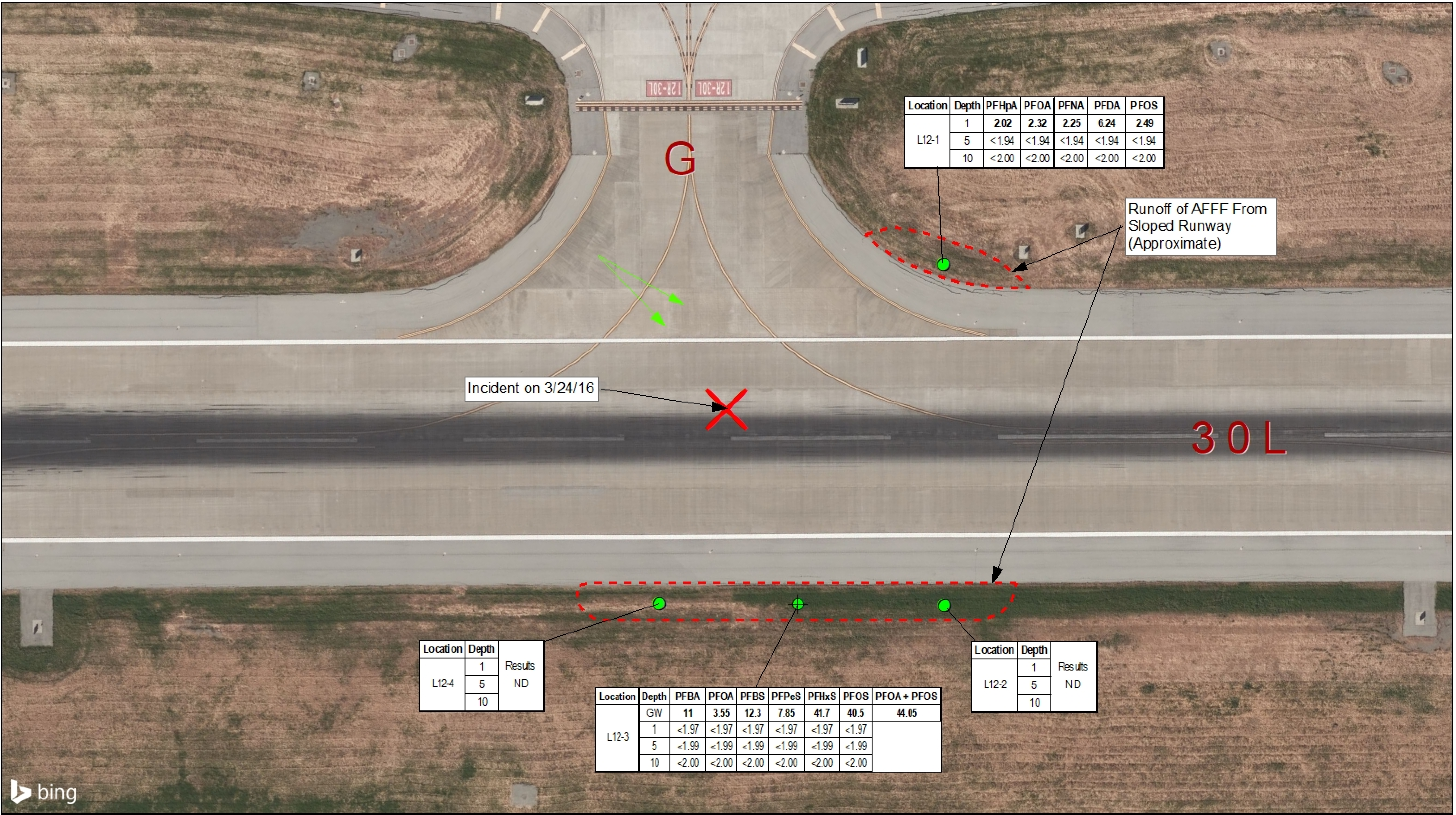
Notes:
1. Only constituents with a result detected above the laboratory reporting limit in at least one sample per location are shown.
2. Results reported in ng/L.
3. Sample depths in feet below groundsurface.

0 40 80 160
Feet

N

WOODARD & CURRAN

Project #: 0232401.01
Map Created: Jan. 2020



Location	Depth	PFHpA	PFOA	PFNA	PFDA	PFOS
L12-1	1	**2.02**	**2.32**	**2.25**	**6.24**	**2.49**
	5	<1.94	<1.94	<1.94	<1.94	<1.94
	10	<2.00	<2.00	<2.00	<2.00	<2.00

Location	Depth	Results
L12-4	1	ND
	5	
	10	

Location	Depth	PFBA	PFOA	PFBS	PFPeS	PFHxS	PFOS	PFOA + PFOS
L12-3	GW	**11**	**3.55**	**12.3**	**7.85**	**41.7**	**40.5**	**44.05**
	1	<1.97	<1.97	<1.97	<1.97	<1.97	<1.97	
	5	<1.99	<1.99	<1.99	<1.99	<1.99	<1.99	
	10	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	

Location	Depth	Results
L12-2	1	ND
	5	
	10	

Figure 5f. PFAS Analytical Results at Location 12

1701 Airport Blvd.
San Jose, CA 95110

PFAS Completion Report

Legend

- ▭ AFFF Use Location, Dashed Where Estimated
- ● Soil Boring
- ⊕ Soil Boring and Temporary Groundwater Well
- ↘ Approximate Groundwater Flow Direction

Notes:
1. Only constituents with a result detected above the laboratory reporting limit in at least one sample per location are shown.
2. Results reported in ng/L.
3. Sample depths in feet below groundsurface.

0 40 80 160
Feet

N

WOODARD & CURRAN

Project #: 0232401.01
Map Created: Jan. 2020

Location	Depth	Results
L14-1	GW	ND
	1	
	5	
	10	

Location	Depth	PFOS	PFOA + PFOS
L14-2	GW	<2.15	<2.15
	1	**3.91**	
	5	<1.99	
	10	<2.00	

Location	Depth	PFOS	PFOA + PFOS
L14-4	GW	<1.99	<1.99
	1	**5.57**	
	5	<1.94	
	10	<1.93	

Location	Depth	Results
L14-6	1	ND
	5	
	10	

Location	Depth	Results
L14-5	1	ND
	5	
	10	

Location	Depth	PFOS
L14-3	1	**3.07**
	5	<2.00
	10	<1.98

Figure 5g. PFAS Analytical Results at Location 14

1701 Airport Blvd.
San Jose, CA 95110

PFAS Completion Report

Legend

- 🟥 AFFF Storage and Release Locations, Dashed Where Estimated
- ● Soil Boring
- ⊕ Soil Boring and Temporary Groundwater Well
- ↘ Approximate Groundwater Flow Direction

Notes:
1. Only constituents with a result detected above the laboratory reporting limit in at least one sample per location are shown.
2. Results reported in ng/L.
3. Sample depths in feet below groundsurface.

WOODARD & CURRAN

Project #: 0232401.01
Map Created: Jan. 2020

APPENDIX A: CORRESPONDENCE WITH REGULATORY AGENCIES

State Water Resources Control Board Order WQ-2019-0005-DWQ dated March 20, 2019

State Water Resources Control Board Revised Table 1 for the Landfill and Airport 13267 Investigative Orders dated April 5, 2019

State Water Resources Control Board Deadline Extension Approval dated May 9, 2019

San Francisco Bay Regional Water Quality Control Board Conditional Workplan Approval dated July 18, 2019

San Francisco Bay Regional Water Quality Control Board Due Date Extension Approval dated September 9, 2019

Norman Y. Mineta San Jose International Airport Due Date Extension Request dated November 12

San Francisco Bay Regional Water Quality Control Board Due Date Extension Approval dated December 9, 2019

CALIFORNIA
Water Boards

GAVIN NEWSOM
GOVERNOR

JARED BLUMENFELD
SECRETARY FOR
ENVIRONMENTAL PROTECTION

State Water Resources Control Board

WATER CODE SECTION 13267 ORDER FOR THE DETERMINATION OF THE PRESENCE OF PER- AND POLYFLUOROALKYL SUBSTANCES

ORDER WQ 2019-0005-DWQ

Pursuant to Water Code section 13267, The State Water Resources Control Board (State Water Board) requires you to submit information as described below. Failure to comply with this Order may subject you to civil liability of up to $5,000 per day for each day in which the violation occurs.

Your site is identified in **Attachment 1** as a facility that has accepted, stored, or used materials that may contain per- and polyfluoroalkyl substances (PFAS). Therefore, you are required to submit the information in **Attachment 2** to the appropriate Regional Water Quality Control Board (Regional Water Board) identified in the cover letter.

I. BACKGROUND

A. WHAT ARE PFAS?

PFAS is a family of more than 3,000 man-made and mostly unregulated chemicals that have been produced since the mid-1900s. They are mobile, persistent, and bioaccumulative. They are resistant to degradation in the environment and when degradation occurs, it often results in the formation of other PFAS compounds. The PFAS compounds have very different physical and chemical properties. Currently the key classes of concern are perfluoroalkyl sulfonic acids such as the long-chain, more commonly known PFAS, perfluorooctanesulfonate (PFOS) and perfluorooctanoic acid (PFOA).

PFAS are manufactured globally and have been used in the production of a wide range of industrial and household products. PFAS are found in many products such as dental floss, non-stick cookware, food packaging materials, non-stick products (e.g., Teflon^{TM}), waterproof and water repellant textiles, water repellant furniture, carpet, polishes, waxes, paints, cleaning products, medical garments, and fire-fighting foams (Aqueous Film-Forming Foams or AFFF). PFAS are used in the Aerospace, Automotive, Chemical, Electronics, Metal Coatings and Plating, and Textiles industries due to their friction-reducing characteristics. Potential firefighting sources of PFAS include airports and aviation facilities, military bases and training centers, petroleum refineries and terminals, and petrochemical production facilities. Non-industrial PFAS sources include Waste Disposal Facilities, Wastewater Treatment Plant Operations, and Biosolids Application to Agriculture. Secondary sources of PFAS include waste streams such as landfills and wastewater treatment plants. More information on PFAS chemicals can be found at United States Environmental Protection Agency (U.S. EPA) website at: https://www.epa.gov/pfas.

PFAS are extremely persistent in the environment and highly mobile in water. People are exposed to PFOS and PFOA through food, food packaging, consumer products, house dust, and drinking water. Since these chemicals have been used in an array of consumer products, scientists have found PFOA and PFOS in the blood of nearly all people tested. Exposure through drinking water has become an increasing concern due to the tendency of PFAS to accumulate in groundwater.

Based on the current available peer-reviewed studies on laboratory animals and epidemiological evidence in human populations, the U.S. EPA released the following statement:

> *"These studies indicate that exposure to PFOA and PFOS over certain levels may result in adverse health effects, including developmental effects to fetuses during pregnancy or to breastfed infants (e.g., low birth weight, accelerated puberty, skeletal variations), cancer (e.g., testicular, kidney), liver effects (e.g., tissue damage), immune effects (e.g., antibody production and immunity), thyroid effects and other effects (e.g., cholesterol changes)."*

Please see U.S. EPA Technical Note for more information:
https://www.epa.gov/sites/production/files/2017-12/documents/ffrrofactsheet_contaminants_pfos_pfoa_11-20-17_508_0.pdf

B. WHICH PFAS?

We are interested in all PFAS that exist in the environment. Due to analytical limitations, the focus of this order is on 39 PFAS analytes including PFOA and PFOS listed in **Attachment 2.** The PFAS analyte list is not exhaustive but is intended to serve as a minimum requirement for sampling pursuant to this Order. Some laboratories may be capable of analyzing additional PFAS that are not included on the list.

C. WHY IS THIS ACTIVITY REQUIRED?

The State Water Board and the Regional Water Boards are charged with the protection of the beneficial uses of water in California, including water used or intended for use as drinking water. If PFAS were used, or materials suspected of containing PFAS were disposed at your facility, technical reports are required to investigate the presence of PFAS. This is part of a statewide effort to determine whether the groundwater is impacted by PFAS and obtain a preliminary understanding of PFAS concentrations at facilities. The State Water Board intends to direct other dischargers identified as potential PFAS sources in the state to perform PFAS testing. The State Water Board and the Regional Water Boards will evaluate the data collected to make informed decisions in implementing appropriate regulatory action, in anticipation of emerging regulatory standards for PFAS.

In May 2016, the United States Environmental Protection Agency (U.S. EPA) established Health Advisory Levels of 70 parts per trillion (ppt) (0.07 micrograms per liter (µg/L)) for PFOA and 70 ppt for PFOS. These concentrations are now considered a screening level. For more information on these advisories see U.S. EPA's website at: https://www.epa.gov/ground-water-and-drinking-water/drinking-water-health-advisories-pfoa-and-pfos.

Additionally, in July 2018, the State Water Board's Division of Drinking Water (DDW) issued drinking water notification levels for PFOS and PFOA at 13 ppt and 14 ppt, respectively, per recommendations from California's Office of Environmental Health Hazard Assessment (OEHHA). DDW requires a combined PFOS/PFOA response level of 70 ppt. More information on notification levels for PFAS compounds can be found at: https://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/PFOA_PFOS.html.

Water Code section 106.3 indicates it is the policy of the State of California that every human being has the right to safe, clean, affordable, and accessible water adequate for human consumption, cooking, and sanitary purposes. This Order promotes that policy by directing investigations to determine the presence of PFAS in and near waters that could be used for drinking water purposes.

Additional justification supporting the need for the investigation is included in **Attachment 2**.

II. WATER CODE SECTION 13267 ORDER FOR TECHNICAL REPORTS

Water Code section 13267(b), provides that "a regional board may require any person who has discharged, discharges, or is suspected of having discharged or discharging, or who proposes to discharge waste within its region… or is suspected of having discharged or discharging, or who proposes to discharge, waste outside of its region that could affect the quality of water within its region shall furnish, under penalty of perjury, technical or monitoring reports which the regional board requires… In requiring those reports, the regional board shall provide the person with a written explanation with regard to the need for the reports and shall identify the evidence that supports requiring that person to provide the reports."

Water Code section 13267(f) authorizes the State Water Board to require this information if it consults with the Regional Water Boards and determines that it will not duplicate the efforts of the Regional Water Boards. The State Water Board has consulted with the Regional Water Boards and made this determination. The release of PFAS into the environment or the disposal of wastes containing PFAS constitutes a discharge of waste as defined in Water Code section 13050(d).

Pursuant to this authority, **you are hereby ordered to submit technical reports identified in Attachment 2.** Additional information regarding requirements for submitting technical reports under Section 13267 of the Water Code is included as **Attachment 3**.

III. COST AND BENEFIT OF TECHNICAL REPORTS

Water Code section 13267(b) specifies that the burden, including costs, of these reports must bear a reasonable relationship to the State Water Board's need for the reports and the benefits to be obtained from the reports.

The cost of the technical reports bears a reasonable relationship to the benefit to be gained because, in terms of public health and environmental harm, contamination of groundwater must be identified before corrective action can be taken, if appropriate.

IV. CALIFORNIA ENVIRONMENTAL QUALITY ACT

The issuance of this Order is an action to protect the environment and is categorically exempt from the provisions of the California Environmental Quality Act pursuant to sections 15304 and 15308, Chapter 3, Title 14 of the California Code of Regulations.

V. PENALTIES

Water Code section 13268 provides that failure to submit the required information by the specified compliance date, or falsifying any information provided therein, is a misdemeanor and may result in civil liability. Noncompliance may subject you to civil liability in the amount of up to $5,000 for each day of violation. Please be advised that compliance with this Order is not a substitute for compliance with other applicable laws.

Perjury Statement

Pursuant to Water Code section 13267(b)(1), the Water Board requires you to include the following perjury statement, signed by a duly authorized representative, in all reports submitted pursuant to this Order:

> "I, [NAME], certify under penalty of law that this document and all attachments were prepared by me, or under my direction or supervision, and the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant civil penalties for submitting false information."

March 20, 2019 Eileen Sobeck

Date

Eileen Sobeck
Executive Director

ATTACHMENTS:

Attachment 1 - List of Facilities
Attachment 2 - Technical Report Requirements & Questionnaire
Attachment 3 - Fact Sheet – Requirements for Submitting Technical Reports under Section 13267 of the Water Code

ATTACHMENT 1
LIST OF AIRPORT FACILITIES

CALIFORNIA WATER CODE SECTION 13267 ORDER FOR THE DETERMINATION OF THE PRESENCE OF PER- AND POLYFLUOROALKYL SUBSTANCES

AIRPORTS CERTIFIED FOR AQUEOUS FILM FORMING FOAM (AFFF) USE

FACILITY NAME[1] (AIRPORT ID)	GEOTRACKER GLOBAL ID	PROPERTY ADDRESS	OWNER[1]
JACK MC NAMARA FIELD (CEC)	T10000012761	150 DALE RUPERT RD CRESCENT CITY, CA 95531	BORDER COAST REGIONAL ARPT AUTH 150 DALE RUPERT ROAD CRESCENT CITY, CA 95531
CALIFORNIA REDWOOD COAST-HUMBOLDT COUNTY (ACV)	T10000012762	3561 BOEING AVE. MCKINLEYVILLE, CA 95519	HUMBOLDT COUNTY 1106 SECOND ST EUREKA, CA 95501
CHARLES M SCHULZ - SONOMA COUNTY (STS)	T10000012763	2290 AIRPORT BLVD SANTA ROSA, CA 95403	SONOMA COUNTY 2290 AIRPORT BLVD SANTA ROSA, CA 95403
METROPOLITAN OAKLAND INTL (OAK)	T10000012764	1 Airport Dr, OAKLAND, CA 94621	PORT OF OAKLAND 530 WATER ST. OAKLAND, CA 94607
BUCHANAN FIELD (CCR)	T10000012765	550 SALLY RIDE DR. CONCORD, CA 94520	CONTRA COSTA COUNTY 550 SALLY RIDE DR. CONCORD, CA 94520
SAN FRANCISCO INTL (SFO)	T10000012790	SAN FRANCISCO, CA 94128	CITY & COUNTY OF SAN FRANCISCO PO BOX 8097 SAN FRANCISCO, CA 94128
NORMAN Y MINETA SAN JOSE INTL (SJC)	T10000012766	1701 AIRPORT BLVD., SUITE B-1130 SAN JOSE, CA 95110-1206	CITY OF SAN JOSE 200 E. SANTA CLARA STREET SAN JOSE, CA 95113
MONTEREY RGNL (MRY)	T10000012767	200 FRED KANE DR., SUITE 200 MONTEREY, CA 93940	MONTEREY PENIN ARPT DIST 200 FRED KANE DR., SUITE 200 MONTEREY, CA 93940
SAN LUIS COUNTY RGNL (SBP)	T10000012768	975 AIRPORT DRIVE, SUITE 1 SAN LUIS OBISPO, CA 93401	SAN LUIS OBISPO COUNTY COUNTY GOVERNMENT CENTER SAN LUIS OBISPO, CA 93408

FACILITY NAME[1] (AIRPORT ID)	GEOTRACKER GLOBAL ID	PROPERTY ADDRESS	OWNER[1]
SANTA BARBARA MUNI (SBA)	T10000012769	601 FIRESTONE RD GOLETA, CA 93117	CITY OF SANTA BARBARA CITY HALL SANTA BARBARA, CA 93101
SANTA MARIA PUB/CAPT G ALLAN HANCOCK FLD (SMX)	T10000012770	3217 TERMINAL DR SANTA MARIA, CA 93455	SANTA MARIA PUBLIC ARPT DIST 3217 TERMINAL DR SANTA MARIA, CA 93455
BOB HOPE (BUR)	T10000012771	2627 HOLLYWOOD WAY BURBANK, CA 91505	BURBANK-GLENDALE-PASADENA ARPT 2627 HOLLYWOOD WAY BURBANK, CA 91505
LONG BEACH /DAUGHERTY FIELD/ (LGB)	T10000012772	4100 DONALD DOUGLAS DR LONG BEACH, CA 90808	CITY OF LONG BEACH CITY HALL 333 W. OCEAN LONG BEACH, CA 90802
LOS ANGELES INTL (LAX)	T10000012773	ONE WORLD WAY LOS ANGELES, CA 90009	CITY OF LOS ANGELES 1 WORLD WAY BOX 92216 LOS ANGELES, CA 90009-2216
OXNARD (OXR)	T10000012774	2889 W 5TH ST OXNARD, CA 93030	COUNTY OF VENTURA 555 AIRPORT WAY CAMARILLO, CA 93010
CHICO MUNI (CIC)	T10000012788	150 Airpark Blvd CHICO, CA 95927	CITY OF CHICO PO BOX 3420 CHICO, CA 95927
FRESNO YOSEMITE INTL (FAT)	T10000012775	4995 E CLINTON WAY FRESNO, CA 93727	CITY OF FRESNO 4995 E CLINTON WAY FRESNO, CA 93727
MEADOWS FIELD (BFL)	T10000012776	3701 WINGS WAY, #300 BAKERSFIELD, CA 93308	COUNTY OF KERN DEPT OF ARPTS, 3701 WINGS WAY, #300, 3701 WINGS WAY, SUITE 300 BAKERSFIELD, CA 93308
SACRAMENTO INTL (SMF)	T10000012777	6900 AIRPORT BLVD SACRAMENTO, CA 95837	COUNTY OF SACRAMENTO 6900 AIRPORT BLVD SACRAMENTO, CA 95837

FACILITY NAME[1] (AIRPORT ID)	GEOTRACKER GLOBAL ID	PROPERTY ADDRESS	OWNER[1]
STOCKTON METROPOLITAN (SCK)	T10000012778	5000 S. AIRPORT WAY ROOM 202 STOCKTON, CA 95206	COUNTY OF SAN JOAQUIN 5000 S AIRPORT WAY STOCKTON, CA 95206
REDDING MUNI (RDD)	T10000012779	REDDING MUNI AIRPORT, 6751 WOODRUM CIRCLE SUITE 200 REDDING, CA 96002	CITY OF REDDING AIRPORTS DIVISION, 6751 WOODRUM CIRCLE, #200 REDDING, CA 96002-6071
MAMMOTH YOSEMITE (MMH)	T10000012789	1300 Airport Road MAMMOTH LAKES, CA 93546	TOWN OF MAMMOTH LAKES 1300 AIRPORT ROAD MAMMOTH LAKES, CA 93546 760-934-3813
SOUTHERN CALIFORNIA LOGISTICS (VCV)	T10000012780	18374 PHANTOM WEST VICTORVILLE, CA 92394	SOUTHERN CA LOGISTICS ARPT AUTH 18374 PHANTOM VICTORVILLE, CA 92394
IMPERIAL COUNTY (IPL)	T10000012781	1099 AIRPORT ROAD IMPERIAL, CA 92251	IMPERIAL COUNTY 1099 AIRPORT ROAD IMPERIAL, CA 92251
PALM SPRINGS INTL (PSP)	T10000012782	3400 E. TAHQUITZ-CANYON WAY, SUITE OFC PALM SPRINGS, CA 92262	CITY OF PALM SPRINGS 3400 E. TAHQUITZ CANYON WAY PALM SPRINGS, CA 92262
MC CLELLAN-PALOMAR (CRQ)	T10000012786	2192 PALOMAR AIRPORT ROAD CARLSBAD, CA 92011-4409	COUNTY OF SAN DIEGO 1960 JOE CROSSON DRIVE EL CAJON, CA 92020-1235
SAN DIEGO INTL (SAN)	T10000012787	3225 N HARBOR DRIVE SAN DIEGO, CA 92101-1022	SAN DIEGO CNTY REG ARPT AUTHORITY 3225 N HARBOR DRIVE SAN DIEGO, CA 92101-1022

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[1] Facility name and owner are those listed on the U.S. Department of Transportation Federal Aviation Administration Airport Master Record (FAA FORM 5010-1) and were obtained from https://www.gcr1.com/5010WEB/.

ATTACHMENT 2

TECHNICAL REPORT REQUIREMENTS AND QUESTIONNAIRE FOR AIRPORTS

WATER CODE SECTION 13267 ORDER FOR THE DETERMINATION OF THE PRESENCE OF PER- AND POLYFLUOROALKYL SUBSTANCES

Contents:

A. JUSTIFICATION FOR THE NEED FOR TECHNICAL REPORTS

As indicated by the Federal Aviation Administration (FAA)[1], all Title 14, Code of Federal Regulations, Part 139 certified airports are required to provide aircraft rescue and firefighting services. Your facility has been certified by the FAA to use AFFF compounds. If AFFF or other PFAS compounds were disposed of, discharged to, spilled, or released in any way to lands of your facility, a work plan is required for the preliminary investigation of soil and groundwater impacts (Section B). The State Water Board seeks to determine whether the groundwater and/or soil at your location is impacted by PFAS and obtain a preliminary understanding of PFAS concentrations in the soil and/or groundwater at your facility.

The State Water Board intends to direct other dischargers identified as potential PFAS sources in the state to perform PFAS testing. The State Water Board and the Regional Water Boards will evaluate the data collected to make informed decisions in implementing appropriate regulatory action, in anticipation of emerging regulatory standards for PFAS.

B. TECHNICAL REPORT REQUIREMENTS

Work Plan

You are required to submit a work plan for a one-time preliminary site investigation of PFAS impacts at your facility to the Regional Water Board specified in the Order cover letter **no later than 60 days following the date of this Order**. This attachment provides specific requirements to include in the technical report.

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[1] https://www.faa.gov/airports/airport_safety/part139_cert/

At a minimum, provide the following in your work plan:

1. A site map with sample locations, PFAS material storage and use areas, probable release areas including firefighting training areas, crash sites, and spills from handling.

2. Identify sensitive receptors such as municipal supply wells, domestic wells, and/or surface water bodies within a one-mile radius of a suspected source area.

3. Proposed surface and subsurface soil sampling locations to delineate surficial and vertical extent of impacts where PFAS were applied to land.

4. Proposed representative groundwater sample locations in proximity to a suspected source area. Existing monitoring wells for your facility may be used if located in proximity to PFAS source(s) and groundwater samples would be representative of groundwater conditions. If groundwater gradient is unknown, at a minimum, three groundwater samples must be collected around the source area.

5. Sampling and Analysis Plan for compounds and parameters specified in Tables 1 and 2 that includes quality assurance and quality control procedures necessary to ensure valid and representative data is obtained and reported. Specify the appropriate sampling procedures, including sampling equipment, sampling containers, the quality of water used for blank preparation and equipment decontamination, sample holding times, and quantities for sampling PFAS compounds. To minimize contamination, all sampling materials, equipment, blanks, containers, and equipment decontamination reagents must be PFAS-free, to the maximum extent practicable. Additional guidance for preventing sample contamination can be found at: https://www.waterboards.ca.gov/water_issues/programs/pfas/.
6. Reporting limits for PFAS.

7. Signature, stamp, and contact information for the California-licensed Professional Geologist or Professional Engineer acting in responsible charge for the content of the Work Plan.

Final Report

A final sampling and analysis report, including at least the following information, must be submitted **no later than 90 days** following the State or Regional Water Board acceptance of the Work Plan:

a) A description of the sampling activities;
b) A summary table of analytical results;

c) A copy of the Chain of Custody;
d) A copy of the field sampling log;
e) A copy of boring logs and any temporary/permanent monitoring well construction details
f) A copy of the site map showing the sampling/monitoring locations; and
g) A copy of laboratory analytical results of the monitored media.

Questionnaire

If you 1) have not discharged, disposed of, spilled, or released in any way, AFFF or other PFAS containing materials to land at your facility, or 2) have already conducted sampling for these constituents in compliance with the minimum work plan requirements listed below, please complete the questionnaire (Section C) with relevant information supporting your response and return to the Regional Water Board specified in the Order cover letter **no later than 30 days following the date of this Order.**

Report Submittal

Reports must be submitted in a searchable electronic format, with transmittal letter, text, tables, figures, laboratory analytical data, and appendices in Portable Document Format (PDF) format (one PDF for the entire report) as well as in electronic data deliverable (EDD) format. The Questionnaire, Work Plan, Final Report, and Analytical Reports and EDD must be uploaded into GeoTracker via the Electronic Submittal of Information (ESI) Portal, as stipulated by California State law. GeoTracker ESI guidance, general information and Help Desk assistance can be on the ESI homepage at: https://www.waterboards.ca.gov/water_issues/programs/ust/electronic_submittal/

The analytical laboratory must be accredited by the California Environmental Laboratory Accreditation Program (ELAP) to perform the analytical method for PFAS compliant with Department of Defense (DoD) Table B-15 of Quality Systems Manual (QSM), dated 2017, version 5.1 or later. The laboratory must have the capacity to quantify the target PFAS analytes listed in Table 1, and must be capable of achieving the quality control/quality assurance requirements specified in Table B-15 of the DoD QSM, version 5.1 or later. DoD's QSM version 5.1 can be found at: https://www.denix.osd.mil/edqw/documents/documents/qsm-version-5-1-final/ as well as on the State Water Board's PFAS informational website: https://www.waterboards.ca.gov/water_issues/programs/pfas/. A list of laboratories that are accredited by ELAP can be found on the State Water Board ELAP webpage: https://www.waterboards.ca.gov/drinking_water/certlic/labs/. For the general parameters listed in Table 2, the method of analysis shall be appropriate for the expected concentrations.

TABLE 1. PFAS Analytes Subject to Analysis

Chemical Name	Abbreviation	Chemical Abstracts Service (CAS) No.
2,3,3,3-Tetrafluoro-2-(heptafluoropropoxy)propanoic acid	HFPO-DA	13252-13-6*
10:2 Fluorotelomer sulfonic acid	10:2 FTS	120226-60-0*
2,3,3,3-tetrafluoro-2-(1,1,2,2,3,3,3-heptafluoropropoxy) propanoic Acid	HFPA-DA	13252-13-6 *
Perfluorooctadecanoic acid	PFOcDA	16517-11-6*
N-Ethyl perfluorooctane sulfonamidoethanol	EtFOSE	1691-99-2*
Perfluorooctane sulfonic acid	PFOS	1763-23-1
Perfluoroundecanoic acid	PFUnDA	2058-94-8
N-Methyl perfluorooctane sulfonamidoacetic acid	NMeFOSAA	2355-31-9
N-Methyl perfluorooctane sulfonamidoethanol	MeFOSE	24448-09-7*
Perfluoropentanoiic Acid	PFPeA	2706-90-3
Perfluoropentane sulfonoic acid	PFPeS	2706-91-4
6:2 Fluorotelomer sulfonic acid	6:2 FTS	27619-97-2
N-Ethyl perfluorooctane sulfonamidoacetic acid	NEtFOSAA	2991-50-6
Perfluorohexanoic acid	PFHxA	307-24-4
1.0Perfluorododecanoic acid	PFDoDA	307-55-1
N-Methyl perfluorooctane sulfonamide	MeFOSA	31506-32-8*
Perfluorooctanoic acid	PFOA	335-67-1
Perfluorodecanoic acid	PFDA	335-76-2
Perfluorodecane sulfonic acid	PFDS	335-77-3
4,4,5,5,6,6,6-Heptafluorohexanoic Acid	3:3 FTCA	356-02-5*
Perfluorohexane sulfonic acid	PFHxS	355-46-4
Perfluorobutanoic acid	PFBA	375-22-4
Perfluorobutane sulfonic acid	PFBS	375-73-5
Perfluoroheptanoic acid	PFHpA	375-85-9
Perfluoroheptane sulfonic acid	PFHpS	375-92-8
Perfluorononanoic acid	PFNA	375-95-1
Perfluorotetradecanoic acid	PFTeDA	376-06-7
2H,2H,3H,3H-Perfluorodecanoic acid	7:3 FTCA	812-70-4*
8:2 Fluorotelomer sulfonic acid	8:2 FTS	39108-34-4
N-Ethyl perfluorooctane sulfonamide	EtFOSA	4151-50-2*
Perfluorononane sulfonic acid	PFNS	474511-07-4*
Perfluorohexadecanoic acid	PFHxDA	67905-19-5*
Perfluorotridecanoic acid	PFTrDA	72629-94-8
Perfluorooctanesulfonamide	FOSA	754-91-6
4:2 Fluorotelomer sulfonic acid	4:2 FTS	757124-72-4
Perfluoro(2-((6-chlorohexyl)oxy)ethanesulfonic acid)	9Cl-PF3ONS	756426-58-1*
2-[(8-Chloro-1,1,2,2,3,3,4,4,5,5,6,6,7,7,8,8-hexadecafluorooctyl)oxy]-1,1,2,2-tetrafluoroethanesulfonic acid	11Cl-PF3OUdS	763051-92-9*
2H,2H,3H,3H-Perfluorooctanoic Acid (CAS 914637-49-3)	5:3 FTCA	914637-49-3*
4,8-Dioxa-3H-perfluorononanoic acid	Adona	919005-14-4*

Note: Only the 23 analytes without the asterisk (*) are required to be analyzed as part of this Order. The analytes with the asterisk (*) are included in some but not all lists provided by accredited laboratories and are encouraged to be analyzed as part of this effort.

TABLE 2

Field Parameters and General Chemistry for Groundwater

Parameter	Units
Field Parameters	
Depth to Groundwater	Feet, bgs
Temperature	Degrees C
Electrical Conductivity	µmhos/cm
pH	units
Turbidity	NTU
General Chemistry	
Total Dissolved Solids	mg/L
Chloride	mg/L
Carbonate	mg/L
Bicarbonate	mg/L
Nitrate-Nitrogen	mg/L
Sulfate	mg/L
Calcium	mg/L
Magnesium	mg/L
Potassium	mg/L
Sodium	mg/L

Notes:
bgs – below ground surface
C – Celsius
mg/L – milligrams
NTU – nephelometric turbidity units
µmhos/cm – micromhos per centimeter

C. AIRPORT OPERATOR QUESTIONNAIRE

Operator/Principal Name:	Title:	
Name of Facility:		
Facility's Address:		
City/County/State/Zip:		
Phone Number:	Fax:	
Email Address:		

PER- AND POLY-FLUOROALKYL SUBSTANCES (PFAS) - CONSTITUENT SCREENING

1.	Have PFAS, including fire-fighting foams (i.e. Aqueous Film-Forming Foam [AFFF]), or any other PFAS compounds been used or stored at your facility?	☐ YES	☐ NO
	If yes, please attach additional sheets to describe where they were/are stored, handling processes utilized, and how long you have used/stored those PFAS at your facility.		
2.	Have PFAS been discharged, spilled, disposed of, released in any way, or applied to land at your facility?	☐ YES	☐ NO
3.	If PFAS were discharged, spilled, disposed of, released in any way, or applied to land at your facility, have any investigations to identify the impacts of PFAS to soil and groundwater been conducted at your facility?	☐ YES	☐ NO
	If yes, please attach additional sheets to describe where and when PFAS were discharged, spilled, disposed of, released in any way, or applied to land, the quantity, the method of analysis, a summary table of analytical results, as well as the laboratory analytical report.		

CERTIFICATION

This form is only required to be completed if your facility did not discharge, spill, dispose, release in any way, or apply PFAS compounds to land, or you have already conducted sampling for PFAS compounds. This form and supporting documentation must be provided to the appropriate Regional Water Board and uploaded to GeoTracker by the date specified in the Order.

I, ____________________________, certify under penalty of law that this document and all attachments were prepared by me, or under my direction or supervision, and the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant civil penalties for submitting false information.

Signature:
Title:
Date:

CALIFORNIA
Water Boards

Gavin Newsom
GOVERNOR

Jared Blumenfeld
SECRETARY FOR
ENVIRONMENTAL PROTECTION

State Water Resources Control Board

ATTACHMENT 3

Fact Sheet – Requirements for Submitting Technical Reports Under Section 13267 of the Water Code

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What does it mean when the Regional Water Board or the State Water Board (jointly referred to as the Water Boards) require a technical report?
Section 13267[1] of the Water Code provides that "…the regional board may require that any person who has discharged, discharges, or who is suspected of having discharged or discharging, or who proposes to discharge waste...that could affect the quality of waters...shall furnish, under penalty of perjury, technical or monitoring program reports which the regional board requires." Additionally, the state water board may carry out the authority granted to a regional board pursuant to Section 13267 if, after consulting with the regional board, the state board determines that it will not duplicate the efforts of the regional board.

This requirement for a technical report seems to mean that I am guilty of something, or at least responsible for cleaning something up. What if that is not so?
The requirement for a technical report is a tool the Water Boards use to investigate water quality issues or problems. The information provided can be used by the Regional Water Board to clarify whether a given party has responsibility.

Are there limits to what the Water Boards can ask for?
Yes. The information required must relate to an actual or suspected or proposed discharge of waste (including discharges of waste where the initial discharge occurred many years ago), and the burden of compliance must bear a reasonable relationship to the need for the report and the benefits obtained. The Water Boards are required to explain the reasons for its request.

What if I can provide the information, but not by the date specified?
A time extension may be given for good cause. Your request should be promptly submitted in writing, giving reasons.

Are there penalties if I don't comply?
Depending on the situation, the Water Boards can impose a fine of up to $5,000 per day, and a court can impose fines of up to $25,000 per day as well as criminal penalties. A person who submits false information or fails to comply with a requirement to submit a technical report may be found guilty of a misdemeanor. For some reports, submission of false information may be a felony.

Do I have to use a consultant or attorney to comply?
There is no legal requirement for this, but as a practical matter, in most cases the specialized nature of the information required makes use of a consultant and/or attorney advisable.

If I have more questions, whom do I ask?
Requirements for technical reports include the name, telephone number, and email address of the Regional Water Board staff contact.

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[1] All code sections referenced herein can be found by going to www.leginfo.legislature.ca.gov.

REVISED TABLE 1. PFAS Analytes Subject to Analysis

Chemical Name	**Abbreviation**	**Chemical Abstracts Service (CAS) No.**
~~2,3,3,3-Tetrafluoro-2-(heptafluoropropoxy)propanoic acid~~ Hexafluoropropylene Oxide Dimer Acid	HFPO-DA	13252-13-6*
10:2 Fluorotelomer sulfonic acid	10:2 FTS	120226-60-0*
~~2,3,3,3-tetrafluoro-2-(1,1,2,2,3,3,3-heptafluoropropoxy) propanoic Acid~~	~~HFPA-DA~~	~~13252-13-6 *~~
Perfluorooctadecanoic acid	~~PFOcDA~~ PFODA	16517-11-6*
N-Ethyl perfluorooctane sulfonamide ethanol	EtFOSE	1691-99-2*
Perfluorooctane sulfonic acid	PFOS	1763-23-1
Perfluoroundecanoic acid	PFUnDA	2058-94-8
N-Methyl perfluorooctane sulfonamidoacetic acid	NMeFOSAA	2355-31-9
N-Methyl perfluorooctane sulfonamide ethanol	MeFOSE	24448-09-7*
Perfluoropentanoiic acid	PFPeA	2706-90-3
Perfluoropentane sulfonoic acid	PFPeS	2706-91-4
6:2 Fluorotelomer sulfonic acid	6:2 FTS	27619-97-2
N-Ethyl perfluorooctane sulfonamidoacetic acid	NEtFOSAA	2991-50-6
Perfluorohexanoic acid	PFHxA	307-24-4
~~1.0~~ Perfluorododecanoic acid	PFDoDA	307-55-1
N-Methyl perfluorooctane sulfonamide	MeFOSAm	31506-32-8*
Perfluorooctanoic acid	PFOA	335-67-1
Perfluorodecanoic acid	PFDA	335-76-2
Perfluorodecane sulfonic acid	PFDS	335-77-3
~~4,4,5,5,6,6,6-Heptafluorohexanoic Acid~~ 2H,2H,3H,3H-Perfluorohexanoic acid	3:3 FTCA	356-02-5*
Perfluorohexane sulfonic acid	PFHxS	355-46-4
Perfluorobutanoic acid	PFBA	375-22-4
Perfluorobutane sulfonic acid	PFBS	375-73-5
Perfluoroheptanoic acid	PFHpA	375-85-9
Perfluoroheptane sulfonic acid	PFHpS	375-92-8
Perfluorononanoic acid	PFNA	375-95-1
Perfluorotetradecanoic acid	PFTeDA	376-06-7
2H,2H,3H,3H-Perfluorodecanoic acid	7:3 FTCA	812-70-4*
8:2 Fluorotelomer sulfonic acid	8:2 FTS	39108-34-4
N-Ethyl perfluorooctane sulfonamide	EtFOSAm	4151-50-2*
Perfluorononane sulfonic acid	PFNS	474511-07-4*
Perfluorohexadecanoic acid	PFHxDA	67905-19-5*
Perfluorotridecanoic acid	PFTrDA	72629-94-8
Perfluorooctanesulfonamide	~~FOSA~~ PFOSAm	754-91-6
4:2 Fluorotelomer sulfonic acid	4:2 FTS	757124-72-4
~~Perfluoro(2-((6-chlorohexyl)oxy)ethanesulfonic acid)~~ 9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	9-Cl-PF3ONS	756426-58-1*

REVISED TABLE 1. PFAS Analytes Subject to Analysis (cont'd)

Chemical Name	**Abbreviation**	**Chemical Abstracts Service (CAS) No.**
~~2-[(8-Chloro-1,1,2,2,3,3,4,4,5,5,6,6,7,7,8,8-hexadecafluorooctyl)oxy]-1,1,2,2-tetrafluoroethanesulfonic acid~~ 11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	11-Cl-PF3OUdS	763051-92-9*
2H,2H,3H,3H-Perfluorooctanoic Acid ~~(CAS 914637-49-3)~~	5:3 FTCA	914637-49-3*
4,8-Dioxa-3H-perfluorononanoic acid	ADONA	919005-14-4*
Note: Only the 23 analytes without the asterisk (*) are required to be analyzed as part of this Order. The analytes with the asterisk (*) are included in some but not all lists provided by accredited laboratories and are encouraged to be analyzed as part of this effort.		

CALIFORNIA
Water Boards

GAVIN NEWSOM
GOVERNOR

JARED BLUMENFELD
SECRETARY FOR
ENVIRONMENTAL PROTECTION

State Water Resources Control Board

MAY - 9 2019

Mr. Ivar Satero, Mr. Jon Stout, and Mr. Jim Lites
California Airports Council
980 9th Street, Suite 2000
Sacramento, CA 95814

EXTENSION APPROVAL OF DEADLINES FOR SUBMITTING SITE-SPECIFIC AIRPORT WORK PLANS AND FINAL SAMPLING AND ANALYSIS REPORTS TO DETERMINE THE PRESENCE OF PER- AND POLYFLUOROALKYL SUBSTANCES (PFAS) SUBJECT TO THE MARCH 20, 2019, STATE WATER RESOURCES CONTROL BOARD ORDER WQ 2019-0005-DWQ

The State Water Resources Control Board (State Water Board) issued Water Code Section 13267 Order WQ 2019-0005-DWQ (Order) for the Determination of the Presence of Per- and Polyfluoroalkyl Substances on March 20, 2019. The Order includes requirements for submitting a work plan, questionnaire, and a final sampling and analysis report to the applicable Regional Water Quality Control Board (Regional Water Board) for a one-time preliminary site investigation of PFAS impacts to groundwater and soil for the twenty-seven airport facilities identified in Attachment 1 of the Order. The questionnaire, work plan, and final sampling and analysis report must be submitted no later than 30, 60 and 90 days, respectively, following the date of the Order. However, the Water Code and the Order allows a time extension for good cause.

On April 23, 2019, you submitted a letter to the State Water Board requesting an extension to the compliance deadlines stated in the Order. Your letter indicates that the extension was requested to ensure adequate time to go through a formal multiweek public Request for Proposals process, address resources, coordination among multiple entities and stakeholders, acquire permits, limited availability and responsiveness of local laboratories, address all requirements in the Order for the development of the work plans and testing for PFAS, and allow time for smaller airports to budget appropriately.

We have evaluated the information provided and believe the proposed deadline extensions for submitting work plans according to airport size are warranted and are hereby extended as follows. Deadline extension requests for final sampling and analysis reports should be submitted as part of the work plan.

Airport Size	Effective Start Date	Work Plans Due (Days After Receipt of Order)
Large-Hub	4/1/2019	60
Medium-Hub	4/1/2019	75
Small-Hub	4/1/2019	120
Non-Hub	4/1/2019	120

Please note this extension request approval is only subject to airports identified in Order WQ 2019-0005-DWQ. Water Code Section 13267 orders sent to airports by our Santa Ana Regional Water Board are not subject to this extension request approval. Please contact Mr. Nick Amini at (951) 782-7958 with our Santa Ana Regional Water Board for this extension request.

If you have any questions or need additional information, please contact Mr. Steve McMasters, Site Cleanup & Department of Defense Program Unit Chief, State Water Board at (916) 341-5518.

Eileen Sobeck
Executive Director

Attachment:
California Airports Council. April 23, 2019 Due Date Extension Request Letter:
"Extension Request for Soil and Groundwater Investigation Concerning Per and Poly-fluoroalkyl Substances (PFAS) at California Airports"

cc: Annalisa Kihara, State Water Board
Brianna St. Pierre, State Water Board
Josh Munn, State Water Board
Shahla Farahnak, State Water Board
Charles Reed, North Coast Regional Water Board
Alec Naugle, San Francisco Bay Regional Water Board
Greg Bishop, Central Coast Regional Water Board
Dr. Arthur Heath, Los Angeles Regional Water Board
Alex MacDonald, Central Valley Regional Water Board
Jan Zimmerman, Lahontan Regional Water Board
Joan Storm, Colorado River Basin Regional Water Board
Nick Amini, Santa Ana Regional Water Board
John Anderson, San Diego Regional Water Board
Jim Lites, California Strategies (via email)
Sarah Johnson, California Strategies (via email)

CAC
CALIFORNIA AIRPORTS COUNCIL

4/23/19

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John Anderson
California Regional Water Boards
San Diego – Region 9
2375 Northside Drive, Suite 100
San Diego, CA 92108

RE: Extension Request for Soil and Groundwater Investigation Concerning Per and Poly-fluoroalkyl Substances (PFAS) at California Airports

On behalf of the California Airports Council (CAC), we write to request an extension of the compliance deadlines detailed in the Water Code Section 13267 Order for the Determination of the Presence of PFAS Order WQ 2019-0005-DWQ (Order) distributed to California airports by the Regional Water Quality Control Boards (RWQCBs), dated March 20, 2019. The CAC represents the 31 commercial service airports in the state with Part 139 certification from the Federal Aviation Administration (FAA). As such, the CAC represents all airports that have received an Order from the RWQCBs.

Rationale for Extension

It was not until an informational hearing on March 6, 2019, that airports learned that the State Water Resources Control Board intended to investigate the presence of PFAS at airport facilities. The Order was dated March 20, 2019, however, it is not clear whether all of the letters were actually sent on this date. In many cases the Order was sent to the wrong department, delayed in receipt, or in some cases, not received at all. The timeline for completing workplans began on the date of the Order's release, so delay in receiving letters has cut into the already limited time airports have to respond to the Order. Airports who received the Order later, or not at all, need a corresponding schedule accommodation to provide equal time to undertake the Order's requirements.

In addition to delayed and unreceived Orders, airports are also concerned about the resources available to develop workplans and test for PFAS in the timeframe outlined. Most airports are public agencies, which must go through a formal multiweek public Request for Proposals (RFP) process before selecting and retaining a consultant.

Further, testing for PFAS will require coordination among multiple entities as well. For example, airports must obtain permits from local agencies before they can drill wells for testing, many airports will also have to contract with drilling companies. Progress moving forward will depend on the promptness of local agencies and availability of contractors. Availability and responsiveness of local laboratories to analyze for PFAS is limited also; if the bottleneck leaves airports to use out of state labs, additional time will be needed to identify, engage and ship to these labs.

The Order impacts all 31 airports, but the size of the facilities, activities, and airport staffing varies dramatically from the largest to the smallest airports. California has the second busiest airport in the nation, but it also has several airports that have Part 139 certification with no commercial activity. Smaller airports tend to have fewer personnel and in most cases, no dedicated environmental staff. These small airports do not have the technical expertise or training to sufficiently accomplish the work ordered by the RWQCBs. Therefore, they must rely heavily on city or county staff which are often oversubscribed and require additional technical support from outside consultants, and airport working groups.

Smaller airports simply do not have the budget available to hire a consultant and conduct testing immediately. Due to limited operating revenues, these airports must carefully budget expenditures in advance of the fiscal year. An extension will allow these airports to budget appropriately for this effort and coordinate with city and county departments if additional funding resources are necessary.

The PFAS concerns raised by the Order are new to most airports. Many are already beginning to collaborate with each other to share resources and best practices to review historic operational information, identify appropriate sampling locations, learn new sampling methods and equipment, and develop appropriate approaches to other details of the Order.

Proposed Extension Timeline

We respectfully request an extension to allow for more time for airports to conduct their public processes to retain consultants and coordinate stakeholders. All airports intend to cooperate and fully comply with the Order, however, limited resources and experience on this issue will require a heightened level of partnership throughout the industry. As such, we suggest addressing the extension timelines based on a uniform date for all airports, and airport size, which generally dictates resources and capacity to respond (See Attachment A).

We propose the following modified schedule:

Airport Size	Effective Start Date	Work Plans Due (days after receipt of Order)[1]	Results Due After Water Board Approval of the Work Plan[2] (Days after plan accepted)
Large-Hub	4/1/2019	60	90
Medium-Hub	4/1/2019	75	120
Small-Hub	4/1/2019	120	150
Non-Hub	4/1/2019	120	180

[1] Assumes the airport has received the Order. Airports may request an additional extension if they have not received the Order by the time this letter is submitted.

[2] Subject to change. Airports will outline a schedule in the Work Plan and/or request a time extension if there were delays or impacts during implementation of the Work Plan.

This preferred approach provides equivalent time frames for all airports and standardizes response time considering delays in receiving the Order. Alternatively, individual schedules could be arranged for each airport that did not timely receive the Order after March 20, 2019, but this requires more time for Regional Board Staff, and will result in disparate extension periods.

The requested extension will treat all airports equally and allow time to share resources and best practices, undertake public contracting processes, coordinate with airport operations, secure competent certified labs, and enable airport staff, consultants, and labs time to undertake a properly designed investigation and produce meaningful results.

We would appreciate your prompt response to this request. Airports are working as quickly as possible to respond to the Order, but many do not expect to meet the current timeline. We strongly encourage flexibility, as the industry shares resources and approaches this effort in a collaborative manner. Feel free to email Jim Lites (jlites@calstrat.com) and Sarah Johnson (sjohnson@calstrat.com) with any questions or comments about our requested timeline.

Sincerely,

Ivar Satero
CAC President

Jon Stout
CAC Vice-President

Jim Lites
Jim Lites
CAC Executive Director

On behalf of the following airports:

Arcata/Eureka Airport (ACV)
Buchanan Field Airport (CCR)
Hollywood Burbank Airport (BUR)
Charles M. Schulz – Sonoma County Airport (STS)
Chico Municipal Airport (CIC)
Del Norte County Regional Airport, Jack McNamara Field (CEC)
Fresno Yosemite International Airport (FAT)
Imperial County Airport (IPL)
John Wayne Airport, Orange County (SNA)
Kern County Dept. of Airports – Meadows Field Airport (BFL)
Long Beach Airport (LGB)
Los Angeles World Airports (LAX)
Mammoth Yosemite Airport (MMH)
Monterey Regional Airport (MRY)
Norman Y. Mineta – San José International Airport (SJC)
Oakland International Airport (OAK)
Ontario International Airport (ONT)
Palm Springs International Airport (PSP)
Redding Municipal Airport (RDD)
Sacramento International Airport (SMF)
San Bernardino International Airport (SBD)
San Diego International Airport (SAN)
San Francisco International Airport (SFO)
San Luis Obispo County Regional Airport (SBP)
Santa Barbara Municipal Airport (SBA)
Santa Maria Public Airport (SMX)
Southern California Logistics Airport (VCV)
Stockton Metropolitan Airport (SCK)
Ventura County Airports (OXR)

ATTACHMENT A

Airport Classifications		Hub Type: Percentage of Annual Passenger Boardings	Common Name
Commercial Service: Publicly owned airports that have *at least 2,500* passenger boardings each calendar year and receive scheduled passenger service **§47102(7)**	**Primary:** Have *more than 10,000* passenger boardings each year **§47102(16)**	**Large:** 1% or more	**Large Hub**
		Medium: At least 0.25%, but less than 1%	**Medium Hub**
		Small: At least 0.05%, but less than 0.25%	**Small Hub**
		Nonhub: More than 10,000, but less than 0.05%	**Nonhub Primary**
	Nonprimary	**Nonhub:** At least 2,500 and no more than 10,000	**Nonprimary Commercial Service**

(Source: Federal Aviation Administration – Airport Categories)

ST	Locid	City	Airport Name	S/L	Hub
CA	LAX	Los Angeles	Los Angeles International	P	L
CA	SFO	San Francisco International Airport	San Francisco International	P	L
CA	SAN	San Diego	San Diego International	P	L
CA	OAK	Oakland	Metropolitan Oakland International	P	M
CA	SJC	San Jose	Norman Y Mineta San Jose International	P	M

CA	SMF	Sacramento	Sacramento International	P	M
CA	SNA	Santa Ana	John Wayne Airport-Orange County	P	M
CA	BUR	Burbank	Bob Hope	P	M
CA	ONT	Ontario	Ontario International	P	M
CA	LGB	Long Beach	Long Beach /Daugherty Field/	P	S
CA	PSP	Palm Springs	Palm Springs International	P	S
CA	FAT	Fresno	Fresno Yosemite International	P	S
CA	SBA	Santa Barbara	Santa Barbara Municipal	P	N
CA	SBP	San Luis Obispo	San Luis County Regional	P	N
CA	MRY	Monterey	Monterey Regional	P	N
CA	STS	Santa Rosa	Charles M Schulz - Sonoma County	P	N
CA	BFL	Bakersfield	Meadows Field	P	N
CA	SCK	Stockton	Stockton Metropolitan	P	N
CA	ACV	Arcata	California Redwood Coast-Humboldt County	P	N
CA	RDD	Redding	Redding Municipal	P	N
CA	SMX	Santa Maria	Santa Maria Public/Capt G Allan Hancock Field	P	N
CA	MMH	Mammoth Lakes	Mammoth Yosemite	P	N
CA	CCR	Concord	Buchanan Field	P	N
CA	VCV	Victorville	Southern California Logistics	GA	None
CA	CEC	Crescent City	Jack McNamara Field	CS	None
CA	IPL	Imperial	Imperial County	CS	None
CA	CRQ	Carlsbad	McClellan-Palomar	CS	None
CA	NKX	San Diego	Miramar MCAS (Joe Foss Field)	GA	None
CA	SBD	San Bernardino	San Bernardino International	GA	None
CA	OXR	Oxnard	Oxnard	GA	None
CA	CIC	Chico	Chico Municipal	GA	None

(Source: Federal Aviation Administration – CY2017 Enplanement Data. Includes Hub classification)

CALIFORNIA
Water Boards

Gavin Newsom
GOVERNOR

Jared Blumenfeld
SECRETARY FOR
ENVIRONMENTAL PROTECTION

San Francisco Bay Regional Water Quality Control Board

July 18, 2019
GeoTracker No.: T10000012766

Norman Y. Mineta San Jose International Airport
Planning and Development Division
Attn: Patrick Hansen, Environmental Services Program Manager
1701 Airport Blvd, Suite B-1130
San Jose, CA 95110
phansen@sjc.org

Subject: **Conditional Approval of Per- and Polyfluoroalkyl Substances Preliminary Investigation Workplan and Requirements for Completion Report – Norman Y. Mineta San Jose International Airport (SJC), Santa Clara County**

Dear Mr. Hansen:

This letter responds to the Per- and Polyfluoroalkyl Substances (PFAS) Preliminary Investigation Workplan (Workplan), dated June 14, 2019, submitted by Woodard & Curran on behalf of the Norman Y. Mineta San Jose International Airport (SJC). As explained below, I approve the Workplan with conditions. In accordance with the Regional Water Board 13267 Order WQ-2019-0005-DWQ (Order), and as explained below, SJC must submit a Completion Report for the proposed work by **October 18, 2019**.

Background

The Workplan provides a site map of potential and proposed PFAS investigation areas. The Workplan proposes collecting 84 soil samples and 10 groundwater samples from areas of known past releases of aqueous film-forming foam (AFFF). Soil samples are proposed in 28 locations at three depths, one sample at 1 foot below ground surface (bgs), one sample at 5 feet bgs, and an additional soil sample at approximately 10 feet bgs or the lowermost portion of the unsaturated zone at each location. Groundwater collection is proposed at each boring with the installation of temporary monitoring wells. Section 6.6 of the Workplan describes the sample analysis plan and Section 6.7 describes the quality assurance and quality control protocols to be implemented in accordance with the requirements of the Order. Sensitive receptors within a one-mile radius of the suspected source areas are identified on an area map and discussed in the Workplan.

Approval of Workplan with Comments

The Workplan complies with the minimum requirements of the Order and is appropriate to provide initial data on the impacts of PFAS releases at SJC. However, the Workplan provides a summary of several AFFF storage areas where no reports of releases occurred but where incidental spills could have occurred. This includes areas where AFFF was transferred from drums to aircraft rescue and firefighting (ARFF) vehicles. Additionally, the potential presence of PFAS sources other than AFFF was not discussed. These data gaps and Water Board staff comments are presented in Attachment 1.

I approve the Workplan subject to the condition that the attached comments are addressed in the Completion Report.

Requirement for Completion Report

Pursuant to the Order, SJC is required to submit a Completion Report for the Workplan no later than 90 days following this approval, thus by **October 18, 2019**. The report shall address the comments presented in Attachment 1 and document completion of the approved workplan tasks and present implementation results. The report must include the following elements:

- description of sampling activities;
- summary table of analytical results;
- chain-of-custody;
- copy of the field sampling logs;
- boring logs and any temporary/permanent monitoring well construction details;
- site map(s) showing the sampling/monitoring locations and data; and
- laboratory analytical results.

SJC is required to submit all documents in electronic format to the State Water Resources Control Board's GeoTracker database, pursuant to the California Code of Regulations (Title 23, Section 3890, et.seq.). Guidance for electronic information submittal to GeoTracker is available at: http://www.waterboards.ca.gov/water_issues/programs/ust/electronic_submittal/. Please note that this requirement includes all analytical data, monitoring well information (latitudes, longitudes, elevations, and water depth), site maps, and boring logs.

Basis for Requirement

The information required in this report is needed to define the potential impacts and magnitude of releases and assess any immediate threats they pose to human health or water quality.

SJC is owned and operated as a Department of the City of San Jose (City). The City is the current airport operator and operated SJC during the period when the releases occurred.

This requirement for an additional report is made pursuant to Water Code Section 13267, which allows the Regional Water Board to require technical or monitoring program reports from any person who has discharged, discharges, proposes to discharge, or is suspected of discharging waste that could affect water quality. Attachment 2 provides additional information about Section 13267 requirements. Any extension in the above deadline must be confirmed in writing by Water Board staff.

If you have any questions, please contact Erica Kalve of my staff at (510) 622-2064 or erica.kalve@waterboards.ca.gov.

Sincerely,

Terry Seward
for

Digitally signed
by tsfor
Date: 2019.07.18
11:55:19 -07'00'

Michael Montgomery
Executive Officer

Attachment 1: Specific Comments
Attachment 2: Section 13267 Fact Sheet

Copy by email with attachment:

John Aitken, A.A.E., Director of Aviation, Mineta San Jose International Airport
Judy Ross, A.A.E., Assistant Director of Aviation, Mineta San Jose International Airport
Patrick Magnotta, Airport Planning and Environment Division, Federal Aviation Administration
Anthony Butters, Airport Safety and Operations Division, Federal Aviation Administration

Attachment 1: Specific Comments

This attachment contains the Water Board's specific comments on the Per- and Polyfluoroalkyl Substances (PFAS) Preliminary Investigation Workplan for the Norman Y. Mineta San Jose International Airport (SJC) (Workplan) dated June 14, 2019. Satisfactorily addressing these comments is a condition of Workplan approval and is necessary for submittal of an adequate Completion Report by **October 18, 2019*.***

1. Page 2-1: The Workplan states that the Guadalupe River is the receiving water for stormwater discharges. Given the fact that PFAS have been shown to stick to surfaces (e.g., concrete and asphalt), they have the potential to act as a long-term source of PFAS to the environment. As such, it is appropriate for an evaluation of potential surface water impacts due to stormwater discharges and provide recommendations for site assessment. Further assessment of this pathway may include sediment and surface water sampling of stormwater lines and ditches that lead to the river, and/or sampling of sediment and surface water along at outfalls along Guadalupe River.

2. Page 3-1: The Workplan states that the current volume of AFFF stored at SJC does not include AFFF owned by Airport tenants. Please clarify if additional AFFF storage and use areas are present but not addressed by the Workplan. If additional AFFF storage and use areas are present, provide detailed information regarding storage, use, disposal, and potential spills or releases to lands of your facility and recommendations for additional site assessment.

3. Page 3-1: The Workplan indicates that ARFF engine water proportioning and fire testing was conducted offsite at a City of San Jose (City) location. Provide additional documentation regarding off-site ARFF engine and fire testing (e.g., location and approximate frequency of use). Clarify if vehicle maintenance was also conducted at this facility and if not, where the ARFF vehicles are maintained.

4. Page 3-2. The Workplan provides information regarding SJCs intent to research containment processes and procedures to ensure AFFF associated with future ARFF engine and fire testing will be contained and properly disposed. The Water Board appreciates this discussion regarding airport foam management plans.

5. Pages 3-2, 3-3, 4-1: The Workplan provides a detailed summary of AFFF storage, use, and release locations that are not proposed for sampling because the areas are paved and there have been no reported releases or spills (except for Location 13 where a release was documented). In areas where releases were not reported, incidental spills could have occurred and resulted in impacts to soil and groundwater. Additionally, PFAS have been shown to stick to concrete surfaces and act as a long-term source of PFAS to the environment. Further consideration of site investigation in these areas is recommended to confirm that soil and groundwater are not impacted.

6. Page 3-3: The Workplan states that the oil-water separator at Location 8 has been a disposal location for excess AFFF and rinsate. Soil and groundwater sample collection is proposed at Location 8. In addition to the proposed investigation activities, provide a detailed summary of waste management procedures associated with the oil-water separator.

7. Page 6-6: The Workplan states that the final report, analytical reports, and an electronic data deliverable (EDD) will be uploaded to GeoTracker via the Electronic Submittal of Information (ESI) Portals. Ensure that the EDD submittal includes the minimum requirements for survey data summarized in the document titled, GeoTracker Survey XYZ, Well Data, and Site Map Guidelines & Restrictions, Revision 6.1 dated April 2005 available at https://www.waterboards.ca.gov/water_issues/programs/ust/electronic_submittal/docs/geotrackersurvey_xyz_4_14_05.pdf.

It is recommended that additional potential sources of PFAS other than AFFF be considered, including onsite maintenance facilities that may have operation processes that generate PFAS-containing waste (e.g., metal plating, aircraft maintenance including the use of hydraulic fluids). Additionally, Water Board staff request additional information regarding the potential for PFAS to be present in the high-expansion fire suppressant foams present in Hangar 7.

CALIFORNIA
Water Boards

GAVIN NEWSOM
GOVERNOR

JARED BLUMENFELD
SECRETARY FOR
ENVIRONMENTAL PROTECTION

San Francisco Bay Regional Water Quality Control Board

Fact Sheet – Requirements for Submitting Technical Reports Under Section 13267 of the California Water Code

What does it mean when the Regional Water Board requires a technical report?

Section 13267[1] of the California Water Code provides that "…the regional board may require that any person who has discharged, discharges, or who is suspected of having discharged or discharging, or who proposes to discharge waste...that could affect the quality of waters...shall furnish, under penalty of perjury, technical or monitoring program reports which the regional board requires."

This requirement for a technical report seems to mean that I am guilty of something, or at least responsible for cleaning something up. What if that is not so?

The requirement for a technical report is a tool the Regional Water Board uses to investigate water quality issues or problems. The information provided can be used by the Regional Water Board to clarify whether a given party has responsibility.

Are there limits to what the Regional Water Board can ask for?

Yes. The information required must relate to an actual or suspected or proposed discharge of waste (including discharges of waste where the initial discharge occurred many years ago), and the burden of compliance must bear a reasonable relationship to the need for the report and the benefits obtained. The Regional Water Board is required to explain the reasons for its requirement.

What if I can provide the information, but not by the date specified?

A time extension may be given for good cause. Your request should be promptly submitted in writing, giving reasons.

Are there penalties if I don't comply?

Depending on the situation, the Regional Water Board can impose a fine of up to $5,000 per day, and a court can impose fines of up to $25,000 per day as well as criminal penalties. A person who submits false information or fails to comply with a requirement to submit a technical report may be found guilty of a misdemeanor. For some reports, submission of false information may be a felony.

Do I have to use a consultant or attorney to comply?

There is no legal requirement for this, but as a practical matter, in most cases the specialized nature of the information required makes use of a consultant and/or attorney advisable.

What if I disagree with the 13267 requirements and the Regional Water Board staff will not change the requirement and/or date to comply?

You may ask that the Regional Water Board reconsider the requirement, and/or submit a petition to the State Water Resources Control Board. See California Water Code sections 13320 and 13321 for details. A request for reconsideration to the Regional Water Board does not affect the 30-day deadline within which to file a petition to the State Water Resources Control Board.

If I have more questions, whom do I ask?

Requirements for technical reports include the name, telephone number, and email address of the Regional Water Board staff contact.

Revised March 2014

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[1] All code sections referenced herein can be found by going to California Legislative Code Section search at http://leginfo.legislature.ca.gov/faces/codes.xhtml

CALIFORNIA
Water Boards

Gavin Newsom
GOVERNOR

Jared Blumenfeld
SECRETARY FOR
ENVIRONMENTAL PROTECTION

San Francisco Bay Regional Water Quality Control Board

September 16, 2019
GeoTracker ID: T10000012766 (EK)

Norman Y. Mineta San Jose International Airport
Planning and Development Division
Attn: Patrick Hansen, Environmental Services Program Manager
1701 Airport Blvd, Suite B-1130
San Jose, CA 95110
phansen@sjc.org

Subject: Approved Due Date Extension of Per- and Polyfluoroalkyl Substances Completion Report Requirement – Norman Y. Mineta San Jose International Airport (SJC), Santa Clara County

Dear Mr. Hansen:

This letter is in regard to the approved Per- and Polyfluoroalkyl Substances (PFAS) Preliminary Investigation Workplan (Workplan), dated June 14, 2019, submitted by Woodard & Curran on behalf of the Norman Y. Mineta San Jose International Airport (SJC). The Regional Water Board approved the Workplan in a letter dated July 18, 2019 and required SJC to submit a Completion Report 90-days following the approval of the Workplan. However, the original Workplan included a request for a 120-day timeline for the implementation and reporting of the Workplan. As discussed via telephone conversation, the original request is granted and SJC is required to submit a Completion Report for the proposed work by **November 15, 2019**.

If you have any questions, please contact me at (510) 622-2064 or by email at erica.kalve@waterboards.ca.gov.

Sincerely,

Erica Kalve
Digitally signed by Erica Kalve
Date: 2019.09.16 13:17:39 -07'00'

Erica Kalve
Engineering Geologist
Groundwater Protection Division

Copy by email with Attachments:
John Aitken, A.A.E., Director of Aviation, Mineta San Jose International Airport
Judy Ross, A.A.E., Assistant Director of Aviation, Mineta San Jose International Airport

Patrick Magnotta, Airport Planning and Environment Division, Federal Aviation Administration
Anthony Butters, Airport Safety and Operations Division, Federal Aviation Administration

NORMAN Y. MINETA
SAN JOSE
INTERNATIONAL
AIRPORT
SILICON VALLEY'S AIRPORT

November 12, 2019

Submitted via email to erica.kalve@waterboards.ca.gov

Erica Kalve
San Francisco Bay Regional Water Quality Control Board
1515 Clay St., Suite 1400
Oakland, CA 94612

SUBJECT: Request for Due Date Extension for Submittal of Completion Report for the Approved Per- and Polyfluoroalkyl Substances (PFAS) Workplan Implementation

Dear Ms. Kalve,

This letter is to officially request an extension for the submittal of the Per- and Polyfluoroalkyl Substances (PFAS) Workplan Implementation Completion Report until **January 31st, 2020**. As we discussed during your site visit on October 24th, 2019, the Mineta San José International Airport has worked diligently to expedite the drilling, coring, and sampling process, which required complex coordination between consultants, sub-consultants, contractors, Airport tenants, Airport Security, and the Federal Aviation Administration (FAA).

All drilling, coring, and sampling activities were completed as of October 25th, 2019. We are currently awaiting the sample results from the Lab and anticipate receipt of the results before the end of November. To allow sufficient time to write the Completion Report after receipt of the sample results, and to respond to the Water Board's comments noted in the Conditional Approval Letter, dated July 18th, 2019, the Airport is requesting an extension for the submittal of the Completion Report until **January 31st, 2020**.

I look forward to your response to the Airport's request. If you have any questions, please feel free to contact myself at 408.392.3626 or at phansen@sjc.org.

Sincerely,

Patrick Hansen
Environmental Services Program Manager
Mineta San José International Airport
1701 Airport Blvd., Suite B-1130
San José, CA 95110

Cc: Drew Niemeyer, Deputy Director of Planning & Development, Mineta San José International Airport

CALIFORNIA
Water Boards

Gavin Newsom
Governor

Jared Blumenfeld
Secretary for
Environmental Protection

San Francisco Bay Regional Water Quality Control Board

December 9, 2019
GeoTracker ID: T10000012766 (EK)

Norman Y. Mineta San Jose International Airport
Planning and Development Division
Attn: Patrick Hansen, Environmental Services Program Manager
1701 Airport Blvd, Suite B-1130
San Jose, CA 95110
phansen@sjc.org

Subject: Approved Due Date Extension of Per- and Polyfluoroalkyl Substances Completion Report Requirement – Norman Y. Mineta San Jose International Airport (SJC), Santa Clara County

Dear Mr. Hansen:

This letter is in regard to your extension request dated November 12, 2019 for submittal of the Completion Report following implementation of the approved Per- and Polyfluoroalkyl Substances (PFAS) Preliminary Investigation Workplan (Workplan), dated June 14, 2019, submitted by Woodard & Curran on behalf of the Norman Y. Mineta San Jose International Airport (SJC). As stated in an email dated November 13, 2019, the extension request is approved. SJC is required to submit the Completion Report by **January 31, 2020**.

If you have any questions, please contact me at (510) 622-2064 or by email at erica.kalve@waterboards.ca.gov.

Sincerely,

Erica Kalve Digitally signed by Erica Kalve
Date: 2019.12.09 13:06:06
-08'00'

Erica Kalve
Engineering Geologist
Groundwater Protection Division

APPENDIX B: CHAIN-OF-CUSTODY FORMS

Rev. No.: 0
Rev. Date: 06/27/2017

ID: LR - 537COC

Vista
Analytical Laboratory

CHAIN OF CUSTODY

For Laboratory Use Only
Work Order #: 1903732 Temp: 2.0 °C
Storage ID: R-13, WR-2 Storage Secured: Yes ☑ No ☐

Project ID: SJC PFAS Investigation PO#: ______ Sampler: Kevin Almestad / (name) George Valenzuela

TAT (check one): Standard: ☒ 21 days
Rush (surcharge may apply) ☐ 14 days ☐ 7 days Specify: ______

Invoice to: Name: Jim Strandberg Company: Woodard & Curran Address: 2175 N California Blvd Ste 315 City: Walnut Creek State: CA Ph#: 925-627-4100 Fax#: 925-627-4101

Relinquished by (printed name and signature)	Date	Time	~~Received~~ by Relinquished KA (printed name and signature)	Date	Time
Kevin Almestad	10/17/19	1815	FedEX	10/18/19	0724

~~Relinquished~~ recieved KA by (printed name and signature)	Date	Time	Received by (printed name and signature)	Date	Time
Fedex /	10/17/19	1815	Ashley Mason	10/18/19	0724

SHIP TO: Vista Analytical Laboratory
1104 Windfield Way
El Dorado Hills, CA 95762
(916) 673-1520 * Fax (916) 673-0106

ATTN: Jade

Method of Shipment: Fedex
Tracking No.: ______

Add Analysis(es) Requested

Sample ID	Date	Time	Location/Sample Description	Container(s) Quantity	Container(s) Type	Matrix	Mod. EPA Method 537: PFOA/PFOS	Mod. EPA Method 537: UCMR3 PFAS List:6	Mod. EPA Method 537: 537 List: 14	Mod. EPA Method 537: Full List of 26	Mod. EPA Method 537: Other: Please List Below CA Airport 24 List	EPA Method 537(DW only): PFOA/PFOS	EPA Method 537(DW only): UCMR3 PFAS List:6	EPA Method 537(DW only): PFAS List: 14	Comments
L10-1-1	10/16/19	2000	Location 10	1	PJ	SO					X				
L10-1-5	↓	2005	↓	1	PJ	SO					↓				
L10-1-10	↓	2010	↓	1	PJ	SO					↓				
L10-1-GW	↓	2307	↓	2	P	AQ					↓				
L10-10-GW	↓	2317	↓	2	P	AQ					↓				
EB-1	↓	2250	↓	2	P	AQ					↓				
FB-1	↓	2245	↓	2	P	AQ					↓				
L11-4-1	10/17/19	0137	Location 11	1	PJ	SO					↓				
L11-4-10	↓	0143	↓	1	PJ	SO					↓				
L11-4-5	↓	0140	↓	1	PJ	SO					↓				

Special Instructions/Comments: Geotracker EDF

SEND DOCUMENTATION AND RESULTS TO:
Name: Jim Strandberg
Company: Woodard & Curran, Inc
Address: 2175 N California Blvd, Suite 315
City: Walnut Creek State: CA Zip: 94597
Phone: (510)-301-3776 Fax: ______
Email: Jstrandberg@woodardcurran.com

Container Types: P= HDPE, PJ= HDPE Jar
O = Other: ______

Bottle Preservation Type: T = Thiosulfate,
TZ = Trizma: ______

Matrix Types: AQ = Aqueous, DW = Drinking Water, EF = Effluent, PP = Pulp/Paper, SD = Sediment,
SL = Sludge, SO = Soil, WW = Wastewater, B = Blood/Serum, O = Other: ______

Page: 1 of 2

Rev. No.: 0
Rev. Date: 06/27/2017

ID: LR - 537COC

Vista
Analytical Laboratory

CHAIN OF CUSTODY

For Laboratory Use Only
Work Order #: 1903732 Temp: 2.0 °C
Storage ID: R-13, WR-2 Storage Secured: Yes ☑ No ☐

Project ID: SSC PFAS Investigation PO#: Sampler: KA/GV (name)

TAT (check one): Standard: ☒ 21 days
Rush (surcharge may apply) ☐ 14 days ☐ 7 days Specify:

Invoice to: Name	Company	Address	City	State	Ph#	Fax#
Jim Strandberg	woodard & Curran	2175 N California Blvd, ste 315	walnut creek	CA	925-627-4100	925-627-4101

Relinquished by (printed name and signature)	Date	Time	Received by (printed name and signature)	Date	Time
Kevin Alvestad	10/17/19	1815	Fedex	10/17/19	1615
FedEX	10/18/19	0724	Ashley Mason	10/18/19	0724

SHIP TO: Vista Analytical Laboratory
1104 Windfield Way
El Dorado Hills, CA 95762
(916) 673-1520 * Fax (916) 673-0106

ATTN: Jade

Method of Shipment: Fedex
Tracking No.:

				Container(s)			Add Analysis(es) Requested: Mod. EPA Method 537					EPA Method 537(DW only)			
Sample ID	Date	Time	Location/Sample Description	Quantity	Type	Matrix	PFOA/PFOS	UCMR3 PFAS List:6	537 List: 14	Full List of 26	Other: Please List Below CA Airport 24 list	PFOA/PFOS	UCMR3 PFAS List:6	PFAS List: 14	Comments
L11-1-1	10/17/19	0033	Location 11	1	PJ	SO					X				
L11-1-5	↓	0036	↓	1	PJ	SO					↓				
L11-1-10	↓	0040	↓	1	PJ	SO					↓				
L11-2-1	↓	0115	↓	1	PJ	SO					↓				
L11-2-5	↓	0118	↓	1	PJ	SO					↓				
L11-2-10	↓	0120	↓	1	PJ	SO					↓				
L11-3-1	↓	0213	↓	1	PJ	SO					↓				
L11-3-5	↓	0216	↓	1	PJ	SO					↓				
L11-3-10	↓	0218	↓	1	PJ	SO					↓				
L11-3-GW	↓	0300	↓	2	P	AQ					↓				

Special Instructions/Comments: Geotracker EDF

SEND DOCUMENTATION AND RESULTS TO:
Name: Jim Strandberg
Company: woodard & Curran, Inc.
Address: 2175 N California Blvd, ste 315
City: walnut Creek State: CA Zip: 94597
Phone: (510)-301-3776 Fax:
Email: Jstrandberg@woodardcurran.com

Container Types: P= HDPE, PJ= HDPE Jar
O = Other:

Bottle Preservation Type: T = Thiosulfate,
TZ = Trizma:

Matrix Types: AQ = Aqueous, DW = Drinking Water, EF = Effluent, PP = Pulp/Paper, SD = Sediment,
SL = Sludge, SO = Soil, WW = Wastewater, B = Blood/Serum, O = Other:

Page: 2 of 2

Rev. No.: 0
Rev. Date: 06/27/2017

ID: LR - 537COC

Vista
Analytical Laboratory

CHAIN OF CUSTODY

For Laboratory Use Only
Work Order #: 1903734 Temp: 0.8 °C
Storage ID: R-13, WR-2 Storage Secured: Yes ☑ No ☐

Project ID: SJC PFAS Investigation PO#: ______ Sampler: KA/GV (name)

TAT (check one): Standard: ☒ 21 days
Rush (surcharge may apply) ☐ 14 days ☐ 7 days Specify: ______

Invoice to: Name	Company	Address	City	State	Ph#	Fax#
Jim Strandberg	Woodard & Curran	2175 N. California Blvd, Ste 315	Walnut Creek	CA		(925) 627-4122

Relinquished by (printed name and signature)	Date	Time	Received by (printed name and signature)	Date	Time
Kevin Almestad	10/18/19	1345	Fedex Kevin Almestad	10/18/19	1345
FEDEX →			Kim Eric	10/19/19	0958

SHIP TO: Vista Analytical Laboratory
1104 Windfield Way
El Dorado Hills, CA 95762
(916) 673-1520 * Fax (916) 673-0106
ATTN: Jennifer Miller

Method of Shipment: Fedex
Tracking No.: ______

Add Analysis(es) Requested

Sample ID	Date	Time	Location/Sample Description	Container(s)			Mod. EPA Method 537					EPA Method 537(DW only)			Comments
				Quantity	Type	Matrix	PFOA/PFOS	UCMR3 PFAS List:6	537 List: 14	Full List of 26	Other: Please List Below CA Airport List (23)	PFOA/PFOS	UCMR3 PFAS List:6	PFAS List: 14	
L10-2-1	10/17/19	2201	Location 10	1	PJ	SO					X				
L10-2-5		2203		1	PJ	SO									
L10-2-10		2207		1	PJ	SO									
L10-3-1		2143		1	PJ	SO									
L10-3-5		2146		1	PJ	SO									
L10-3-10		2150		1	PJ	SO									
L12-1-1		2312		1	PJ	SO									
L12-1-5		2316		1	PJ	SO									
L12-1-10		2319		1	PJ	SO									
FB-2	10/18/19	0035	Location 12	2	P	AQ									

Special Instructions/Comments: Geotracker EDF
Fedex wouldn't sign chain, signed for them

SEND DOCUMENTATION AND RESULTS TO:
Name: Jim Strandberg
Company: Woodard & Curran, Inc.
Address: 2175 N California Blvd, Ste 315
City: Walnut Creek State: CA Zip: 94597
Phone: (510) 310-3776 Fax: (925)-627-4101
Email: Jstrandberg@woodardcurran.com

Container Types: P= HDPE, PJ= HDPE Jar
O = Other: ______

Bottle Preservation Type: T = Thiosulfate,
TZ = Trizma: ______

Matrix Types: AQ = Aqueous, DW = Drinking Water, EF = Effluent, PP = Pulp/Paper, SD = Sediment, SL = Sludge, SO = Soil, WW = Wastewater, B = Blood/Serum, O = Other: ______

Page: 1 of 2

Rev. No.: 0
Rev. Date: 06/27/2017

ID: LR - 537COC

Vista
Analytical Laboratory

CHAIN OF CUSTODY

For Laboratory Use Only 10/21/19
Work Order #: 19037345 Temp: 0.8 °C
Storage ID: R-13, WR-2 Storage Secured: Yes ☑ No ☐

Project ID: SJC PFAS Investigation PO#: Sampler: KA/GV (name)

TAT (check one): Standard: ☒ 21 days
Rush (surcharge may apply) ☐ 14 days ☐ 7 days Specify:

Invoice to: Name: Jim Strandberg Company: Woodard & Curran Address: 2175 N California Blvd, Ste 315 City: Walnut Creek State: CA Ph#: (925) 627-4122 Fax#: (925)-627-410

Relinquished by (printed name and signature)	Date	Time	Received by (printed name and signature)	Date	Time
Kevin Almestad	10/18/19	1345	Fedex Kevin Almestad	10/18/19	1345
Fedex			Kim Euric	10/19/19	0958

SHIP TO: Vista Analytical Laboratory
1104 Windfield Way
El Dorado Hills, CA 95762
(916) 673-1520 * Fax (916) 673-0106

ATTN: Jennifer Miller

Method of Shipment: Fedex
Tracking No.:

Add Analysis(es) Requested

Sample ID	Date	Time	Location/Sample Description	Container(s) Quantity	Container(s) Type	Container(s) Matrix	Mod. EPA Method 537 PFOA/PFOS	Mod. EPA Method 537 UCMR3 PFAS List:6	Mod. EPA Method 537 537 List: 14	Mod. EPA Method 537 Full List of 26	Mod. EPA Method 537 Other: Please List Below CA Airport List (23)	EPA Method 537 (DW only) PFOA/PFOS	EPA Method 537 (DW only) UCMR3 PFAS List:6	EPA Method 537 (DW only) PFAS List: 14	Comments
L12-2-1	10/17/19	2337	Location 12	1	PJ	SO					X				
L12-2-5		2341		1											
L12-2-10		2344		1											
L12-4-1		2350		1											
L12-4-5		2355		1											
L12-4-10	↓	2359		1											
L12-3-1	10/18/19	0002		1											
L12-3-5		0007		1											
L12-3-10		0010		1	↓	↓									
L12-3-GW		0130		2	P	AQ									
L12-30-GW	↓	0130	↓	2	P	AQ					↓				

Special Instructions/Comments:
Geotracker EDF
Fedex wouldn't sign chain, signed for them

SEND DOCUMENTATION AND RESULTS TO:
Name: Jim Strandberg
Company: Woodard & Curran, Inc.
Address: 2175 N California Blvd, Ste 315
City: Walnut Creek State: CA Zip: 94597
Phone: (510) 310-3776 Fax: (925) -627-4101
Email: Jstrandberg@woodardcurran.com

Container Types: P= HDPE, PJ= HDPE Jar
O = Other:

Bottle Preservation Type: T = Thiosulfate,
TZ = Trizma:

Matrix Types: AQ = Aqueous, DW = Drinking Water, EF = Effluent, PP = Pulp/Paper, SD = Sediment, SL = Sludge, SO = Soil, WW = Wastewater, B = Blood/Serum, O = Other:

Page: ~~1~~ 2 of ~~1~~ 2

Rev. No.: 0
Rev. Date: 06/27/2017

ID: LR - 537COC

Vista
Analytical Laboratory

CHAIN OF CUSTODY

For Laboratory Use Only
Work Order #: 1903773 Temp: 2.4 °C
Storage ID: WR-2 / R-13 Storage Secured: Yes ☒ No ☐

Project ID: SJC PFAS Investigation PO#: 0232401.01 Sampler: Kevin Almestad (name)

TAT (check one): Standard: ☒ 21 days
Rush (surcharge may apply) ☐ 14 days ☐ 7 days Specify:

Invoice to: Name	Company	Address	City	State	Ph#	Fax#
Jim Strandberg	woodard & curran	2175 N California Blvd, ste 315	walnut Creek	CA	(925)-627-4122	

Relinquished by (printed name and signature)	Date	Time	Received by (printed name and signature)	Date	Time
Kevin Almestad /	10/22/19	17:15	Fedex /	10/22/19	17:15
FedEx	10/23/19	0921	Ashley Mason	10/23/19	0921

SHIP TO: Vista Analytical Laboratory
1104 Windfield Way
El Dorado Hills, CA 95762
(916) 673-1520 * Fax (916) 673-0106

Method of Shipment: Fedex

ATTN: Jade White-Dobbs / Jennifer Miller

Tracking No.:

Add Analysis(es) Requested

				Container(s)			Mod. EPA Method 537					EPA Method 537(DW only)			
Sample ID	Date	Time	Location/Sample Description	Quantity	Type	Matrix	PFOA/ PFOS	UCMR3 PFAS List:6	537 List: 14	Full List of 26	Other: Please List Below CA Airport PFAS L34 (23)	PFOA/ PFOS	UCMR3 PFAS List:6	PFAS List: 14	Comments
L4-2-1	10/22/19	0223	Loc. 4	1	SO	PJ					X				
L4-2-5		0225	Loc. 4	1											
L4-2-10		0228	Loc. 4	1											
L4-1-1		0240		1											
L4-1-5		0242		1											
L4-1-10		0244		1											
L4-3-1		0320		1											
L4-3-5		0322		1											
L4-3-10		0324		1	↓	↓									
FB-3	↓	0115	↓	2	AQ	P					↓				

KA

Special Instructions/Comments: Geotracker EDF

SEND DOCUMENTATION AND RESULTS TO:

Name: Jim Strandberg
Company: Woodard & Curran, Inc.
Address: 2175 N California Blvd, ste 315
City: walnut creek State: CA Zip: 94597
Phone: (925)-627-4122 Fax: (925)-627-4101
Email: Jstrandberg@woodardcurran.com

Container Types: P= HDPE, PJ= HDPE Jar
O = Other:

Bottle Preservation Type: T = Thiosulfate,
TZ = Trizma:

Matrix Types: AQ = Aqueous, DW = Drinking Water, EF = Effluent, PP = Pulp/Paper, SD = Sediment, SL = Sludge, SO = Soil, WW = Wastewater, B = Blood/Serum, O = Other:

Page: 1 of 2

Vista Analytical Laboratory

CHAIN OF CUSTODY

For Laboratory Use Only
Work Order #: 1903773 Temp: 2.4 °C
Storage ID: R-13/WR-2 Storage Secured: Yes ☒ No ☐

Project ID: SJC PFAS Investigation PO#: 0232401.01 Sampler: Kevin Alwestad (name)

TAT (check one): Standard: ☒ 21 days
Rush (surcharge may apply) ☐ 14 days ☐ 7 days Specify:

Invoice to: Name	Company	Address	City	State	Ph#	Fax#
Jim Strandberg	Woodard & Curran	2175 N California Blvd, Ste 315	Walnut Creek	CA	(925)-627-4122	

Relinquished by (printed name and signature)	Date	Time	Received by (printed name and signature)	Date	Time
Kevin Alwestad/	10/22/19	17:15	Fedex	10/22/19	17:15
Fedex	10/23/19	0921	Ashley Mason	10/23/19	0921

SHIP TO: Vista Analytical Laboratory
1104 Windfield Way
El Dorado Hills, CA 95762
(916) 673-1520 * Fax (916) 673-0106

ATTN: Jade White-Dobbs/
Jennifer Miller

Method of Shipment: Fedex

Tracking No.:

Add Analysis(es) Requested

Sample ID	Date	Time	Location/Sample Description	Container(s) Quantity	Container(s) Type	Container(s) Matrix	Mod. EPA Method 537: PFOA/PFOS	Mod. EPA Method 537: UCMR3 PFAS List:6	Mod. EPA Method 537: 537 List: 14	Mod. EPA Method 537: Full List of 26	Mod. EPA Method 537: Other: Please List Below CA Airport PFAS List (28)	EPA Method 537(DW only): PFOA/PFOS	EPA Method 537(DW only): UCMR3 PFAS List:6	EPA Method 537(DW only): PFAS List: 14	Comments
L4-2-GW	10/22/19	0430	Loc. 4	2	P	AQ									
L4-20-GW	↓	0430	↓	2	P	AQ									
EB-3	↓	0400	↓	2	P	AQ									

Special Instructions/Comments: Geotracker EDF

SEND DOCUMENTATION AND RESULTS TO:

Name: Jim Strandberg
Company: Woodard & Curran, Inc.
Address: 2175 N California Blvd, Ste 315
City: Walnut Creek State: CA Zip: 94597
Phone: (925)-627-4122 Fax: (925)-627-4101
Email: Jstrandberg@woodardcurran.com

Container Types: P= HDPE, PJ= HDPE Jar
O = Other:

Bottle Preservation Type: T = Thiosulfate,
TZ = Trizma:

Matrix Types: AQ = Aqueous, DW = Drinking Water, EF = Effluent, PP = Pulp/Paper, SD = Sediment,
SL = Sludge, SO = Soil, WW = Wastewater, B = Blood/Serum, O = Other:

Page: 2 of 2

Vista
Analytical Laboratory

CHAIN OF CUSTODY

For Laboratory Use Only
Work Order #: 1903822   Temp: 0.6 °C
Storage ID: WR-2, R-13   Storage Secured: Yes ☑ No ☐

Project ID: SJC PFAS Investigation   PO#: 0232401.01   Sampler: KA/CL (name)

TAT (check one): Standard: ☒ 21 days
Rush (surcharge may apply) ☐ 14 days ☐ 7 days Specify: ____

Relinquished by (printed name and signature): Kevin Almestad   Date: 10/24/19   Time: 17:30
Received by (printed name and signature): Fedex   Date: 10/24/19   Time:

Relinquished by (printed name and signature): FedEx   Date: Time:
Received by (printed name and signature): Marissa Sparks MSparks   Date: 10/25/19   Time: 0840

SHIP TO: Vista Analytical Laboratory
1104 Windfield Way
El Dorado Hills, CA 95762
(916) 673-1520 * Fax (916) 673-0106
ATTN: ____

Method of Shipment: Fedex
Tracking No.: ____

Add Analysis(es) Requested

				Container(s)			PFAS by Isotope Dilution					EPA Method 537 (DW only)				
Sample ID	Date	Time	Location/ Sample Description	Quantity	Type	Matrix	PFOA/ PFOS	UCMR3 PFAS List:6	537.1 List: 14 or 18 (Circle One)	EPA Draft List of 24	OTHER: Please attach analyte list: CA Airport PFAS List (23)	PFOA/ PFOS	UCMR3 PFAS List:6	537.1 List of 14	537.1 List of 18	Comments
L14-1-1	10/23/19	0745	14	1	PJ	SD					X					
L14-1-5	↓	0748	14	1	PJ	↓					↓					
L14-1-10	↓	0750	14	1	↓	↓					↓					
L14-2-1	↓	0830	14	1	↓	↓					↓					
L14-2-5	↓	0832	14	1	↓	↓					↓					
L14-2-10	↓	0834	14	1	↓	↓					↓					
L14-4-1	↓	0950	↓	1	↓	↓					↓					
L14-4-5	↓	0952	↓	1	↓	↓					↓					
L14-4-10	↓	0954	↓	1	↓	↓					↓					
L14-1-GW	↓	0838	↓	2	P	AQ					↓					

Special Instructions/Comments: Geotracker EDF

SEND DOCUMENTATION AND RESULTS TO:
Name: Jim Strandberg
Company: Woodard & Curran, Inc.
Address: 2175 N California Blvd, Ste 315
City: Walnut Creek CA 94597
Phone: (510)-310-3776 (925)-627-4101
Email: Jstrandberg@woodardcurran.com

Container Types: P= HDPE, PJ= HDPE Jar
PY= Polypropylene, O = Other: ____

Bottle Preservation Type:
TZ = Trizma: ____

Matrix Types: AQ = Aqueous, DW = Drinking Water, EF = Effluent, PP = Pulp/Paper, SD = Sediment, SL = Sludge, SO = Soil, WW = Wastewater, B = Blood/Serum, O = Other: ____

ID: LR-537COC   **Rev. No.** 1   **Rev. Date:** 8/16/2019   **Page:** 1 of 3

Vista
Analytical Laboratory

CHAIN OF CUSTODY

For Laboratory Use Only
Work Order #: 1903823 Temp: 0.6 °C
Storage ID: R-13, WR-2 Storage Secured: Yes ☑ No ☐

Project ID: SJC PFAS Investigation PO#: 0232401.01 Sampler: WA/CL (name)

TAT (check one): Standard: ☒ 21 days
Rush (surcharge may apply) ☐ 14 days ☐ 7 days Specify:

Relinquished by (printed name and signature)	Date	Time	Received by (printed name and signature)	Date	Time
Kevin Almestad	10/24/19	17:30	Fedex	10/24/19	17:30
FedEx			Marissa Sparks	10/25/19	0840

SHIP TO: Vista Analytical Laboratory
1104 Windfield Way
El Dorado Hills, CA 95762
(916) 673-1520 * Fax (916) 673-0106
ATTN: Jade White-Dobbs

Method of Shipment: Fedex
Tracking No.:

Add Analysis(es) Requested

Sample ID	Date	Time	Location/ Sample Description	Container(s) Quantity	Container(s) Type	Matrix	PFAS by Isotope Dilution: PFOA/ PFOS	PFAS by Isotope Dilution: UCMR3 PFAS List:6	PFAS by Isotope Dilution: 537.1 List: 14 or 18 (Circle One)	PFAS by Isotope Dilution: EPA Draft List of 24	OTHER: Please attach analyte list CA Airport PFAS List (23)	EPA Method 537 (DW only): PFOA/ PFOS	EPA Method 537 (DW only): UCMR3 PFAS List:6	EPA Method 537 (DW only): 537.1 List of 14	EPA Method 537 (DW only): 537.1 List of 18	Comments
L14-2-GW	10/23/19	0951	14	2	P	AQ					X					
L14-20-GW	↓	0951	14	2	↓	↓					↓					
L14-4-GW	↓	1521	14	2	↓	↓					↓					
L14-3-1	WA [illegible]	1356	↓	1	PJ	SD					↓					10/24/19
L14-3-5	WA [illegible]	1401	↓	1	↓	↓					↓					10/24/19
L14-3-10	WA [illegible]	1406	↓	1	↓	↓					↓					10/24/19
L14-5-1	10/24/19	1416	↓	1	↓	↓					↓					
L14-5-5	↓	1419	↓	1	↓	↓					↓					
L14-5-10	↓	1423	↓	1	↓	↓					↓					
L14-6-1	↓	1429	↓	1	↓	↓					↓					

Special Instructions/Comments:
Geotracker EDF

SEND DOCUMENTATION AND RESULTS TO:
Name: Jim Strandberg
Company: Woodard & Curran, Inc.
Address: 2175 N California Blvd, Ste 315
City: Walnut Creek CA 94597
Phone: (510)-310-3776 (925)-627-4101
Email: jstrandberg@woodardcurran.com

Container Types: P= HDPE, PJ= HDPE Jar
PY= Polypropylene, O = Other:

Bottle Preservation Type:
TZ = Trizma:

Matrix Types: AQ = Aqueous, DW = Drinking Water, EF = Effluent, PP = Pulp/Paper, SD = Sediment, SL = Sludge, SO = Soil, WW = Wastewater, B = Blood/Serum, O = Other:

ID: LR-537COC Rev. No. 1 Rev. Date: 8/16/2019 Page: 2 of 3

Vista

Submit by Email

Print Form

CHAIN OF CUSTODY RECORD

FOR LABORATORY USE ONLY

Laboratory Project ID: 1903823 Temp 0.6 °C

Storage ID: WR-2 , R-13

Storage Secured: Yes ☑ No ☐

TAT: (Check One)
Standard ☒ 21 days
Rush (surcharge may apply)
○ 14 days ○ 7 days Specify:

Project I.D.: SJC PFAS Investigation P.O. #: 0232401.01 Sampler: KA/CL (Name)

Invoice to: Name Company Address City State Zip Ph# Fax #

Relinquished by: (Printed Name and Signature) / Kevin Atmestad Date: 10/24/19 Time: 17:30 Received by: (Signature and Printed Name) / Fedex Date: 10/24/19 Time: 17:30

Relinquished by: (Printed Name and Signature) FedEx Date: Time: Received by: (Signature and Printed Name) Marissa Sparks Date: 10/25/19 Time: 0840

See "Sample Log-in Checklist" for additional sample information

SHIP TO: Vista Analytical Laboratory
1104 Windfield Way
El Dorado Hills, CA 95762
(916) 673-1520 • Fax (916) 673-0106

Method of Shipment: Fedex

Tracking No.:

ATTN: Jade White-Dobbs

Add Analysis(es) Requested

Sample ID	Date	Time	Location/Sample Description	Container(s) Quantity	Container(s) Type	Matrix	EPA1613 2378-TCDD	EPA1613 2378-TCDD/TCDF	EPA1613 PCDD/PCDF	EPA8290 2378-TCDD	EPA8290 2378-TCDD/TCDF	EPA8290 PCDD/PCDF	EPA8280 2378-TCDD	EPA8280 2378-TCDD/TCDF	EPA8280 PCDD/PCDF	TOTALS	EPA1668 COPLANAR PCBs	EPA1668 209 CONGENERS	EPA1614 PBDE	CARB429 PAH	WHO-29	CA Airport PFAS (23)
L14-6-5	10/24/19	1434	14	1	PJ	SO																X
L14-6-10	10/24/19	1437	14	1	PJ	SO																X

Special Instructions/Comments: Geotracker EDF

SEND DOCUMENTATION AND RESULTS TO:

Name: Jim Strandberg
Company: Woodard & Curran, Inc.
Address: 2175 N California Blvd, Ste 315
City: Walnut Creek State: CA Zip: 94597
Phone: (510)-310-3776 Fax: (925)-627-4101
Email: JStrandberg@woodardcurran.com

Container Types: A = 1 Liter Amber, G = Glass Jar
P = PUF, T = MM5 Train, O = Other

***Bottle Preservative Type:** ☐ T = Thiosulfate,
☐ O = Other

Matrix Types: DW = Drinking Water, EF = Effluent, PP = Pulp/Paper,
SD = Sediment, SL = Sludge, SO = Soil, WW = Wastewater, B=Blood/Serum
O = Other

2 of 3

Vista

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Print Form

CHAIN OF CUSTODY RECORD

FOR LABORATORY USE ONLY

Laboratory Project ID: 1903824

Temp 0.6 °C

Storage ID: WR-2, R-13

Storage Secured: Yes ☑ No ☐

TAT: (Check One)

Standard ☒ 21 days

Rush (surcharge may apply)

○ 14 days ○ 7 days Specify: ___

Project I.D.: SJC PFAS Investigation P.O. #: 0232401.01 Sampler: KA/CL (Name)

Invoice to: Name Company Address City State Zip Ph# Fax #

Relinquished by: (Printed Name and Signature) Caleb Lucy Date: 10/24/19 Time: 17:30 Received by: (Signature and Printed Name) Fed Ex Date: 10/24/2019 Time:

Relinquished by: (Printed Name and Signature) FEDEX Date: 10/25/19 Time: 08:40 Received by: (Signature and Printed Name) Hayden Ganas Date: 10/25/19 Time: 08:40

See "Sample Log-in Checklist" for additional sample information

SHIP TO: Vista Analytical Laboratory
1104 Windfield Way
El Dorado Hills, CA 95762
(916) 673-1520 • Fax (916) 673-0106

ATTN: Jade White-Dobbs

Method of Shipment: Fed Ex

Tracking No.:

Add Analysis(es) Requested

				Container(s)			EPA1613			EPA8290			EPA8280				EPA1668		EPA1614	CARB429		
Sample ID	Date	Time	Location/Sample Description	Quantity	Type	Matrix	2378-TCDD	2378-TCDD/TCDF	PCDD/PCDF	2378-TCDD	2378-TCDD/TCDF	PCDD/PCDF	2378-TCDD	2378-TCDD/TCDF	PCDD/PCDF	TOTALS	COPLANAR PCBs	209 CONGENERS	PBDE	PAH	WHO-29	CA Airport PFAS List (23)
EB-4	10/24/19	1145	8/9	2	P	AQ																X
FB-5	10/24/19	0929	8/9	2	P	AQ																↓
L3-3-1	10/23/19	1228	3	1	PJ	SO																↓
FB-4	10/23/19	1201	~~8/9~~ 14	2	P	AQ																↓
L3-3-5	10/23/19	1230	3	1	PJ	SO																↓
L3-3-10	10/23/19	1232	3	1	PJ	SO																↓
L3-3-GW	10/23/19	1316	3	2	P	AQ																↓
L3-1-1	↓	1342	3	1	PJ	SO																↓
L3-1-5	↓	1346	3	1	PJ	SO																↓
L3-1-10	↓	1355	3	1	PJ	SO																↓

Special Instructions/Comments: GeoTracker EDF

SEND DOCUMENTATION AND RESULTS TO:

Name: Jim Strandberg
Company: Woodard and Curran, Inc.
Address: 2175 N. California Blvd, Ste. 315
City: Walnut Creek State: CA Zip: 94597
Phone: (510) 310-3776 Fax: (925) 627-4101
Email: jstrandberg@woodardcurran.com

Container Types: A = 1 Liter Amber, G = Glass Jar
P = PUF, T = MM5 Train, O = Other ___

***Bottle Preservative Type:** ☐ T = Thiosulfate,
☐ O = Other ___

Matrix Types: DW = Drinking Water, EF = Effluent, PP = Pulp/Paper,
SD = Sediment, SL = Sludge, SO = Soil, WW = Wastewater, B=Blood/Serum
O = Other ___

Vista

Submit by Email

Print Form

CHAIN OF CUSTODY RECORD

FOR LABORATORY USE ONLY

Laboratory Project ID: 1903824

Temp 0.6 °C

Storage ID: WR-2, R-13

Storage Secured: Yes ☑ No ☐

TAT: (Check One)

Standard [✓ 21 days]

Rush (surcharge may apply)

○ 14 days ○ 7 days Specify:

Project I.D.: SJC PFAS Investigation P.O. #: 0232401.01 Sampler: KA/CL (Name)

Invoice to: Name Company Address City State Zip Ph# Fax #

Cal Lucy Caleb Lucy 10/24/19 17:30 Cal Lucy FedEx 10/24/2019

Relinquished by: (Printed Name and Signature) ↓ ↓ Date: ↓ Time: ↓ Received by: (Signature and Printed Name) ↓ ↓ Date: ↓ Time:

Relinquished by: (Printed Name and Signature) FEDEX Date: 10/25/19 Time: 08:40 Received by: (Signature and Printed Name) Hayden Gamai Date: 10/25/19 Time: 08:40

See "Sample Log-in Checklist" for additional sample information

SHIP TO: Vista Analytical Laboratory
1104 Windfield Way
El Dorado Hills, CA 95762
(916) 673-1520 • Fax (916) 673-0106

ATTN: Jade White-Dobbs

Method of Shipment: Fed Ex

Tracking No.:

Add Analysis(es) Requested

				Container(s)			EPA1613			EPA8290			EPA8280			EPA1668			EPA1614	CARB429		
Sample ID	Date	Time	Location/Sample Description	Quantity	Type	Matrix	2378-TCDD	2378-TCDD/TCDF	PCDD/PCDF	2378-TCDD	2378-TCDD/TCDF	PCDD/PCDF	2378-TCDD	2378-TCDD/TCDF	PCDD/PCDF	TOTALS	COPLANAR PCBs	209 CONGENERS	PBDE	PAH	WHO-29	CA Airport PFAS List (23)
L3-2-1	10/23/19	1311	3	1	PJ	SO																X
L3-2-5	↓	1318	3	1	↓	↓																↓
L3-2-10	↓	1320	3	1	↓	↓																↓
L8/9-1-1	10/24/19	0811	8/9	1	↓	↓																↓
L8/9-1-5	↓	0815	8/9	1	↓	↓																↓
L8/9-1-10	↓	0819	8/9	1	↓	↓																↓
L8/9-2-1	↓	0833	8/9	1	↓	↓																↓
L8/9-2-5	↓	0837	8/9	1	↓	↓																↓
L8/9-2-10	↓	0841	8/9	1	↓	↓																↓
L8/9-3-1	↓	0856	8/9	1	↓	↓																↓

Special Instructions/Comments: GeoTracker EDF

SEND DOCUMENTATION AND RESULTS TO:

Name: Jim Strandberg
Company: Woodard + Curran
Address: 2175 N. California Blvd.; Ste. 315
City: Walnut Creek CA State: CA Zip: 94597
Phone: (510) 310-3776 Fax: (925) 627-4101
Email: jstrandberg@woodardcurran.com

Container Types: A = 1 Liter Amber, G = Glass Jar
P = PUF, T = MM5 Train, O = Other

***Bottle Preservative Type:** ☐ T = Thiosulfate,
☐ O = Other

Matrix Types: DW = Drinking Water, EF = Effluent, PP = Pulp/Paper, SD = Sediment, SL = Sludge, SO = Soil, WW = Wastewater, B=Blood/Serum
O = Other

Submit by Email

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Vista

CHAIN OF CUSTODY RECORD

FOR LABORATORY USE ONLY

Laboratory Project ID: 1903825

Temp 0.6 °C

Storage ID: WR-2, R-13

Storage Secured: Yes ☑ No ☐

TAT: (Check One)
Standard ○ 21 days
Rush (surcharge may apply)
○ 14 days ○ 7 days Specify: __

Project I.D.: STC PFAS Investigation P.O. #: 0232401.01 Sampler: KA/CL (Name)

Invoice to: Name Company Address City State Zip Ph# Fax #

Relinquished by: (Printed Name and Signature)	Date:	Time:	Received by: (Signature and Printed Name)	Date:	Time:
Eric Ly	10/24/2019	17:30	Eric Ly Fed Ex	10/24/2019	
FedEx	10/25/19	08:40	Hayden Ganas	10/25/19	08:40

See "Sample Log-in Checklist" for additional sample information

SHIP TO: Vista Analytical Laboratory
1104 Windfield Way
El Dorado Hills, CA 95762
(916) 673-1520 • Fax (916) 673-0106

ATTN: Jade White-Dobbs

Method of Shipment: Fed Ex

Tracking No.:

Add Analysis(es) Requested

				Container(s)			EPA1613			EPA8290			EPA8280				EPA1668		EPA1614	CARB429		
Sample ID	Date	Time	Location/Sample Description	Quantity	Type	Matrix	2378-TCDD	2378-TCDD/TCDF	PCDD/PCDF	2378-TCDD	2378-TCDD/TCDF	PCDD/PCDF	2378-TCDD	2378-TCDD/TCDF	PCDD/PCDF	TOTALS	COPLANAR PCBs	209 CONGENERS	PBDE	PAH	WHO-29	CA Airport PFAS List (23)
L8/9-3-5	10/24/19	0901	8/9	1	PJ	SO																X
L8/9-3-10		0904	8/9																			
L8/9-4-1		1102	8/9																			
L8/9-4-5		1105	8/9																			
L8/9-4-10		1110	8/9																			
L8/9-5-1		0938	8/9																			
L8/9-5-5		0942	8/9																			
L8/9-5-10		0947	8/9	↓	↓	↓																
L8/9-5-6W		1015	8/9	2	P	AQ																
L8/9-4-6W	↓	1213	8/9	2																		↓
L8/9-40-6W	↓	1213	8/9	2	↓	↓																↓

Special Instructions/Comments

SEND DOCUMENTATION AND RESULTS TO:

Name:
Company: Jim Strandberg
Address: Woodard + Curran 2175 N. California Blvd., Ste. 315
City: Walnut Creek State: CA Zip: 94597
Phone: (510) 310-3776 Fax: (925) 627-4101
Email: jstrandberg@woodardcurran.com

Container Types: A = 1 Liter Amber, G = Glass Jar
P = PUF, T = MM5 Train, O = Other ________________

***Bottle Preservative Type:** ☐ T = Thiosulfate,
☐ O = Other ________________

Matrix Types: DW = Drinking Water, EF = Effluent, PP = Pulp/Paper,
SD = Sediment, SL = Sludge, SO = Soil, WW = Wastewater, B=Blood/Serum
O = Other ________________

APPENDIX C: SOIL BORING LITHOLOGIC LOGS

Woodard & Curran
2175 N California Blvd, Suite 315
Walnut Creek, CA 94596
Telephone: 925.627.4100

BORING NUMBER L3

CLIENT Kimley-Horn and Associates
PROJECT NAME Norman Y. Mineta San Jose International Airport
PROJECT NUMBER 0232401.01
PROJECT LOCATION San Jose, CA
DATE STARTED 10/23/2019 **COMPLETED** 10/23/2019
GROUND ELEVATION **HOLE SIZE** 2.5"
DRILLING CONTRACTOR Penecore Drilling
GROUND WATER LEVELS:
DRILLING METHOD Direct Push by tracked Geoprobe
▽ **AT TIME OF DRILLING** 11.50 ft
LOGGED BY Kevin Almestad **CHECKED BY** Jim Strandberg
AT END OF DRILLING ---
NOTES Representative Log for Location 3
▼ **AFTER DRILLING** 10.41 ft

DEPTH (ft)	RECOVERY (INCHES)	U.S.C.S.	GRAPHIC LOG	Feet BGS	MATERIAL DESCRIPTION
0				1.5	Concrete
2				2.5	FILL: dry, sandy gravel
4	60	ML		4.5	CLAYEY SILT: black, dry, stiff, non-plastic to low plasticity
6		CL		6.0	SILTY CLAY: black, dry, medium stiff
8 10	60	CL		10.0	CLAY: black, dry, medium stiff
12		CH		12.0	▼ CLAY: very dark gray, moist, soft, high plasticity ▽
14	60	CL		15.5	SANDY CLAY: grayish brown, wet, soft, low plasticity, some silt, iron oxide staining
16 18	60	CL		18.5	CLAY: reddish brown, wet, soft, medium plasticity, some sand, some silt
20		CL		20.5	CLAY: yellowish brown, wet, soft, medium plasticity
		SP		21.5	SAND: yellowish brown, wet, medium dense, medium to fine grained, some coarse to fine gravel

Bottom of borehole at 21.5 feet.

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Telephone: 925.627.4100

BORING NUMBER L4

PAGE 1 OF 1

CLIENT Kimley-Horn and Associates
PROJECT NAME Norman Y. Mineta San Jose International Airport
PROJECT NUMBER 0232401.01
PROJECT LOCATION San Jose, CA
DATE STARTED 10/22/2019 **COMPLETED** 10/22/2019
GROUND ELEVATION **HOLE SIZE** 2.5"
DRILLING CONTRACTOR Penecore Drilling
GROUND WATER LEVELS:
DRILLING METHOD Direct Push by tracked Geoprobe
▽ **AT TIME OF DRILLING** 11.50 ft
LOGGED BY Kevin Almestad **CHECKED BY** Jim Strandberg
AT END OF DRILLING ---
NOTES Representative Log for Location 4
▼ **AFTER DRILLING** 8.81 ft

DEPTH (ft)	RECOVERY (INCHES)	U.S.C.S.	GRAPHIC LOG	Feet BGS	MATERIAL DESCRIPTION
0	60			0.3	Asphalt (4")
			▩	1.0	FILL: dry, coarse gravel
2 4			▩	5.0	FILL: dark brown, dry, loose, fine sand, some coarse to fine gravel
6	60	CL	▥	7.0	SILTY CLAY: black, dry, soft, low plasticity, little coarse sand
8		CL	▥	9.0 ▼	SILTY CLAY: black, dry, soft, low plasticity
10 12 14 16 18 20	60 60 60	CL	▨	▽	CLAY: olive brown, moist, soft, high plasticity Transitions to wet As above, some very fine sand

Bottom of borehole at 20.0 feet.

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Telephone: 925.627.4100

BORING NUMBER L8/9

PAGE 1 OF 1

CLIENT Kimley-Horn and Associates
PROJECT NAME Norman Y. Mineta San Jose International Airport
PROJECT NUMBER 0232401.01
PROJECT LOCATION San Jose, CA
DATE STARTED 10/24/2019 **COMPLETED** 10/24/2019
GROUND ELEVATION **HOLE SIZE** 2.5"
DRILLING CONTRACTOR Penecore Drilling
GROUND WATER LEVELS:
DRILLING METHOD Direct Push by tracked Geoprobe
▽ **AT TIME OF DRILLING** 14.00 ft
LOGGED BY Kevin Almestad **CHECKED BY** Jim Strandberg
AT END OF DRILLING ---
NOTES Representative Log for Locations 8 & 9
▼ **AFTER DRILLING** 15.15 ft

DEPTH (ft)	RECOVERY (INCHES)	U.S.C.S.	Feet BGS	MATERIAL DESCRIPTION
0	60		0.3	Asphalt (4")
			1.0	FILL: dry, loose, silty gravel, some sand
2		CL		CLAY: very dark grayish brown, dry, medium plasticity As above, some fine sand
4			5.0	
6	60	CL	6.0	CLAY: olive brown, dry, medium plasticity
8		SC	9.0	CLAYEY SAND: olive brown, dry, medium stiff, low plasticity,some coarse to fine gravel, some silt
10	60	SP		GRAVELLY SAND: olive brown, dry, loose, little clay
12				As above, moist, no gravel
14			14.0 ▽	
		SP	15.0 ▼	SAND: olive brown, wet, loose, coarse to fine grained, little clay
16	60	CL		CLAY: dark grayish brown, wet, soft, medium plasticity
			16.0	As above, olive gray, some sand, some silt
18		SC	19.0	CLAYEY SAND: black, wet, some silt
20		CH		CLAY: black, wet, soft, high plasticity
22				
24			25.0	

Bottom of borehole at 25.0 feet.

Woodard & Curran
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Walnut Creek, CA 94596
Telephone: 925.627.4100

BORING NUMBER L10

CLIENT Kimley-Horn and Associates
PROJECT NAME Norman Y. Mineta San Jose International Airport
PROJECT NUMBER 0232401.01
PROJECT LOCATION San Jose, CA
DATE STARTED 10/16/2019 **COMPLETED** 10/16/2019
GROUND ELEVATION **HOLE SIZE** 2.5"
DRILLING CONTRACTOR Penecore Drilling
GROUND WATER LEVELS:
DRILLING METHOD Direct Push by tracked Geoprobe
▽ **AT TIME OF DRILLING** 12.50 ft
LOGGED BY Kevin Almestad **CHECKED BY** Jim Strandberg
AT END OF DRILLING ---
NOTES Representative Log for Location 10
▼ **AFTER DRILLING** 11.85 ft

DEPTH (ft)	RECOVERY (INCHES)	U.S.C.S.	GRAPHIC LOG	Feet BGS	MATERIAL DESCRIPTION
0	60		⁘	1.0	TOPSOIL: dry, loose, gravelly silt
2 4		CL	▨	5.0	SILTY CLAY: very dark grayish brown, dry
6 8	60	CL	▨	8.0	SILTY CLAY: black, damp
10		ML	▥	10.0	CLAYEY SILT: gray, dry, stiff
12	60	CL	▨	▼ 12.5 ▽	SILTY CLAY: light olive brown, damp, iron oxide mottling
		SP	⁘	13.5	SILTY SAND: light olive brown, saturated, coarse to fine grained
14		ML	▥	15.0	SILT: very dark gray, saturated, low plasticity
16 18 20	60	CL	▨	20.0	CLAY, very dark gray, high plasticity thin layers of fine-grained sand

Bottom of borehole at 20.0 feet.

Woodard & Curran
2175 N California Blvd, Suite 315
Walnut Creek, CA 94596
Telephone: 925.627.4100

BORING NUMBER L11

PAGE 1 OF 1

CLIENT Kimley-Horn and Associates		**PROJECT NAME** Norman Y. Mineta San Jose International Airport	
PROJECT NUMBER 0232401.01		**PROJECT LOCATION** San Jose, CA	
DATE STARTED 10/16/2019	**COMPLETED** 10/16/2019	**GROUND ELEVATION**	**HOLE SIZE** 2.5"
DRILLING CONTRACTOR Penecore Drilling		**GROUND WATER LEVELS:**	
DRILLING METHOD Direct Push by tracked Geoprobe		▽ **AT TIME OF DRILLING** 10.50 ft	
LOGGED BY Kevin Almestad	**CHECKED BY** Jim Strandberg	**AT END OF DRILLING** ---	
NOTES Representative Log for Location 11		▼ **AFTER DRILLING** 6.55 ft	

DEPTH (ft)	RECOVERY (INCHES)	U.S.C.S.	GRAPHIC LOG	Feet BGS	MATERIAL DESCRIPTION
0	60		⁘	1.0	TOPSOIL: dry, loose, gravelly silt
2		ML	▥	2.0	CLAYEY SILT: dark grayish brown, dry, stiff, low plasticity
4		CL	▨	6.0	CLAY: dark gray, dry, stiff, low plasticity, trace sand
6	60	CL	▨	8.0	▼ CLAY: brown, damp, soft, medium plasticity, trace sand
8 10		SC	▨	13.0	SANDY CLAY: dark yellowish brown, moist, soft, low plasticity, fine grained, some silt ▽ As above, transitions to wet
12 14	60	CL	▨	15.0	CLAY: dark gray, moist, soft, high plasticity
16 18 20	60	CL	▨	20.0	SANDY CLAY: dark gray, wet

Bottom of borehole at 20.0 feet.

Woodard & Curran
2175 N California Blvd, Suite 315
Walnut Creek, CA 94596
Telephone: 925.627.4100

BORING NUMBER L12

PAGE 1 OF 1

CLIENT Kimley-Horn and Associates
PROJECT NAME Norman Y. Mineta San Jose International Airport
PROJECT NUMBER 0232401.01
PROJECT LOCATION San Jose, CA
DATE STARTED 10/17/2019 **COMPLETED** 10/18/2019
GROUND ELEVATION **HOLE SIZE** 2.5"
DRILLING CONTRACTOR Penecore Drilling
GROUND WATER LEVELS:
DRILLING METHOD Direct Push by tracked Geoprobe
∇ **AT TIME OF DRILLING** 12.00 ft
LOGGED BY Kevin Almestad **CHECKED BY** Jim Strandberg
AT END OF DRILLING ---
NOTES Representative Log for Location 12
▼ **AFTER DRILLING** 11.54 ft

DEPTH (ft)	RECOVERY (INCHES)	U.S.C.S.	GRAPHIC LOG	Feet BGS	MATERIAL DESCRIPTION
0	60				TOPSOIL: dry, loose, gravelly silt
		ML		1.0	SILT: gray, dry, medium stiff, non-plastic, with some clay, light mottling
2					
4					
	60	ML		5.0	CLAYEY SILT: black, dry, stiff, non-plastic to low plasticity, mottling
6					
8					
					Transitions to damp
10	60				
		CL		11.0	CLAY: brown, moist, soft, high plasticity
12					▼ ∇ Transitions to wet
14					As above, some fine sand, some silt
16	60				
18					
20				20.0	

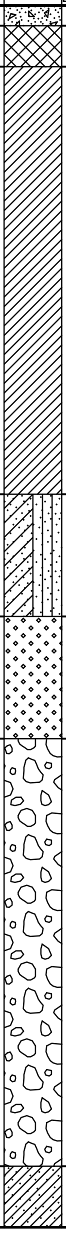
Bottom of borehole at 20.0 feet.

Woodard & Curran
2175 N California Blvd, Suite 315
Walnut Creek, CA 94596
Telephone: 925.627.4100

BORING NUMBER L14-2

PAGE 1 OF 1

CLIENT Kimley-Horn and Associates
PROJECT NAME Norman Y. Mineta San Jose International Airport
PROJECT NUMBER 0232401.01
PROJECT LOCATION San Jose, CA
DATE STARTED 10/23/2019 **COMPLETED** 10/23/2019
GROUND ELEVATION **HOLE SIZE** 2.5"
DRILLING CONTRACTOR Penecore Drilling
GROUND WATER LEVELS:
DRILLING METHOD Direct Push by tracked Geoprobe
▽ **AT TIME OF DRILLING** 12.00 ft
LOGGED BY Kevin Almestad **CHECKED BY** Jim Strandberg
AT END OF DRILLING ---
NOTES
▼ **AFTER DRILLING** 7.15 ft



DEPTH (ft)	RECOVERY (INCHES)	U.S.C.S.	GRAPHIC LOG Feet BGS	MATERIAL DESCRIPTION
0	60		0.3	Concrete (4")
			1.0	FILL: dry, gravelly silt with fine to coarse gravel
2		CL		CLAY: black, dry, medium stiff, medium plasticity
4				
6	60			
8			8.0	▼ As above, grading to silt and fine sand
		SC-SM	10.0	SILTY SAND: yellowish brown, moist, medium dense, well graded, fine grained, some iron oxide staining
10	60	SW	12.0 ▽	SAND: dark yellowish brown, moist, loose, fine grained, little fine gravel
12		GP		SANDY GRAVEL: olive brown, wet, loose, medium to coarse gravel, poorly sorted or fine sand
14				
16	60			As above, wet
18			19.0	
20		CL	20.0	SANDY CLAY: olive, wet, soft, medium plasticity, fine sand

Bottom of borehole at 20.0 feet.

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Walnut Creek, CA 94596
Telephone: 925.627.4100

BORING NUMBER L14-4

CLIENT Kimley-Horn and Associates
PROJECT NAME Norman Y. Mineta San Jose International Airport
PROJECT NUMBER 0232401.01
PROJECT LOCATION San Jose, CA
DATE STARTED 10/23/2019 **COMPLETED** 10/23/2019
GROUND ELEVATION **HOLE SIZE** 2.5"
DRILLING CONTRACTOR Penecore Drilling
GROUND WATER LEVELS:
DRILLING METHOD Direct Push by tracked Geoprobe
▽ **AT TIME OF DRILLING** 11.00 ft
LOGGED BY Kevin Almestad **CHECKED BY** Jim Strandberg
AT END OF DRILLING ---
NOTES
▼ **AFTER DRILLING** 7.59 ft

DEPTH (ft)	RECOVERY (INCHES)	U.S.C.S.	GRAPHIC LOG	Feet BGS	MATERIAL DESCRIPTION
0	60			0.3	Asphalt (4")
			▩	1.0	FILL: dry, fine gravelly silt
2 4		CH	▨	5.0	CLAY: black, dry, medium stiff, high plasticity
6 8	60	CL	▨	8.0 ▼	CLAY: very dark grayish brown, dry, medium stiff, medium plasticity
10	60	SC	▨	11.0 ▽	SANDY CLAY: light yellowish brown, soft, low plasticity
12 14 16	60	SP	⠿	16.0	GRAVELLY SAND: grayish brown, wet, loose, little fine to coarse gravel, poorly sorted fine sand, iron oxide staining As above, some fine to coarse gravel
18 20		GP	○	20.0	SANDY GRAVEL: dark grayish brown, wet, loose, fine to coarse gravel, little medium to coarse sand

Bottom of borehole at 20.0 feet.

APPENDIX D: LABORATORY ANALYTICAL REPORTS

CALIFORNIA LABORATORY SERVICES
Committed. Responsive. Flexible.

October 25, 2019

CLS Work Order #: 19J1246
COC #: 200028

Jade White Dobbs
Vista Analytical Laboratory
1104 Windfield Way
El Dorado Hills, CA 95762

Project Name: SJC PFAS Investigation

Enclosed are the results of analyses for samples received by the laboratory on 10/18/19 13:15. Samples were analyzed pursuant to client request utilizing EPA or other ELAP approved methodologies. I certify that the results are in compliance both technically and for completeness.

Analytical results are attached to this letter. Please call if we can provide additional assistance.

Sincerely,

James Liang, Ph.D.
Laboratory Director

CA SWRCB ELAP Accreditation/Registration number 1233

HIGHLIGHTED AREAS MUST BE FILLED OUT PRIOR TO ACCEPTANCE

CALIFORNIA LABORATORY SERVICES

Report to Vista Analytical Lab
Attn: Jade White Dobbs

CHAIN OF CUSTODY

CLS ID No.: 19J1246 LOG Nº 200028

REPORT TO:

NAME AND ADDRESS Jim Strandberg
2175 N California Blvd, Ste 315
Walnut Creek, CA

PROJECT MANAGER
PHONE#

PROJECT NAME SJC PFAS Investigation

SAMPLED BY Kevin Almestad/George Valenzuela

JOB DESCRIPTION Gen. chem paramters

SITE LOCATION 1701 Airport Blvd, San Jose, CA

CLIENT JOB NUMBER

DESTINATION LABORATORY
☒ CLS (916) 638-7301
3249 FITZGERALD RD.
RANCHO CORDOVA, CA.
95742
☐ OTHER

GEOTHRACKER:
EDF REPORT ☒ YES ☐ NO
GLOBAL ID:

CDPH WRITE ON EDT TRANSMISSION? ☐ YES ☒ NO
STATE SYSTEM NUMBER
IF "YES" PLEASE ENTER THE SOURCE NUMBER(S).

COMPOSITE:

DATE	TIME	SAMPLE IDENTIFICATION KA	MATRIX	CONTAINER NO.	CONTAINER TYPE	PRESERVATIVES	ANALYSIS REQUESTED: Total Dissolved Solids KA	Chloride, Sulfate	Nitrate-Nitrogen	Calcium, Magnesium	Potassium	Sodium		TURN AROUND TIME: 1 DAY	2 DAY	3 DAY	5 DAY	SPECIAL INSTRUCTIONS OR ALT. ID:
		~~L10-2~~																
2307	10/16/19	L10-1-6W	W	1	Poly		X	X	X	X	X	X					X	
2317	10/16/19	L10-10-6W	W	1	↓		↓	↓	↓	↓	↓	↓					X	
0300	10/17/19	L11-3-6W	W	1	↓		↓	↓	↓	↓	↓	↓					X	

INVOICE TO:

P.O. #

QUOTE #

Email/Address Jstrandberg@woodardcurran.com

PRESERVATIVES: (1) HCL (2) HNO_3 (3) = COLD (4) = NaOH (5) = H_2SO_4 (6) = $Na_2S_2O_3$ (7) =

RELINQUISHED BY (SIGN)	PRINT NAME / COMPANY	DATE / TIME	RECEIVED BY (SIGN)	PRINT NAME / COMPANY
	Kevin Almestad	10/17/19 1815		Fedex
	FedEX	10/18/19 0724		Ashley Mason / VAL
	Jenn Miller / VAL	10/18/19 12:44		

RECD AT LAB BY:
DATE / TIME: 10-18-19 1315 5.9/5.9
CONDITIONS / COMMENTS:

SHIPPED BY: ☒ FED X ☐ UPS ☐ OTHER ______ AIR BILL #

Gold-Project Mgr./Field Sampler/Terms and conditions Pink: Origin/Terms and Conditions Yellow- Lab file copy/Terms and Conditions White-Lab/Terms and conditions

Vista Analytical Laboratory	Project:	SJC PFAS Investigation		
1104 Windfield Way	Project Number:	[none]	**CLS Work Order #: 19J1246**	
El Dorado Hills, CA 95762	Project Manager:	Jade White Dobbs	COC #: 200028	

Conventional Chemistry Parameters by APHA/EPA Methods

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
L10-1-GW (19J1246-01) Water Sampled: 10/16/19 23:07 Received: 10/18/19 13:15									
Chloride	**39**	5.0	mg/L	10	1908803	10/18/19	10/18/19	EPA 300.0	
Nitrate as N	**6.1**	4.0	"	"	"	"	10/18/19	"	
Sulfate as SO4	**160**	5.0	"	"	"	"	"	"	
Total Dissolved Solids	**930**	10	"	1	1908844	10/21/19	10/23/19	EPA 160.1	
L10-10-GW (19J1246-02) Water Sampled: 10/16/19 23:17 Received: 10/18/19 13:15									
Chloride	**46**	5.0	mg/L	10	1908803	10/18/19	10/18/19	EPA 300.0	
Nitrate as N	**4.9**	4.0	"	"	"	"	10/18/19	"	
Sulfate as SO4	**150**	5.0	"	"	"	"	10/18/19	"	
Total Dissolved Solids	**970**	10	"	1	1908844	10/21/19	10/23/19	EPA 160.1	
L11-3-GW (19J1246-03) Water Sampled: 10/17/19 03:00 Received: 10/18/19 13:15									
Chloride	**8.5**	0.50	mg/L	1	1908803	10/18/19	10/18/19	EPA 300.0	
Nitrate as N	ND	0.40	"	"	"	"	"	"	
Sulfate as SO4	**560**	10	"	20	"	"	10/21/19	"	
Total Dissolved Solids	**1100**	10	"	1	1908844	10/21/19	10/23/19	EPA 160.1	

Vista Analytical Laboratory	Project:	SJC PFAS Investigation	
1104 Windfield Way	Project Number:	[none]	**CLS Work Order #: 19J1246**
El Dorado Hills, CA 95762	Project Manager:	Jade White Dobbs	COC #: 200028

Metals by EPA 200 Series Methods

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
L10-1-GW (19J1246-01) Water Sampled: 10/16/19 23:07 Received: 10/18/19 13:15									
Calcium	**110000**	10000	µg/L	10	1908887	10/22/19	10/24/19	EPA 200.7	
Magnesium	**82000**	1000	"	1	"	"	10/24/19	"	
Potassium	**2600**	1000	"	"	"	"	"	"	
Sodium	**100000**	1000	"	"	"	"	"	"	
L10-10-GW (19J1246-02) Water Sampled: 10/16/19 23:17 Received: 10/18/19 13:15									
Calcium	**130000**	10000	µg/L	10	1908887	10/22/19	10/24/19	EPA 200.7	
Magnesium	**85000**	1000	"	1	"	"	10/24/19	"	
Potassium	**3900**	1000	"	"	"	"	"	"	
Sodium	**110000**	1000	"	"	"	"	"	"	
L11-3-GW (19J1246-03) Water Sampled: 10/17/19 03:00 Received: 10/18/19 13:15									
Calcium	**200000**	10000	µg/L	10	1908887	10/22/19	10/24/19	EPA 200.7	
Magnesium	**90000**	1000	"	1	"	"	10/24/19	"	
Potassium	**4000**	1000	"	"	"	"	"	"	
Sodium	**16000**	1000	"	"	"	"	"	"	

Conventional Chemistry Parameters by APHA/EPA Methods - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1908803 - General Prep										
Blank (1908803-BLK1)				Prepared & Analyzed: 10/18/19						
Sulfate as SO4	ND	0.50	mg/L							
Chloride	ND	0.50	"							
Nitrate as N	ND	0.40	"							
LCS (1908803-BS1)				Prepared & Analyzed: 10/18/19						
Sulfate as SO4	4.61	0.50	mg/L	5.00		92	80-120			
Chloride	4.55	0.50	"	5.00		91	80-120			
Nitrate as N	1.88	0.40	"	2.00		94	80-120			
LCS Dup (1908803-BSD1)				Prepared & Analyzed: 10/18/19						
Sulfate as SO4	5.08	0.50	mg/L	5.00		102	80-120	10	20	
Chloride	4.88	0.50	"	5.00		98	80-120	7	20	
Nitrate as N	2.05	0.40	"	2.00		103	80-120	9	20	
Matrix Spike (1908803-MS1)		**Source: 19J1225-03**		Prepared & Analyzed: 10/18/19						
Sulfate as SO4	34.6	0.50	mg/L	5.00	31.7	57	80-120			QM-4X
Chloride	18.3	0.50	"	5.00	14.2	83	80-120			
Nitrate as N	14.6	0.40	"	2.00	13.9	35	80-120			QM-4X
Matrix Spike Dup (1908803-MSD1)		**Source: 19J1225-03**		Prepared & Analyzed: 10/18/19						
Chloride	18.4	0.50	mg/L	5.00	14.2	84	80-120	0.3	20	
Sulfate as SO4	34.6	0.50	"	5.00	31.7	58	80-120	0.1	20	QM-4X
Nitrate as N	14.6	0.40	"	2.00	13.9	37	80-120	0.2	20	QM-4X
Batch 1908844 - General Preparation										
Blank (1908844-BLK1)				Prepared: 10/21/19 Analyzed: 10/23/19						
Total Dissolved Solids	ND	10	mg/L							

Vista Analytical Laboratory	Project:	SJC PFAS Investigation	
1104 Windfield Way	Project Number:	[none]	**CLS Work Order #: 19J1246**
El Dorado Hills, CA 95762	Project Manager:	Jade White Dobbs	COC #: 200028

Conventional Chemistry Parameters by APHA/EPA Methods - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1908844 - General Preparation										
Duplicate (1908844-DUP1)	**Source: 19J1257-03**			Prepared: 10/21/19 Analyzed: 10/23/19						
Total Dissolved Solids	1150	10	mg/L		1150			0.00	20	

Vista Analytical Laboratory	Project:	SJC PFAS Investigation	
1104 Windfield Way	Project Number:	[none]	**CLS Work Order #: 19J1246**
El Dorado Hills, CA 95762	Project Manager:	Jade White Dobbs	COC #: 200028

Metals by EPA 200 Series Methods - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1908887 - EPA 200 Series										
Blank (1908887-BLK1)				Prepared & Analyzed: 10/22/19						
Calcium	ND	1000	µg/L							
Cobalt	ND	20	"							
Copper	ND	10	"							
Iron	ND	100	"							
Magnesium	ND	1000	"							
Potassium	ND	1000	"							
Sodium	ND	1000	"							
Zinc	ND	20	"							
LCS (1908887-BS1)				Prepared & Analyzed: 10/22/19						
Calcium	6200	1000	µg/L	5000		124	85-115			QM-1
Cobalt	1250	20	"	1000		125	85-115			QM-1
Copper	1200	10	"	1000		120	85-115			QM-1
Iron	1010	100	"	1000		101	85-115			
Magnesium	5570	1000	"	5000		111	85-115			QM-1
Potassium	5430	1000	"	5000		109	85-115			QM-1
Sodium	4700	1000	"	5000		94	85-115			
Zinc	1040	20	"	1000		104	85-115			
Matrix Spike (1908887-MS1)		**Source: 19J1185-01**		Prepared & Analyzed: 10/22/19						
Calcium	13000	1000	µg/L	5000	7370	113	70-130			
Cobalt	1170	20	"	1000	ND	117	70-130			
Copper	1150	10	"	1000	9.78	114	70-130			
Iron	4290	100	"	1000	3070	121	70-130			QM-7
Magnesium	8720	1000	"	5000	3280	109	70-130			
Potassium	9570	1000	"	5000	4480	102	70-130			
Sodium	164000	1000	"	5000	168000	NR	70-130			QM-4X
Zinc	1190	20	"	1000	55.7	113	70-130			

Vista Analytical Laboratory	Project: SJC PFAS Investigation	
1104 Windfield Way	Project Number: [none]	**CLS Work Order #: 19J1246**
El Dorado Hills, CA 95762	Project Manager: Jade White Dobbs	COC #: 200028

Metals by EPA 200 Series Methods - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1908887 - EPA 200 Series										
Matrix Spike (1908887-MS2)		**Source: 19J1245-01**		Prepared & Analyzed: 10/22/19						
Calcium	44900	5000	µg/L	5000	24400	410	70-130			QM-7
Cobalt	1290	100	"	1000	ND	129	70-130			
Copper	1300	50	"	1000	ND	130	70-130			
Iron	1470	100	"	1000	1050	43	70-130			QM-7
Magnesium	14200	1000	"	5000	10700	70	70-130			QM-7
Potassium	38100	1000	"	5000	46600	NR	70-130			QM-7
Sodium	107000	1000	"	5000	137000	NR	70-130			QM-4X
Zinc	1350	100	"	1000	68.2	128	70-130			

Vista Analytical Laboratory	Project:	SJC PFAS Investigation	
1104 Windfield Way	Project Number:	[none]	**CLS Work Order #: 19J1246**
El Dorado Hills, CA 95762	Project Manager:	Jade White Dobbs	COC #: 200028

Notes and Definitions

QM-7	The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS and/or LCSD recovery.
QM-4X	The spike recovery was outside of QC acceptance limits for the MS and/or MSD due to analyte concentration at 4 times or greater the spike concentration. The QC batch was accepted based on LCS and/or LCSD recoveries within the acceptance limits.
QM-1	The spike recovery was outside acceptance limits for the LCS or LCSD. The batch was accepted based on acceptable MS/MSD recoveries & RPD's.
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit (or method detection limit when specified)
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference

CALIFORNIA LABORATORY SERVICES
Committed. Responsive. Flexible.

November 15, 2019

CLS Work Order #: 19K0437
COC #: GREEN

Jade White Dobbs
Vista Analytical Laboratory
1104 Windfield Way
El Dorado Hills, CA 95762

Project Name: SJC PFAS Investigation

Enclosed are the results of analyses for samples received by the laboratory on 11/08/19 10:51. Samples were analyzed pursuant to client request utilizing EPA or other ELAP approved methodologies. I certify that the results are in compliance both technically and for completeness.

Analytical results are attached to this letter. Please call if we can provide additional assistance.

Sincerely,

James Liang, Ph.D.
Laboratory Director

CA SWRCB ELAP Accreditation/Registration number 1233

19K0437

CHANGE OF STATUS

Work Order # 1911246

New Work Order X Revise Existing Work Order ____

Project Name: SJC PFAS INVESTIGATION

Date Sample(s) Were Received: 10/18/19 **Original Date** ____

KEVIN ALMESTAD (Client Contacted) of WOODARD + CURRAN (Company) called/emailed

On 11/7/19 (Date) at 1715 (Time)

... and requested the following:

RUN ALKALINITY SUITE ON ALL SAMPLES

Turnaround time requested for additional work: 5

____ (Signature) 11/8/19 (Date)

Updated lab job database and file folder by: ____

Cc: ____ ____ ____

H:\FORMS & TEMPLATES\Change of Status.doc

CLS LABS

SAMPLE RECEIVING EXCEPTION REPORTS

CLS Labs Job # ____________________

Problem discovered by: Matt Yost **Date:** 11/7/19

Nature of problem [✓ Alkalinity]

Sulfite **Chlorine, Total** **Chlorine, Residual** **Ph** **Dissolved O2**

(Circle analysis above) **Received out of HOLD time.**

Client contacted? Yes X **No** ______ **Spoke With:** Kevin A.

By whom: Matt Yost **Date:** 11/7/19 **Time:** 1711 **HRS**

Client instructions:

OK to analyze outside of hold time

Resolution of problem:

Logged in regardless and will be ran for analysis requested.

Vista Analytical Laboratory 1104 Windfield Way El Dorado Hills, CA 95762	Project: SJC PFAS Investigation Project Number: [none] Project Manager: Jade White Dobbs	 **CLS Work Order #: 19K0437** COC #: GREEN

Conventional Chemistry Parameters by APHA/EPA Methods

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
L10-1-GW (19K0437-01) Water Sampled: 10/16/19 23:07 Received: 11/08/19 10:51									
Bicarbonate as CaCO3	**750**	5.0	mg/L	1	1909521	11/12/19	11/12/19	SM2320B	HT-5
Carbonate as CaCO3	ND	5.0	"	"	"	"	"	"	HT-5
Hydroxide as CaCO3	ND	5.0	"	"	"	"	"	"	HT-5
Total Alkalinity	**750**	5.0	"	"	"	"	"	"	HT-5
L10-10-GW (19K0437-02) Water Sampled: 10/16/19 23:17 Received: 11/08/19 10:51									
Bicarbonate as CaCO3	**780**	5.0	mg/L	1	1909521	11/12/19	11/12/19	SM2320B	HT-5
Carbonate as CaCO3	ND	5.0	"	"	"	"	"	"	HT-5
Hydroxide as CaCO3	ND	5.0	"	"	"	"	"	"	HT-5
Total Alkalinity	**780**	5.0	"	"	"	"	"	"	HT-5
L11-3-GW (19K0437-03) Water Sampled: 10/17/19 03:00 Received: 11/08/19 10:51									
Bicarbonate as CaCO3	**390**	5.0	mg/L	1	1909521	11/12/19	11/12/19	SM2320B	HT-5
Carbonate as CaCO3	ND	5.0	"	"	"	"	"	"	HT-5
Hydroxide as CaCO3	ND	5.0	"	"	"	"	"	"	HT-5
Total Alkalinity	**390**	5.0	"	"	"	"	"	"	HT-5

Vista Analytical Laboratory	Project: SJC PFAS Investigation	
1104 Windfield Way	Project Number: [none]	**CLS Work Order #: 19K0437**
El Dorado Hills, CA 95762	Project Manager: Jade White Dobbs	COC #: GREEN

Conventional Chemistry Parameters by APHA/EPA Methods - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1909521 - General Preparation										
Blank (1909521-BLK1)				Prepared & Analyzed: 11/12/19						
Total Alkalinity	ND	5.0	mg/L							
Bicarbonate as CaCO3	ND	5.0	"							
Carbonate as CaCO3	ND	5.0	"							
Hydroxide as CaCO3	ND	5.0	"							
Duplicate (1909521-DUP1)	**Source: 19K0447-02**			Prepared & Analyzed: 11/12/19						
Total Alkalinity	1080	5.0	mg/L		1080			0.1	20	
Bicarbonate as CaCO3	1080	5.0	"		1080			0.1	20	
Carbonate as CaCO3	ND	5.0	"		ND				20	
Hydroxide as CaCO3	ND	5.0	"		ND				20	

Vista Analytical Laboratory	Project:	SJC PFAS Investigation		
1104 Windfield Way	Project Number:	[none]	**CLS Work Order #: 19K0437**	
El Dorado Hills, CA 95762	Project Manager:	Jade White Dobbs	COC #: GREEN	

Notes and Definitions

HT-5	The request for this analysis was initiated by the client after holding time expiration.
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit (or method detection limit when specified)
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference

CALIFORNIA LABORATORY SERVICES
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October 28, 2019

CLS Work Order #: 19J1293
COC #: 200029

Jade White Dobbs
Vista Analytical Laboratory
1104 Windfield Way
El Dorado Hills, CA 95762

Project Name: SJC PFAS Investigation

Enclosed are the results of analyses for samples received by the laboratory on 10/21/19 08:25. Samples were analyzed pursuant to client request utilizing EPA or other ELAP approved methodologies. I certify that the results are in compliance both technically and for completeness.

Analytical results are attached to this letter. Please call if we can provide additional assistance.

Sincerely,

James Liang, Ph.D.
Laboratory Director

CA SWRCB ELAP Accreditation/Registration number 1233

CALIFORNIA LABORATORY SERVICES
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CHAIN OF CUSTODY

CLS ID No.: 19J1293

LOG № 200029

HIGHLIGHTED AREAS MUST BE FILLED OUT PRIOR TO ACCEPTANCE

REPORT TO:

NAME AND ADDRESS
Jim Strandberg
2175 N. California Blvd, Ste 315
Walnut Creek, CA

PROJECT MANAGER
PHONE#

PROJECT NAME SJC PFAS Investigation

SAMPLED BY Kevin Almstead / George Valenzuela

JOB DESCRIPTION General Chem. parameters

SITE LOCATION 1701 Airport Blvd, San Jose, CA

CLIENT JOB NUMBER

DESTINATION LABORATORY
☒ CLS (916) 638-7301
3249 FITZGERALD RD.
RANCHO CORDOVA, CA.
95742
☐ OTHER

GEOTHRACKER:
EDF REPORT ☒ YES ☐ NO
GLOBAL ID:

CDPH WRITE ON EDT TRANSMISSION? ☐ YES ☒ NO
STATE SYSTEM NUMBER
IF "YES" PLEASE ENTER THE SOURCE NUMBER(S).

COMPOSITE:

						PRESERVATIVES	ANALYSIS REQUESTED							TURN AROUND TIME				SPECIAL INSTRUCTIONS OR ALT. ID:
DATE	TIME	SAMPLE IDENTIFICATION	MATRIX	CONTAINER NO.	CONTAINER TYPE		Total Dissolved Solids	Chloride, sulfate	Nitrate-Nitrogen	Calcium, Magnesium	Potassium	Sodium		1 DAY	2 DAY	3 DAY	5 DAY	
~~0035~~ 0130	10/18/19 GU	L12-3-GW	W	1	Poly		X	X	X	X	X	X					X	
																	~~X~~ GU	
																	~~X~~ GU	

INVOICE TO:

P.O. #

QUOTE #

Email/Address strandberg@woodardcurran.com

PRESERVATIVES: (1) HCL (2) HNO_3 (3) = COLD (4) = NaOH (5) = H_2SO_4 (6) = $Na_2S_2O_3$ (7) =

RELINQUISHED BY (SIGN)	PRINT NAME / COMPANY	DATE / TIME	RECEIVED BY (SIGN)	PRINT NAME / COMPANY
	Kevin Almstead / Woodard & Curran	10/18/19 1345		Fedex

REC'D AT LAB BY: Cl

DATE / TIME: 10-21-19 0825

CONDITIONS / COMMENTS: 19.4 / 14.5

SHIPPED BY: ☒ FED X ☐ UPS ☐ OTHER ______

AIR BILL #

White - Lab/Terms and conditions
Yellow - Lab file copy/Terms and Conditions
Pink - Origin/Terms and Conditions
Gold - Project Mgr./Field Sampler/Terms and conditions

Mark Smith

From: Jennifer Miller <jmiller@vista-analytical.com>
Sent: Friday, October 18, 2019 3:12 PM
To: Scott Furnas
Cc: Jade White-Dobbs; Mark Smith
Subject: RE: San Jose Airport project - Sample coming tomorrow

Importance: High

Hello again, Gentlemen.

This client is sending a single sample for receipt at your lab tomorrow. I hope that you can receive it?! They know that the nitrate hold time won't be met. Please flag as necessary.

Thank you!

Best Regards,

Jennifer Miller
National Sales
Mobile: (916) 995-5171

Vista Analytical Laboratory
1104 Windfield Way
El Dorado Hills, CA 95762
Phone: (916) 673-1520
www.vista-analytical.com

A woman-owned, small business enterprise.

Specialists in HRMS and UPLC-MS/MS methods, quantifying Dioxins, PCB Congeners and PFAS.

From: Scott Furnas <scottf@californialab.com>
Sent: Friday, October 18, 2019 1:16 PM
To: Jennifer Miller <jmiller@vista-analytical.com>
Cc: Jade White-Dobbs <jdobbs@vista-analytical.com>; Mark Smith <marks@californialab.com>
Subject: Re: San Jose Airport project - Nitrate hold time expires at 8 tonight

Not sure, I don't know what is on the instrument in front of these. We will alert staff, how many are you bring??

Scott Furnas

Vista Analytical Laboratory
1104 Windfield Way
El Dorado Hills, CA 95762

Project: SJC PFAS Investigation
Project Number: [none]
Project Manager: Jade White Dobbs

CLS Work Order #: 19J1293
COC #: 200029

Conventional Chemistry Parameters by APHA/EPA Methods

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
L12-3-GW (19J1293-01) Water Sampled: 10/18/19 13:30 Received: 10/21/19 08:25									
Chloride	**70**	10	mg/L	20	1908839	10/21/19	10/21/19	EPA 300.0	
Nitrate as N	ND	0.40	"	1	"	"	"	"	HT-1
Sulfate as SO4	**630**	10	"	20	"	"	10/21/19	"	
Total Dissolved Solids	**1800**	10	"	1	1908922	10/22/19	10/24/19	SM2540C	

Vista Analytical Laboratory	Project:	SJC PFAS Investigation	
1104 Windfield Way	Project Number:	[none]	**CLS Work Order #: 19J1293**
El Dorado Hills, CA 95762	Project Manager:	Jade White Dobbs	COC #: 200029

Metals by EPA 200 Series Methods

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
L12-3-GW (19J1293-01) Water Sampled: 10/18/19 13:30 Received: 10/21/19 08:25									
Calcium	**290**	1.0	mg/L	1	1908887	10/22/19	10/25/19	EPA 200.7	
Magnesium	**94**	1.0	"	"	"	"	"	"	
Potassium	**9.2**	1.0	"	"	"	"	"	"	
Sodium	**50**	1.0	"	"	"	"	"	"	

Conventional Chemistry Parameters by APHA/EPA Methods - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1908839 - General Prep										
Blank (1908839-BLK1)				Prepared & Analyzed: 10/21/19						
Sulfate as SO4	ND	0.50	mg/L							
Chloride	ND	0.50	"							
Nitrate as N	ND	0.40	"							
LCS (1908839-BS1)				Prepared & Analyzed: 10/21/19						
Chloride	4.58	0.50	mg/L	5.00		92	80-120			
Sulfate as SO4	4.72	0.50	"	5.00		94	80-120			
Nitrate as N	1.92	0.40	"	2.00		96	80-120			
LCS Dup (1908839-BSD1)				Prepared & Analyzed: 10/21/19						
Chloride	4.55	0.50	mg/L	5.00		91	80-120	0.7	20	
Sulfate as SO4	4.69	0.50	"	5.00		94	80-120	0.5	20	
Nitrate as N	1.90	0.40	"	2.00		95	80-120	0.9	20	
Matrix Spike (1908839-MS1)		**Source: 19J1308-03**		Prepared & Analyzed: 10/21/19						
Sulfate as SO4	21.3	0.50	mg/L	5.00	16.6	95	80-120			
Chloride	44.3	0.50	"	5.00	41.3	60	80-120			QM-4X
Nitrate as N	2.06	0.40	"	2.00	0.207	93	80-120			
Matrix Spike Dup (1908839-MSD1)		**Source: 19J1308-03**		Prepared & Analyzed: 10/21/19						
Chloride	44.3	0.50	mg/L	5.00	41.3	60	80-120	0.06	20	QM-4X
Sulfate as SO4	21.2	0.50	"	5.00	16.6	94	80-120	0.4	20	
Nitrate as N	2.04	0.40	"	2.00	0.207	92	80-120	1	20	
Batch 1908922 - General Preparation										
Blank (1908922-BLK1)				Prepared: 10/22/19 Analyzed: 10/24/19						
Total Dissolved Solids	ND	10	mg/L							

Vista Analytical Laboratory	Project:	SJC PFAS Investigation	
1104 Windfield Way	Project Number:	[none]	**CLS Work Order #: 19J1293**
El Dorado Hills, CA 95762	Project Manager:	Jade White Dobbs	COC #: 200029

Conventional Chemistry Parameters by APHA/EPA Methods - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1908922 - General Preparation										
Duplicate (1908922-DUP1)	**Source: 19J1374-04**		Prepared: 10/22/19 Analyzed: 10/24/19							
Total Dissolved Solids	324	10	mg/L		324			0	20	

Vista Analytical Laboratory	Project:	SJC PFAS Investigation	
1104 Windfield Way	Project Number:	[none]	**CLS Work Order #: 19J1293**
El Dorado Hills, CA 95762	Project Manager:	Jade White Dobbs	COC #: 200029

Metals by EPA 200 Series Methods - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1908887 - EPA 200 Series										
Blank (1908887-BLK1)				Prepared: 10/22/19 Analyzed: 10/24/19						
Calcium	ND	1.0	mg/L							
Magnesium	ND	1.0	"							
Potassium	ND	1.0	"							
Sodium	ND	1.0	"							
LCS (1908887-BS1)				Prepared: 10/22/19 Analyzed: 10/24/19						
Calcium	5.27	1.0	mg/L	5.00		105	85-115			
Magnesium	5.57	1.0	"	5.00		111	85-115			
Potassium	5.43	1.0	"	5.00		109	85-115			
Sodium	4.70	1.0	"	5.00		94	85-115			
Matrix Spike (1908887-MS1)		**Source: 19J1185-01**		Prepared: 10/22/19 Analyzed: 10/24/19						
Calcium	10.8	1.0	mg/L	5.00	5.89	98	70-130			
Magnesium	8.72	1.0	"	5.00	3.28	109	70-130			
Potassium	9.57	1.0	"	5.00	4.48	102	70-130			
Sodium	164	1.0	"	5.00	168	NR	70-130			QM-4X
Matrix Spike (1908887-MS2)		**Source: 19J1245-01**		Prepared: 10/22/19 Analyzed: 10/24/19						
Calcium	25.0	1.0	mg/L	5.00	24.4	13	70-130			QM-7
Magnesium	14.2	1.0	"	5.00	10.7	70	70-130			
Potassium	38.1	1.0	"	5.00	46.6	NR	70-130			QM-7
Sodium	107	1.0	"	5.00	137	NR	70-130			QM-7

Vista Analytical Laboratory	Project:	SJC PFAS Investigation	
1104 Windfield Way	Project Number:	[none]	**CLS Work Order #: 19J1293**
El Dorado Hills, CA 95762	Project Manager:	Jade White Dobbs	COC #: 200029

Notes and Definitions

QM-7	The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS and/or LCSD recovery.
QM-4X	The spike recovery was outside of QC acceptance limits for the MS and/or MSD due to analyte concentration at 4 times or greater the spike concentration. The QC batch was accepted based on LCS and/or LCSD recoveries within the acceptance limits.
HT-1	The sample was received outside of the EPA recommended holding time.
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit (or method detection limit when specified)
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference

CALIFORNIA LABORATORY SERVICES
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November 15, 2019

CLS Work Order #: 19K0439
COC #: GREEN

Jade White Dobbs
Vista Analytical Laboratory
1104 Windfield Way
El Dorado Hills, CA 95762

Project Name: SJC PFAS Investigation

Enclosed are the results of analyses for samples received by the laboratory on 11/08/19 10:59. Samples were analyzed pursuant to client request utilizing EPA or other ELAP approved methodologies. I certify that the results are in compliance both technically and for completeness.

Analytical results are attached to this letter. Please call if we can provide additional assistance.

Sincerely,

James Liang, Ph.D.
Laboratory Director

CA SWRCB ELAP Accreditation/Registration number 1233

11K0439

CHANGE OF STATUS

Work Order # 1911293

New Work Order X Revise Existing Work Order ____

Project Name: SJC PFAS INVESTIGATION

Date Sample(s) Were Received: 10/21/19 Original Date ____

KEVIN ALMESTAD (Client Contacted) of WOODARD + CURRAN (Company) called/emailed

On 11/7/19 (Date) at 1715 (Time)

... and requested the following:

RUN ALKALINITY SUITE ON ALL SAMPLES

Turnaround time requested for additional work: 5

(Signature) 11/8/19 (Date)

Updated lab job database and file folder by: Cn U.Y

Cc: ____ ____ ____

CLS LABS
SAMPLE RECEIVING EXCEPTION REPORTS

CLS Labs Job # 19K0439

Problem discovered by: Matt Yost Date: 11, 7, 19

Nature of problem [✓ Alkalinity]

Sulfite Chlorine, Total Chlorine, Residual Ph Dissolved O2

(Circle analysis above) Received out of HOLD time.

Client contacted? Yes X No ___ Spoke With: Kevin A.

By whom: Matt Yost Date: 11, 7, 19 Time: 1711 HRS

Client instructions:

OK to analyze outside of hold time

Resolution of problem:

Logged in regardless and will be ran for analysis requested.

Vista Analytical Laboratory	Project: SJC PFAS Investigation	
1104 Windfield Way	Project Number: [none]	**CLS Work Order #: 19K0439**
El Dorado Hills, CA 95762	Project Manager: Jade White Dobbs	COC #: GREEN

Conventional Chemistry Parameters by APHA/EPA Methods

L12-3-GW (19K0439-01) Water Sampled: 10/18/19 13:30 Received: 11/08/19 10:59

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Bicarbonate as CaCO3	**620**	5.0	mg/L	1	1909450	11/08/19	11/08/19	SM2320B	HT-5
Carbonate as CaCO3	ND	5.0	"	"	"	"	"	"	HT-5
Hydroxide as CaCO3	ND	5.0	"	"	"	"	"	"	HT-5
Total Alkalinity	**620**	5.0	"	"	"	"	"	"	HT-5

Vista Analytical Laboratory	Project: SJC PFAS Investigation	
1104 Windfield Way	Project Number: [none]	**CLS Work Order #: 19K0439**
El Dorado Hills, CA 95762	Project Manager: Jade White Dobbs	COC #: GREEN

Conventional Chemistry Parameters by APHA/EPA Methods - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1909450 - General Preparation										
Blank (1909450-BLK1)				Prepared & Analyzed: 11/08/19						
Total Alkalinity	ND	5.0	mg/L							
Bicarbonate as CaCO3	ND	5.0	"							
Carbonate as CaCO3	ND	5.0	"							
Hydroxide as CaCO3	ND	5.0	"							
Duplicate (1909450-DUP1)	**Source: 19K0318-01**			Prepared & Analyzed: 11/08/19						
Total Alkalinity	51.0	5.0	mg/L		48.8			4	20	
Bicarbonate as CaCO3	51.0	5.0	"		48.8			4	20	
Carbonate as CaCO3	ND	5.0	"		ND				20	
Hydroxide as CaCO3	ND	5.0	"		ND				20	

Notes and Definitions

HT-5	The request for this analysis was initiated by the client after holding time expiration.
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit (or method detection limit when specified)
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference

CALIFORNIA LABORATORY SERVICES
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October 30, 2019

CLS Work Order #: 19J1452
COC #: 202207

Jade White Dobbs
Vista Analytical Laboratory
1104 Windfield Way
El Dorado Hills, CA 95762

Project Name: SJC PFAS Investigation

Enclosed are the results of analyses for samples received by the laboratory on 10/23/19 09:10. Samples were analyzed pursuant to client request utilizing EPA or other ELAP approved methodologies. I certify that the results are in compliance both technically and for completeness.

Analytical results are attached to this letter. Please call if we can provide additional assistance.

Sincerely,

James Liang, Ph.D.
Laboratory Director

CA SWRCB ELAP Accreditation/Registration number 1233

CALIFORNIA LABORATORY SERVICES
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CHAIN OF CUSTODY

CLS ID No.: 11J1452

LOG № 202207

HIGHLIGHTED AREAS MUST BE FILLED OUT PRIOR TO ACCEPTANCE

REPORT TO:

NAME AND ADDRESS: Jim Strandberg
2175 N California Blvd, Ste 315
Walnut Creek, CA 94597

PROJECT MANAGER:
PHONE #:
PROJECT NAME: SJC PFAS Investigation
SAMPLED BY: Kevin Almestad
JOB DESCRIPTION: General chemistry parameters
SITE LOCATION: 1701 Airport Blvd, San Jose, CA

CLIENT JOB NUMBER:

DESTINATION LABORATORY
☒ CLS (916) 638-7301
3249 FITZGERALD RD.
RANCHO CORDOVA, CA. 95742
☐ OTHER

GEOTRACKER:
EDF REPORT ☒ YES ☐ NO
GLOBAL ID:

CDPH WRITE ON EDT TRANSMISSION? ☐ YES ☒ NO
STATE SYSTEM NUMBER
IF "YES" PLEASE ENTER THE SOURCE NUMBER(S).

COMPOSITE:

DATE	TIME	SAMPLE IDENTIFICATION	MATRIX	CONTAINER NO.	CONTAINER TYPE	PRESERVATIVES	Total Dissolved Solids	chloride, sulfate	nitrate-nitrogen	Calcium	magnesium	Potassium	Sodium	TURN AROUND TIME 1 DAY	2 DAY	3 DAY	5 DAY
10/22/2019	0430	L4-2-GW	W	2	poly		X	X	X	X	X	X	X				X

SPECIAL INSTRUCTIONS OR ALT. ID: KA

INVOICE TO:

P.O. #

QUOTE #

Email/Address: JStrandberg@woodardcurran.com

PRESERVATIVES: (1) HCL (2) HNO_3 (3) = COLD (4) = NaOH (5) = H_2SO_4 (6) = $Na_2S_2O_3$ (7) =

RELINQUISHED BY (SIGN)	PRINT NAME / COMPANY	DATE / TIME	RECEIVED BY (SIGN)	PRINT NAME / COMPANY
	Kevin Almestad/W&C	10/22/19 17:15		Fedex

REC'D AT LAB BY:
DATE / TIME: 10.23.19 0910
CONDITIONS / COMMENTS: 2.7/2.7

SHIPPED BY: ☒ FED X ☐ UPS ☐ OTHER ______ AIR BILL #

White-Lab/Terms and conditions
Yellow- Lab file copy/Terms and Conditions
Pink- Origin/Terms and Conditions
Gold-Project Mgr./Field Sampler/Terms and conditions

Vista Analytical Laboratory	Project: SJC PFAS Investigation	
1104 Windfield Way	Project Number: [none]	**CLS Work Order #: 19J1452**
El Dorado Hills, CA 95762	Project Manager: Jade White Dobbs	COC #: 202207

Conventional Chemistry Parameters by APHA/EPA Methods

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
L4-2-GW (19J1452-01) Water Sampled: 10/22/19 04:30 Received: 10/23/19 09:10									
Chloride	**93**	10	mg/L	20	1908923	10/23/19	10/23/19	EPA 300.0	
Nitrate as N	ND	0.40	"	1	"	"	10/23/19	"	
Sulfate as SO4	**510**	10	"	20	"	"	10/23/19	"	
Total Dissolved Solids	**1300**	10	"	1	1908964	10/23/19	10/24/19	SM2540C	

Vista Analytical Laboratory	Project:	SJC PFAS Investigation	
1104 Windfield Way	Project Number:	[none]	**CLS Work Order #: 19J1452**
El Dorado Hills, CA 95762	Project Manager:	Jade White Dobbs	COC #: 202207

Metals by EPA 200 Series Methods

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
L4-2-GW (19J1452-01) Water Sampled: 10/22/19 04:30 Received: 10/23/19 09:10									
Calcium	**24**	1.0	mg/L	1	1909078	10/28/19	10/30/19	EPA 200.7	
Magnesium	**78**	1.0	"	"	"	"	10/28/19	"	
Potassium	**11**	1.0	"	"	"	"	"	"	
Sodium	**57**	1.0	"	"	"	"	"	"	

Vista Analytical Laboratory	Project: SJC PFAS Investigation	
1104 Windfield Way	Project Number: [none]	**CLS Work Order #: 19J1452**
El Dorado Hills, CA 95762	Project Manager: Jade White Dobbs	COC #: 202207

Conventional Chemistry Parameters by APHA/EPA Methods - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1908923 - General Preparation										
Blank (1908923-BLK1)				Prepared & Analyzed: 10/23/19						
Sulfate as SO4	ND	0.50	mg/L							
Chloride	ND	0.50	"							
Nitrate as N	ND	0.40	"							
LCS (1908923-BS1)				Prepared & Analyzed: 10/23/19						
Chloride	4.64	0.50	mg/L	5.00		93	80-120			
Sulfate as SO4	4.76	0.50	"	5.00		95	80-120			
Nitrate as N	1.94	0.40	"	2.00		97	80-120			
LCS Dup (1908923-BSD1)				Prepared & Analyzed: 10/23/19						
Chloride	4.68	0.50	mg/L	5.00		94	80-120	0.8	20	
Sulfate as SO4	4.74	0.50	"	5.00		95	80-120	0.4	20	
Nitrate as N	1.97	0.40	"	2.00		99	80-120	1	20	
Matrix Spike (1908923-MS1)	**Source: 19J1424-01**			Prepared & Analyzed: 10/23/19						
Sulfate as SO4	4.80	0.50	mg/L	5.00	ND	96	80-120			
Chloride	8.73	0.50	"	5.00	3.86	97	80-120			
Nitrate as N	3.52	0.40	"	2.00	1.57	97	80-120			
Matrix Spike Dup (1908923-MSD1)	**Source: 19J1424-01**			Prepared & Analyzed: 10/23/19						
Chloride	8.66	0.50	mg/L	5.00	3.86	96	80-120	0.9	20	
Sulfate as SO4	4.73	0.50	"	5.00	ND	95	80-120	1	20	
Nitrate as N	3.55	0.40	"	2.00	1.57	99	80-120	0.9	20	
Batch 1908964 - General Preparation										
Blank (1908964-BLK1)				Prepared: 10/23/19 Analyzed: 10/24/19						
Total Dissolved Solids	ND	10	mg/L							

Vista Analytical Laboratory	Project:	SJC PFAS Investigation	
1104 Windfield Way	Project Number:	[none]	**CLS Work Order #: 19J1452**
El Dorado Hills, CA 95762	Project Manager:	Jade White Dobbs	COC #: 202207

Conventional Chemistry Parameters by APHA/EPA Methods - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1908964 - General Preparation										
Duplicate (1908964-DUP1)	**Source: 19J1375-03**		Prepared: 10/23/19 Analyzed: 10/24/19							
Total Dissolved Solids	332	10	mg/L		325			2	20	

Vista Analytical Laboratory	Project:	SJC PFAS Investigation	
1104 Windfield Way	Project Number:	[none]	**CLS Work Order #: 19J1452**
El Dorado Hills, CA 95762	Project Manager:	Jade White Dobbs	COC #: 202207

Metals by EPA 200 Series Methods - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1909078 - EPA 200 Series										
Blank (1909078-BLK1)				Prepared & Analyzed: 10/28/19						
Calcium	ND	1.0	mg/L							
Magnesium	ND	1.0	"							
Potassium	ND	1.0	"							
Sodium	ND	1.0	"							
LCS (1909078-BS1)				Prepared & Analyzed: 10/28/19						
Calcium	4.92	1.0	mg/L	5.00		98	85-115			
Magnesium	4.78	1.0	"	5.00		96	85-115			
Potassium	5.25	1.0	"	5.00		105	85-115			
Sodium	4.61	1.0	"	5.00		92	85-115			
Matrix Spike (1909078-MS1)	**Source: 19J1610-01**			Prepared & Analyzed: 10/28/19						
Calcium	122	1.0	mg/L	5.00	119	55	70-130			QM-7
Magnesium	39.0	1.0	"	5.00	36.9	42	70-130			QM-7
Potassium	7.48	1.0	"	5.00	2.66	96	70-130			
Sodium	187	1.0	"	5.00	194	NR	70-130			QM-7
Matrix Spike (1909078-MS2)	**Source: 19J1626-01**			Prepared & Analyzed: 10/28/19						
Calcium	ND	1.0	mg/L	5.00	ND		70-130			QM-7
Magnesium	ND	1.0	"	5.00	ND		70-130			QM-7
Potassium	0.367	1.0	"	5.00	0.358	0.2	70-130			QM-7
Sodium	ND	1.0	"	5.00	ND		70-130			QM-7

Vista Analytical Laboratory	Project:	SJC PFAS Investigation	
1104 Windfield Way	Project Number:	[none]	**CLS Work Order #: 19J1452**
El Dorado Hills, CA 95762	Project Manager:	Jade White Dobbs	COC #: 202207

Notes and Definitions

QM-7	The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS and/or LCSD recovery.
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit (or method detection limit when specified)
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference

CALIFORNIA LABORATORY SERVICES
Committed. Responsive. Flexible.

November 15, 2019

CLS Work Order #: 19K0440
COC #: GREEN

Jade White Dobbs
Vista Analytical Laboratory
1104 Windfield Way
El Dorado Hills, CA 95762

Project Name: SJC PFAS Investigation

Enclosed are the results of analyses for samples received by the laboratory on 11/08/19 11:02. Samples were analyzed pursuant to client request utilizing EPA or other ELAP approved methodologies. I certify that the results are in compliance both technically and for completeness.

Analytical results are attached to this letter. Please call if we can provide additional assistance.

Sincerely,

James Liang, Ph.D.
Laboratory Director

CA SWRCB ELAP Accreditation/Registration number 1233

19K0440

CHANGE OF STATUS

Work Order # 1911452

New Work Order X Revise Existing Work Order ________

Project Name: SJC PFAS INVESTIGATION

Date Sample(s) Were Received: 10/23/19 Original Date ________

KEVIN ALMESTAD (Client Contacted) of WOODARD + CURRAN (Company) called/emailed

On 11/7/19 (Date) at 1715 (Time)

... and requested the following:

RUN ALKALINITY SUITE ON ALL SAMPLES

Turnaround time requested for additional work: 5

(Signature) 11/8/19 (Date)

Updated lab job database and file folder by: 0.8

Cc: ________ ________ ________

CLS LABS

SAMPLE RECEIVING EXCEPTION REPORTS

CLS Labs Job # 19K0440

Problem discovered by: Matt Yost **Date:** 11, 7, 19

Nature of problem [✓ Alkalinity]

Sulfite **Chlorine, Total** **Chlorine, Residual** **Ph** **Dissolved O2**

(Circle analysis above) Received out of HOLD time.

Client contacted? Yes X **No** ____ **Spoke With:** Kevin A.

By whom: Matt Yost **Date:** 11, 7, 19 **Time:** 1711 **HRS**

Client instructions:

OK to analyze outside of hold time

Resolution of problem:

Logged in regardless and will be ran for analysis requested.

Vista Analytical Laboratory	Project:	SJC PFAS Investigation		
1104 Windfield Way	Project Number:	[none]	**CLS Work Order #: 19K0440**	
El Dorado Hills, CA 95762	Project Manager:	Jade White Dobbs	COC #: GREEN	

Conventional Chemistry Parameters by APHA/EPA Methods

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
L4-2-GW (19K0440-01) Water Sampled: 10/22/19 04:30 Received: 11/08/19 11:02									
Bicarbonate as CaCO3	**500**	5.0	mg/L	1	1909450	11/08/19	11/08/19	SM2320B	HT-5
Carbonate as CaCO3	ND	5.0	"	"	"	"	"	"	HT-5
Hydroxide as CaCO3	ND	5.0	"	"	"	"	"	"	HT-5
Total Alkalinity	**500**	5.0	"	"	"	"	"	"	HT-5

Vista Analytical Laboratory	Project:	SJC PFAS Investigation	
1104 Windfield Way	Project Number:	[none]	**CLS Work Order #: 19K0440**
El Dorado Hills, CA 95762	Project Manager:	Jade White Dobbs	COC #: GREEN

Conventional Chemistry Parameters by APHA/EPA Methods - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1909450 - General Preparation										
Blank (1909450-BLK1)				Prepared & Analyzed: 11/08/19						
Total Alkalinity	ND	5.0	mg/L							
Bicarbonate as CaCO3	ND	5.0	"							
Carbonate as CaCO3	ND	5.0	"							
Hydroxide as CaCO3	ND	5.0	"							
Duplicate (1909450-DUP1)	**Source: 19K0318-01**			Prepared & Analyzed: 11/08/19						
Total Alkalinity	51.0	5.0	mg/L		48.8			4	20	
Bicarbonate as CaCO3	51.0	5.0	"		48.8			4	20	
Carbonate as CaCO3	ND	5.0	"		ND				20	
Hydroxide as CaCO3	ND	5.0	"		ND				20	

Vista Analytical Laboratory	Project:	SJC PFAS Investigation		
1104 Windfield Way	Project Number:	[none]	**CLS Work Order #: 19K0440**	
El Dorado Hills, CA 95762	Project Manager:	Jade White Dobbs	COC #: GREEN	

Notes and Definitions

HT-5	The request for this analysis was initiated by the client after holding time expiration.
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit (or method detection limit when specified)
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference

CALIFORNIA LABORATORY SERVICES
Committed. Responsive. Flexible.

October 31, 2019

CLS Work Order #: 19J1536
COC #: 202207

Jade White Dobbs
Vista Analytical Laboratory
1104 Windfield Way
El Dorado Hills, CA 95762

Project Name: SJC PFAS Investigation

Enclosed are the results of analyses for samples received by the laboratory on 10/24/19 09:24. Samples were analyzed pursuant to client request utilizing EPA or other ELAP approved methodologies. I certify that the results are in compliance both technically and for completeness.

Analytical results are attached to this letter. Please call if we can provide additional assistance.

Sincerely,

James Liang, Ph.D.
Laboratory Director

CA SWRCB ELAP Accreditation/Registration number 1233

CALIFORNIA LABORATORY SERVICES
Committed. Responsive. Flexible.

CHAIN OF CUSTODY

CLS ID No.: 19J1536

LOG № 202816

HIGHLIGHTED AREAS MUST BE FILLED OUT PRIOR TO ACCEPTANCE

REPORT TO:

NAME AND ADDRESS Jim Strandberg
2175 N California Blvd, Ste 315
Walnut Creek, CA
PROJECT MANAGER
PHONE#
PROJECT NAME SJC
SAMPLED BY Kevin Almestad/Caleb Lucy
JOB DESCRIPTION Gen. Chem.
SITE LOCATION 1701 Airport Blvd, San Jose, CA

CLIENT JOB NUMBER 0232401.01

DESTINATION LABORATORY
☒ CLS (916) 638-7301
3249 FITZGERALD RD.
RANCHO CORDOVA, CA. 95742
☐ OTHER

GEOTRACKER: EDF REPORT ☒ YES ☐ NO
GLOBAL ID:

CDPH WRITE ON EDT TRANSMISSION? ☐ YES ☒ NO
STATE SYSTEM NUMBER
IF "YES" PLEASE ENTER THE SOURCE NUMBER(S).

COMPOSITE:

DATE	TIME	SAMPLE IDENTIFICATION	MATRIX	CONTAINER NO.	CONTAINER TYPE	PRESERVATIVES	Total Dissolved Solids	chloride, sulfate	nitrate-nitrogen	Calcium	Magnesium	Potassium	Sodium	1 DAY	2 DAY	3 DAY	5 DAY	SPECIAL INSTRUCTIONS OR ALT. ID:
10/23/19	1316	L3-3-GW	W	1	Poly		X	X	X	X	X	X	X				X	
~~10/23/19~~	~~1316~~	KA															~~X~~ KA	
10/23/19	1521	L14-4-GW	W	1	Poly		↓	↓	↓	↓	↓	↓	↓				X	
↓	0838	L4-1-GW	W	~~4~~ 1	Poly		↓	↓	↓	↓	↓	↓	↓				X	
↓	0951	L14-2-GW	W	2	Poly		↓	↓	↓	↓	↓	↓	↓				X	

INVOICE TO:

P.O. #

QUOTE #

Email/Address Jstrandberg@woodardcurran.com

PRESERVATIVES: (1) HCL (2) HNO_3 (3) = COLD (4) = NaOH (5) = H_2SO_4 (6) = $Na_2S_2O_3$ (7) =

RELINQUISHED BY (SIGN)	PRINT NAME / COMPANY	DATE / TIME	RECEIVED BY (SIGN)	PRINT NAME / COMPANY
	Kevin Almestad/W&C	10/23/19 17:15		Fedex/Kevin Almestad

REC'D AT LAB BY:
DATE / TIME: 10-24-19 0900
CONDITIONS / COMMENTS: 15.1 / 15

SHIPPED BY: ☒ FED X ☐ UPS ☐ OTHER ________ AIR BILL #

White-Lab/Terms and conditions
Yellow- Lab file copy/Terms and Conditions
Pink- Origin/Terms and Conditions
Gold- Project Mgr/Field Sampler/Terms and conditions

Vista Analytical Laboratory	Project:	SJC PFAS Investigation	
1104 Windfield Way	Project Number:	[none]	**CLS Work Order #: 19J1536**
El Dorado Hills, CA 95762	Project Manager:	Jade White Dobbs	COC #: 202207

Conventional Chemistry Parameters by APHA/EPA Methods

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
L3-3-GW (19J1536-01) Water Sampled: 10/23/19 13:16 Received: 10/24/19 09:24									
Chloride	**59**	5.0	mg/L	10	1908968	10/24/19	10/24/19	EPA 300.0	
Nitrate as N	**2.2**	0.40	"	1	"	"	10/24/19	"	
Sulfate as SO4	**210**	5.0	"	10	"	"	10/24/19	"	
Total Dissolved Solids	**740**	10	"	1	1909024	10/25/19	10/28/19	SM2540C	
L14-4-GW (19J1536-02) Water Sampled: 10/23/19 15:21 Received: 10/24/19 09:24									
Chloride	**69**	5.0	mg/L	10	1908968	10/24/19	10/24/19	EPA 300.0	
Nitrate as N	**3.8**	0.40	"	1	"	"	"	"	
Sulfate as SO4	**130**	5.0	"	10	"	"	10/24/19	"	
Total Dissolved Solids	**680**	10	"	1	1909024	10/25/19	10/28/19	SM2540C	
L14-1-GW (19J1536-03) Water Sampled: 10/23/19 08:38 Received: 10/24/19 09:24									
Chloride	**68**	5.0	mg/L	10	1908968	10/24/19	10/24/19	EPA 300.0	
Nitrate as N	**3.7**	0.40	"	1	"	"	"	"	
Sulfate as SO4	**140**	5.0	"	10	"	"	10/24/19	"	
Total Dissolved Solids	**680**	10	"	1	1909024	10/25/19	10/28/19	SM2540C	
L14-2-GW (19J1536-04) Water Sampled: 10/23/19 09:51 Received: 10/24/19 09:24									
Chloride	**69**	5.0	mg/L	10	1908968	10/24/19	10/24/19	EPA 300.0	
Nitrate as N	**3.8**	0.40	"	1	"	"	"	"	
Sulfate as SO4	**140**	5.0	"	10	"	"	10/24/19	"	
Total Dissolved Solids	**700**	10	"	1	1909024	10/25/19	10/28/19	SM2540C	

Vista Analytical Laboratory	Project: SJC PFAS Investigation	
1104 Windfield Way	Project Number: [none]	**CLS Work Order #: 19J1536**
El Dorado Hills, CA 95762	Project Manager: Jade White Dobbs	COC #: 202207

Metals by EPA 200 Series Methods

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
L3-3-GW (19J1536-01) Water Sampled: 10/23/19 13:16 Received: 10/24/19 09:24									
Calcium	**180**	10	mg/L	10	1909023	10/25/19	10/28/19	EPA 200.7	
Magnesium	**84**	1.0	"	1	"	"	10/25/19	"	
Potassium	**13**	10	"	10	"	"	"	"	
Sodium	**48**	1.0	"	1	"	"	"	"	
L14-4-GW (19J1536-02) Water Sampled: 10/23/19 15:21 Received: 10/24/19 09:24									
Calcium	**130**	10	mg/L	10	1909023	10/25/19	10/28/19	EPA 200.7	
Magnesium	**55**	1.0	"	1	"	"	10/25/19	"	
Potassium	ND	10	"	10	"	"	"	"	A-COM
Sodium	**36**	1.0	"	1	"	"	"	"	
L14-1-GW (19J1536-03) Water Sampled: 10/23/19 08:38 Received: 10/24/19 09:24									
Calcium	**170**	10	mg/L	10	1909023	10/25/19	10/28/19	EPA 200.7	
Magnesium	**68**	1.0	"	1	"	"	10/25/19	"	
Potassium	ND	10	"	10	"	"	"	"	A-COM
Sodium	**38**	1.0	"	1	"	"	"	"	
L14-2-GW (19J1536-04) Water Sampled: 10/23/19 09:51 Received: 10/24/19 09:24									
Calcium	**140**	10	mg/L	10	1909023	10/25/19	10/28/19	EPA 200.7	
Magnesium	**73**	1.0	"	1	"	"	10/25/19	"	
Potassium	ND	10	"	10	"	"	"	"	A-COM
Sodium	**40**	1.0	"	1	"	"	"	"	

Vista Analytical Laboratory	Project: SJC PFAS Investigation	
1104 Windfield Way	Project Number: [none]	**CLS Work Order #: 19J1536**
El Dorado Hills, CA 95762	Project Manager: Jade White Dobbs	COC #: 202207

Conventional Chemistry Parameters by APHA/EPA Methods - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1908968 - General Preparation										
Blank (1908968-BLK1)				Prepared & Analyzed: 10/24/19						
Sulfate as SO4	ND	0.50	mg/L							
Chloride	ND	0.50	"							
Nitrate as N	ND	0.40	"							
LCS (1908968-BS1)				Prepared & Analyzed: 10/24/19						
Chloride	4.55	0.50	mg/L	5.00		91	80-120			
Sulfate as SO4	4.58	0.50	"	5.00		92	80-120			
Nitrate as N	1.86	0.40	"	2.00		93	80-120			
LCS Dup (1908968-BSD1)				Prepared & Analyzed: 10/24/19						
Chloride	4.54	0.50	mg/L	5.00		91	80-120	0.4	20	
Sulfate as SO4	4.62	0.50	"	5.00		92	80-120	0.9	20	
Nitrate as N	1.83	0.40	"	2.00		91	80-120	2	20	
Matrix Spike (1908968-MS1)		**Source: 19J1483-01**		Prepared & Analyzed: 10/24/19						
Sulfate as SO4	8.04	0.50	mg/L	5.00	3.28	95	80-120			
Chloride	9.72	0.50	"	5.00	4.83	98	80-120			
Nitrate as N	1.98	0.40	"	2.00	0.118	93	80-120			
Matrix Spike Dup (1908968-MSD1)		**Source: 19J1483-01**		Prepared & Analyzed: 10/24/19						
Chloride	9.72	0.50	mg/L	5.00	4.83	98	80-120	0.04	20	
Sulfate as SO4	7.98	0.50	"	5.00	3.28	94	80-120	0.7	20	
Nitrate as N	1.99	0.40	"	2.00	0.118	93	80-120	0.5	20	
Batch 1909024 - General Preparation										
Blank (1909024-BLK1)				Prepared: 10/25/19 Analyzed: 10/28/19						
Total Dissolved Solids	ND	10	mg/L							

Vista Analytical Laboratory	Project:	SJC PFAS Investigation	
1104 Windfield Way	Project Number:	[none]	**CLS Work Order #: 19J1536**
El Dorado Hills, CA 95762	Project Manager:	Jade White Dobbs	COC #: 202207

Conventional Chemistry Parameters by APHA/EPA Methods - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1909024 - General Preparation										
Duplicate (1909024-DUP1)	**Source: 19J1497-01**			Prepared: 10/25/19 Analyzed: 10/28/19						
Total Dissolved Solids	224	10	mg/L		223			0.4	20	

Vista Analytical Laboratory
1104 Windfield Way
El Dorado Hills, CA 95762

Project: SJC PFAS Investigation
Project Number: [none]
Project Manager: Jade White Dobbs

CLS Work Order #: 19J1536
COC #: 202207

Metals by EPA 200 Series Methods - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1909023 - EPA 200 Series										
Blank (1909023-BLK1)				Prepared & Analyzed: 10/25/19						
Calcium	ND	1.0	mg/L							
Magnesium	ND	1.0	"							
Potassium	ND	1.0	"							
Sodium	ND	1.0	"							
LCS (1909023-BS1)				Prepared & Analyzed: 10/25/19						
Calcium	4.87	1.0	mg/L	5.00		97	85-115			
Magnesium	5.08	1.0	"	5.00		102	85-115			
Potassium	5.27	1.0	"	5.00		105	85-115			
Sodium	4.84	1.0	"	5.00		97	85-115			
Matrix Spike (1909023-MS1)	**Source: 19J1497-01**			Prepared & Analyzed: 10/25/19						
Calcium	17.8	1.0	mg/L	5.00	14.0	76	70-130			
Magnesium	13.6	1.0	"	5.00	9.26	87	70-130			
Potassium	6.71	1.0	"	5.00	1.80	98	70-130			
Sodium	29.9	1.0	"	5.00	26.9	60	70-130			QM-7
Matrix Spike (1909023-MS2)	**Source: 19J1568-01**			Prepared & Analyzed: 10/25/19						
Calcium	17.6	1.0	mg/L	5.00	12.1	110	70-130			
Magnesium	21.5	1.0	"	5.00	16.3	105	70-130			
Potassium	23.2	1.0	"	5.00	17.3	118	70-130			
Sodium	77.9	1.0	"	5.00	72.0	119	70-130			

Vista Analytical Laboratory	Project:	SJC PFAS Investigation	
1104 Windfield Way	Project Number:	[none]	**CLS Work Order #: 19J1536**
El Dorado Hills, CA 95762	Project Manager:	Jade White Dobbs	COC #: 202207

Notes and Definitions

QM-7	The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS and/or LCSD recovery.
A-COM	The reporting limit was raised for this analyte because the sample was originally analyzed with no dilution but the CCVs were outside the method criteria. The sample was re-analyzed with a dilution and the CCVs were in control.
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit (or method detection limit when specified)
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference

CALIFORNIA LABORATORY SERVICES
Committed. Responsive. Flexible.

November 01, 2019

CLS Work Order #: 19J1611
COC #: 202815

Jade White Dobbs
Vista Analytical Laboratory
1104 Windfield Way
El Dorado Hills, CA 95762

Project Name: SJC PFAS Investigation

Enclosed are the results of analyses for samples received by the laboratory on 10/25/19 12:45. Samples were analyzed pursuant to client request utilizing EPA or other ELAP approved methodologies. I certify that the results are in compliance both technically and for completeness.

Analytical results are attached to this letter. Please call if we can provide additional assistance.

Sincerely,

James Liang, Ph.D.
Laboratory Director

CA SWRCB ELAP Accreditation/Registration number 1233

CALIFORNIA LABORATORY SERVICES
Committed. Responsive. Flexible.

CHAIN OF CUSTODY

CLS ID No.: 19J1611

LOG № 202815

REPORT TO:

NAME AND ADDRESS Jim Strandberg
2175 N California Blvd, Ste 315
Walnut Creek, CA 94530

PROJECT MANAGER
PHONE#

PROJECT NAME SJC PFAS Investigation

SAMPLED BY Kevin Almestad/Caleb Lucy

JOB DESCRIPTION Gen. Chem. Parameters

SITE LOCATION 1701 Airport Blvd, San Jose, CA

CLIENT JOB NUMBER 0232401.01

DESTINATION LABORATORY

☒ CLS (916) 638-7301
3249 FITZGERALD RD.
RANCHO CORDOVA, CA.
95742

☐ OTHER

GEOTRACKER:
EDF REPORT ☒ YES ☐ NO
GLOBAL ID:

CDPH WRITE ON EDT TRANSMISSION? ☐ YES ☒ NO
STATE SYSTEM NUMBER
IF "YES" PLEASE ENTER THE SOURCE NUMBER(S).

COMPOSITE:

ANALYSIS REQUESTED

DATE	TIME	SAMPLE IDENTIFICATION	MATRIX	CONTAINER NO.	CONTAINER TYPE	PRESERVATIVES	Total Dissolved Solids	Chloride	Sulfate	Nitrate-nitrogen	Calcium	Magnesium	Potassium/Sodium	TURN AROUND TIME 1 DAY	2 DAY	3 DAY	5 DAY	SPECIAL INSTRUCTIONS OR ALT. ID:
							X	X	X	X	X	X	X				X	
~~10/23/19~~	~~0838~~	~~L14-1-GW~~	~~W~~	~~1~~	~~poly~~													KA
~~10/23/19~~	~~0951~~	~~L14-2-GW~~	~~W~~	~~1~~	~~poly~~													
~~10/23/19~~	~~1521~~	~~L14-4-GW~~	~~W~~	~~1~~	~~poly~~													
~~10/23/19~~	~~1316~~	~~L3-3-GW~~	~~W~~	~~1~~	~~poly~~													
10/24/19	1015	L8/9-5-GW	W	1	poly		X	X	X	X	X	X	X				X	
10/24/19	1213	L8/9-4-GW	W	1	poly		X	X	X	X	X	X	X				X	

INVOICE TO:

P.O. #

QUOTE #

Email/Address

PRESERVATIVES: (1) HCL (2) HNO_3 (3) = COLD (4) = NaOH (5) = H_2SO_4 (6) = $Na_2S_2O_3$ (7) =

RELINQUISHED BY (SIGN)	PRINT NAME / COMPANY	DATE / TIME	RECEIVED BY (SIGN)	PRINT NAME / COMPANY
	Kevin Almestad / W&C	10/24/19 17:30		Kevin Almestad / Fedex

REC'D AT LAB BY:
DATE / TIME: 10-24-19 1245
CONDITIONS / COMMENTS: 12.4 | 12.5

SHIPPED BY: ☒ FED X ☐ UPS ☐ OTHER
AIR BILL #

HIGHLIGHTED AREAS MUST BE FILLED OUT PRIOR TO ACCEPTANCE

Gold-Project Mgr/Field Sampler/Terms and conditions
Pink- Origin/Terms and Conditions
Yellow- Lab file copy/Terms and Conditions
White-Lab/Terms and conditions

Vista Analytical Laboratory	Project: SJC PFAS Investigation	
1104 Windfield Way	Project Number: [none]	**CLS Work Order #: 19J1611**
El Dorado Hills, CA 95762	Project Manager: Jade White Dobbs	COC #: 202815

Conventional Chemistry Parameters by APHA/EPA Methods

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
L8/9-5-GW (19J1611-01) Water Sampled: 10/24/19 10:15 Received: 10/25/19 12:45									
Chloride	**74**	10	mg/L	20	1909013	10/25/19	10/25/19	EPA 300.0	
Nitrate as N	**0.54**	0.40	"	1	"	"	10/25/19	"	
Sulfate as SO4	**190**	10	"	20	"	"	10/25/19	"	
Total Dissolved Solids	**1100**	10	"	1	1909089	10/28/19	10/29/19	SM2540C	
L8/9-4-GW (19J1611-02) Water Sampled: 10/24/19 12:13 Received: 10/25/19 12:45									
Chloride	**95**	10	mg/L	20	1909013	10/25/19	10/25/19	EPA 300.0	
Nitrate as N	**0.50**	0.40	"	1	"	"	10/25/19	"	
Sulfate as SO4	**230**	10	"	20	"	"	10/25/19	"	
Total Dissolved Solids	**1200**	10	"	1	1909089	10/28/19	10/29/19	SM2540C	

Vista Analytical Laboratory 1104 Windfield Way El Dorado Hills, CA 95762	Project: SJC PFAS Investigation Project Number: [none] Project Manager: Jade White Dobbs	**CLS Work Order #: 19J1611** COC #: 202815

Metals by EPA 200 Series Methods

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
L8/9-5-GW (19J1611-01) Water Sampled: 10/24/19 10:15 Received: 10/25/19 12:45									
Calcium	**410**	10	mg/L	10	1909078	10/28/19	11/01/19	EPA 200.7	
Magnesium	**450**	10	"	"	"	"	10/29/19	"	
Potassium	**66**	1.0	"	1	"	"	10/28/19	"	
Sodium	**56**	1.0	"	"	"	"	"	"	
L8/9-4-GW (19J1611-02) Water Sampled: 10/24/19 12:13 Received: 10/25/19 12:45									
Calcium	**180**	10	mg/L	10	1909078	10/28/19	11/01/19	EPA 200.7	
Magnesium	**220**	10	"	"	"	"	10/30/19	"	
Potassium	**4.5**	1.0	"	1	"	"	10/28/19	"	
Sodium	**64**	1.0	"	"	"	"	"	"	

Vista Analytical Laboratory	Project:	SJC PFAS Investigation	
1104 Windfield Way	Project Number:	[none]	**CLS Work Order #: 19J1611**
El Dorado Hills, CA 95762	Project Manager:	Jade White Dobbs	COC #: 202815

Conventional Chemistry Parameters by APHA/EPA Methods - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1909013 - General Preparation										
Blank (1909013-BLK1)				Prepared & Analyzed: 10/25/19						
Sulfate as SO4	ND	0.50	mg/L							
Chloride	ND	0.50	"							
Nitrate as N	ND	0.40	"							
LCS (1909013-BS1)				Prepared & Analyzed: 10/25/19						
Chloride	4.47	0.50	mg/L	5.00		89	80-120			
Sulfate as SO4	4.62	0.50	"	5.00		92	80-120			
Nitrate as N	1.84	0.40	"	2.00		92	80-120			
LCS Dup (1909013-BSD1)				Prepared & Analyzed: 10/25/19						
Chloride	4.52	0.50	mg/L	5.00		90	80-120	0.9	20	
Sulfate as SO4	4.66	0.50	"	5.00		93	80-120	0.9	20	
Nitrate as N	1.84	0.40	"	2.00		92	80-120	0.5	20	
Matrix Spike (1909013-MS1)		**Source: 19J1555-01**		Prepared & Analyzed: 10/25/19						
Sulfate as SO4	15.3	0.50	mg/L	5.00	10.7	92	80-120			
Chloride	8.90	0.50	"	5.00	4.15	95	80-120			
Nitrate as N	2.85	0.40	"	2.00	1.09	88	80-120			
Matrix Spike Dup (1909013-MSD1)		**Source: 19J1555-01**		Prepared & Analyzed: 10/25/19						
Chloride	9.00	0.50	mg/L	5.00	4.15	97	80-120	1	20	
Sulfate as SO4	15.5	0.50	"	5.00	10.7	98	80-120	2	20	
Nitrate as N	2.88	0.40	"	2.00	1.09	89	80-120	1	20	
Batch 1909089 - General Preparation										
Blank (1909089-BLK1)				Prepared: 10/28/19 Analyzed: 10/29/19						
Total Dissolved Solids	ND	10	mg/L							

Vista Analytical Laboratory	Project:	SJC PFAS Investigation	
1104 Windfield Way	Project Number:	[none]	**CLS Work Order #: 19J1611**
El Dorado Hills, CA 95762	Project Manager:	Jade White Dobbs	COC #: 202815

Conventional Chemistry Parameters by APHA/EPA Methods - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1909089 - General Preparation										
Duplicate (1909089-DUP1)	**Source: 19J1613-01**		Prepared: 10/28/19 Analyzed: 10/29/19							
Total Dissolved Solids	424	10	mg/L		421			0.7	20	

Vista Analytical Laboratory	Project:	SJC PFAS Investigation	
1104 Windfield Way	Project Number:	[none]	**CLS Work Order #: 19J1611**
El Dorado Hills, CA 95762	Project Manager:	Jade White Dobbs	COC #: 202815

Metals by EPA 200 Series Methods - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1909078 - EPA 200 Series										
Blank (1909078-BLK1)				Prepared & Analyzed: 10/28/19						
Calcium	ND	1.0	mg/L							
Magnesium	ND	1.0	"							
Potassium	ND	1.0	"							
Sodium	ND	1.0	"							
LCS (1909078-BS1)				Prepared & Analyzed: 10/28/19						
Calcium	4.92	1.0	mg/L	5.00		98	85-115			
Magnesium	4.78	1.0	"	5.00		96	85-115			
Potassium	5.25	1.0	"	5.00		105	85-115			
Sodium	4.61	1.0	"	5.00		92	85-115			
Matrix Spike (1909078-MS1)		**Source: 19J1610-01**		Prepared: 10/28/19 Analyzed: 11/01/19						
Calcium	146	10	mg/L	5.00	142	73	70-130			
Magnesium	44.7	1.0	"	5.00	36.9	156	70-130			QM-4X
Potassium	7.48	1.0	"	5.00	2.66	96	70-130			
Sodium	256	10	"	5.00	254	46	70-130			QM-4X
Matrix Spike (1909078-MS2)		**Source: 19J1626-01**		Prepared: 10/28/19 Analyzed: 10/29/19						
Calcium	5.09	1.0	mg/L	5.00	1.22	77	70-130			
Magnesium	5.41	1.0	"	5.00	0.376	101	70-130			
Potassium	5.64	1.0	"	5.00	0.531	102	70-130			
Sodium	8.16	1.0	"	5.00	3.45	94	70-130			

Vista Analytical Laboratory	Project:	SJC PFAS Investigation	
1104 Windfield Way	Project Number:	[none]	**CLS Work Order #: 19J1611**
El Dorado Hills, CA 95762	Project Manager:	Jade White Dobbs	COC #: 202815

Notes and Definitions

QM-4X	The spike recovery was outside of QC acceptance limits for the MS and/or MSD due to analyte concentration at 4 times or greater the spike concentration. The QC batch was accepted based on LCS and/or LCSD recoveries within the acceptance limits.
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit (or method detection limit when specified)
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference

Vista
Analytical Laboratory

November 25, 2019

Vista Work Order No. 1903732

Mr. Jim Strandberg
Woodard & Curran
2175 North California Boulevard, Suite 315
Walnut Creek, CA 94596

Dear Mr. Strandberg,

Enclosed are the results for the sample set received at Vista Analytical Laboratory on October 18, 2019 under your Project Name 'SJC PFAS Investigation'.

Vista Analytical Laboratory is committed to serving you effectively. If you require additional information, please contact me at 916-673-1520 or by email at mmaier@vista-analytical.com.

Thank you for choosing Vista as part of your analytical support team.

Sincerely,

Martha Maier
Laboratory Director

Vista Work Order No. 1903732
Case Narrative

Sample Condition on Receipt:

Fifteen soil samples and five aqueous samples were received in good condition and within the method temperature requirements. The samples were received and stored securely in accordance with Vista standard operating procedures and EPA methodology.

Analytical Notes:

PFAS Isotope Dilution Method - Soils

The soil samples were extracted and analyzed for a selected list of PFAS. The results for PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Results for all other analytes include the linear isomers only.

Holding Times

The samples were extracted and analyzed within the hold times.

Quality Control

The Initial Calibration and Continuing Calibration Verifications met the method acceptance criteria.

A Method Blank and Ongoing Precision and Recovery (OPR) sample were extracted and analyzed with the preparation batch. No analytes were detected in the Method Blank above the Reporting Limit (RL). The OPR recoveries were within the method acceptance criteria.

An MS/MSD was performed on sample "L10-1-1". The MS/MSD recoveries and/or RPDs were out of the acceptance criteria for 6:2 FTS, PFHpS, PFOS and 8:2 FTS.

The internal standard recoveries outside the acceptance criteria are flagged with an "H" qualifier.

PFAS Isotope Dilution Method - Aqueous

Samples "L10-1-GW" and "L10-10-GW" contained particulate and were centrifuged prior to extraction.

The aqueous samples were extracted and analyzed for a selected list of PFAS using the PFAS Isotope Dilution Method. The results for PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Results for all other analytes include the linear isomers only.

Holding Times

The samples were extracted and analyzed within the method hold times.

Quality Control

The Initial Calibration and Continuing Calibration Verifications met the acceptance criteria.

A Method Blank and Laboratory Control Sample (LCS)/Laboratory Control Sample Duplicate (LCSD) were extracted and analyzed with the preparation batch. No analytes were detected in the Method Blank above the Reporting Limit. The LCS/LCSD recoveries were within the method acceptance criteria.

The responses of the internal standards 13C3-PFBA, 13C3-PFPeA, 13C2-PFHxA, 13C3-PFHxS and 13C2-6:2 FTS in the samples as compared to the calibration have been reported from the dilutions. The responses are elevated due to the high concentrations of the corresponding native analytes. The internal standard recoveries outside the acceptance criteria are flagged with an "H" qualifier.

TABLE OF CONTENTS

Sample Inventory Report

Vista Sample ID	Client Sample ID	Sampled	Received	Components/Containers
1903732-01	L10-1-1	16-Oct-19 20:00	18-Oct-19 07:24	HDPE Jar, 6 oz
1903732-02	L10-1-5	16-Oct-19 20:05	18-Oct-19 07:24	HDPE Jar, 6 oz
1903732-03	L10-1-10	16-Oct-19 20:10	18-Oct-19 07:24	HDPE Jar, 6 oz
1903732-04	L10-1-GW	16-Oct-19 23:07	18-Oct-19 07:24	HDPE Bottle, 250 mL HDPE Bottle, 250 mL
1903732-05	L10-10-GW	16-Oct-19 23:17	18-Oct-19 07:24	HDPE Bottle, 250 mL HDPE Bottle, 250 mL
1903732-06	EB-1	16-Oct-19 22:50	18-Oct-19 07:24	HDPE Bottle, 250 mL HDPE Bottle, 250 mL
1903732-07	FB-1	16-Oct-19 22:45	18-Oct-19 07:24	HDPE Bottle, 250 mL HDPE Bottle, 250 mL
1903732-08	L11-4-1	17-Oct-19 01:37	18-Oct-19 07:24	HDPE Jar, 6 oz
1903732-09	L11-4-10	17-Oct-19 01:43	18-Oct-19 07:24	HDPE Jar, 6 oz
1903732-10	L11-4-5	17-Oct-19 01:40	18-Oct-19 07:24	HDPE Jar, 6 oz
1903732-11	L11-1-1	17-Oct-19 00:33	18-Oct-19 07:24	HDPE Jar, 6 oz
1903732-12	L11-1-5	17-Oct-19 00:36	18-Oct-19 07:24	HDPE Jar, 6 oz
1903732-13	L11-1-10	17-Oct-19 00:40	18-Oct-19 07:24	HDPE Jar, 6 oz
1903732-14	L11-2-1	17-Oct-19 01:15	18-Oct-19 07:24	HDPE Jar, 6 oz
1903732-15	L11-2-5	17-Oct-19 01:18	18-Oct-19 07:24	HDPE Jar, 6 oz
1903732-16	L11-2-10	17-Oct-19 01:20	18-Oct-19 07:24	HDPE Jar, 6 oz
1903732-17	L11-3-1	17-Oct-19 02:13	18-Oct-19 07:24	HDPE Jar, 6 oz
1903732-18	L11-3-5	17-Oct-19 02:16	18-Oct-19 07:24	HDPE Jar, 6 oz
1903732-19	L11-3-10	17-Oct-19 02:18	18-Oct-19 07:24	HDPE Jar, 6 oz
1903732-20	L11-3-GW	17-Oct-19 03:00	18-Oct-19 07:24	HDPE Bottle, 250 mL HDPE Bottle, 250 mL

ANALYTICAL RESULTS

Sample ID: Method Blank **PFAS Isotope Dilution Method**

Client Data				**Laboratory Data**			
Name:	Woodard & Curran	Matrix:	Solid	Lab Sample:	B9J0277-BLK1	Column:	BEH C18
Project:	SJC PFAS Investigation						

Analyte	CAS Number	Conc. (ng/g)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	ND	2.00		B9J0277	04-Nov-19	1.00 g	08-Nov-19 19:48	1
PFPeA	2706-90-3	ND	2.00		B9J0277	04-Nov-19	1.00 g	08-Nov-19 19:48	1
PFBS	375-73-5	ND	2.00		B9J0277	04-Nov-19	1.00 g	08-Nov-19 19:48	1
4:2 FTS	757124-72-4	ND	2.00		B9J0277	04-Nov-19	1.00 g	08-Nov-19 19:48	1
PFHxA	307-24-4	ND	2.00		B9J0277	04-Nov-19	1.00 g	08-Nov-19 19:48	1
PFPeS	2706-91-4	ND	2.00		B9J0277	04-Nov-19	1.00 g	08-Nov-19 19:48	1
PFHpA	375-85-9	ND	2.00		B9J0277	04-Nov-19	1.00 g	08-Nov-19 19:48	1
PFHxS	355-46-4	ND	2.00		B9J0277	04-Nov-19	1.00 g	08-Nov-19 19:48	1
6:2 FTS	27619-97-2	ND	2.00		B9J0277	04-Nov-19	1.00 g	08-Nov-19 19:48	1
PFOA	335-67-1	ND	2.00		B9J0277	04-Nov-19	1.00 g	08-Nov-19 19:48	1
PFHpS	375-92-8	ND	2.00		B9J0277	04-Nov-19	1.00 g	08-Nov-19 19:48	1
PFNA	375-95-1	ND	2.00		B9J0277	04-Nov-19	1.00 g	08-Nov-19 19:48	1
PFOSA	754-91-6	ND	2.00		B9J0277	04-Nov-19	1.00 g	08-Nov-19 19:48	1
PFOS	1763-23-1	ND	2.00		B9J0277	04-Nov-19	1.00 g	08-Nov-19 19:48	1
PFDA	335-76-2	ND	2.00		B9J0277	04-Nov-19	1.00 g	08-Nov-19 19:48	1
8:2 FTS	39108-34-4	ND	2.00		B9J0277	04-Nov-19	1.00 g	08-Nov-19 19:48	1
MeFOSAA	2355-31-9	ND	2.00		B9J0277	04-Nov-19	1.00 g	08-Nov-19 19:48	1
EtFOSAA	2991-50-6	ND	2.00		B9J0277	04-Nov-19	1.00 g	08-Nov-19 19:48	1
PFUnA	2058-94-8	ND	2.00		B9J0277	04-Nov-19	1.00 g	08-Nov-19 19:48	1
PFDS	335-77-3	ND	2.00		B9J0277	04-Nov-19	1.00 g	08-Nov-19 19:48	1
PFDoA	307-55-1	ND	2.00		B9J0277	04-Nov-19	1.00 g	08-Nov-19 19:48	1
PFTrDA	72629-94-8	ND	2.00		B9J0277	04-Nov-19	1.00 g	08-Nov-19 19:48	1
PFTeDA	376-06-7	ND	2.00		B9J0277	04-Nov-19	1.00 g	08-Nov-19 19:48	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	81.3	50 - 150		B9J0277	04-Nov-19	1.00 g	08-Nov-19 19:48	1
13C3-PFPeA	IS	64.9	50 - 150		B9J0277	04-Nov-19	1.00 g	08-Nov-19 19:48	1
13C3-PFBS	IS	84.6	50 - 150		B9J0277	04-Nov-19	1.00 g	08-Nov-19 19:48	1
13C2-4:2 FTS	IS	81.7	50 - 150		B9J0277	04-Nov-19	1.00 g	08-Nov-19 19:48	1
13C2-PFHxA	IS	64.4	50 - 150		B9J0277	04-Nov-19	1.00 g	08-Nov-19 19:48	1
13C4-PFHpA	IS	69.1	50 - 150		B9J0277	04-Nov-19	1.00 g	08-Nov-19 19:48	1
13C3-PFHxS	IS	86.4	50 - 150		B9J0277	04-Nov-19	1.00 g	08-Nov-19 19:48	1
13C2-6:2 FTS	IS	83.9	50 - 150		B9J0277	04-Nov-19	1.00 g	08-Nov-19 19:48	1
13C5-PFNA	IS	66.4	50 - 150		B9J0277	04-Nov-19	1.00 g	08-Nov-19 19:48	1
13C8-PFOSA	IS	32.8	50 - 150	H	B9J0277	04-Nov-19	1.00 g	08-Nov-19 19:48	1
13C2-PFOA	IS	75.6	50 - 150		B9J0277	04-Nov-19	1.00 g	08-Nov-19 19:48	1
13C8-PFOS	IS	74.1	50 - 150		B9J0277	04-Nov-19	1.00 g	08-Nov-19 19:48	1
13C2-PFDA	IS	59.8	50 - 150		B9J0277	04-Nov-19	1.00 g	08-Nov-19 19:48	1
13C2-8:2 FTS	IS	83.5	50 - 150		B9J0277	04-Nov-19	1.00 g	08-Nov-19 19:48	1

Sample ID: Method Blank

PFAS Isotope Dilution Method

Client Data				**Laboratory Data**			
Name:	Woodard & Curran	Matrix:	Solid	Lab Sample:	B9J0277-BLK1	Column:	BEH C18
Project:	SJC PFAS Investigation						

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
d3-MeFOSAA	IS	51.1	50 - 150		B9J0277	04-Nov-19	1.00 g	08-Nov-19 19:48	1
13C2-PFUnA	IS	48.9	50 - 150	H	B9J0277	04-Nov-19	1.00 g	08-Nov-19 19:48	1
d5-EtFOSAA	IS	52.8	50 - 150		B9J0277	04-Nov-19	1.00 g	08-Nov-19 19:48	1
13C2-PFDoA	IS	50.2	50 - 150		B9J0277	04-Nov-19	1.00 g	08-Nov-19 19:48	1
13C2-PFTeDA	IS	55.6	50 - 150		B9J0277	04-Nov-19	1.00 g	08-Nov-19 19:48	1

RL - Reporting limit

The results are reported in dry weight.
The sample size is reported in wet weight.
Results reported to RL.

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

Sample ID: OPR **PFAS Isotope Dilution Method**

Client Data

Name: Woodard & Curran
Project: SJC PFAS Investigation
Matrix: Solid

Laboratory Data

Lab Sample: B9J0277-BS1
Column: BEH C18

Analyte	CAS Number	Amt Found (ng/g)	Spike Amt	% Rec	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	10.1	10.0	101	71 - 135		B9J0277	04-Nov-19	1.00 g	08-Nov-19 19:59	1
PFPeA	2706-90-3	9.76	10.0	97.6	69 - 132		B9J0277	04-Nov-19	1.00 g	08-Nov-19 19:59	1
PFBS	375-73-5	11.0	10.0	110	72 - 128		B9J0277	04-Nov-19	1.00 g	08-Nov-19 19:59	1
4:2 FTS	757124-72-4	9.57	10.0	95.7	62 - 145		B9J0277	04-Nov-19	1.00 g	08-Nov-19 19:59	1
PFHxA	307-24-4	10.3	10.0	103	70 - 132		B9J0277	04-Nov-19	1.00 g	08-Nov-19 19:59	1
PFPeS	2706-91-4	9.56	10.0	95.6	73 - 123		B9J0277	04-Nov-19	1.00 g	08-Nov-19 19:59	1
PFHpA	375-85-9	10.9	10.0	109	71 - 131		B9J0277	04-Nov-19	1.00 g	08-Nov-19 19:59	1
PFHxS	355-46-4	9.36	10.0	93.6	67 - 130		B9J0277	04-Nov-19	1.00 g	08-Nov-19 19:59	1
6:2 FTS	27619-97-2	11.4	10.0	114	64 - 140		B9J0277	04-Nov-19	1.00 g	08-Nov-19 19:59	1
PFOA	335-67-1	10.2	10.0	102	69 - 133		B9J0277	04-Nov-19	1.00 g	08-Nov-19 19:59	1
PFHpS	375-92-8	10.4	10.0	104	70 - 132		B9J0277	04-Nov-19	1.00 g	08-Nov-19 19:59	1
PFNA	375-95-1	9.95	10.0	99.5	72 - 129		B9J0277	04-Nov-19	1.00 g	08-Nov-19 19:59	1
PFOSA	754-91-6	10.2	10.0	102	67 - 137		B9J0277	04-Nov-19	1.00 g	08-Nov-19 19:59	1
PFOS	1763-23-1	10.3	10.0	103	68 - 136		B9J0277	04-Nov-19	1.00 g	08-Nov-19 19:59	1
PFDA	335-76-2	10.3	10.0	103	69 - 133		B9J0277	04-Nov-19	1.00 g	08-Nov-19 19:59	1
8:2 FTS	39108-34-4	11.1	10.0	111	65 - 137		B9J0277	04-Nov-19	1.00 g	08-Nov-19 19:59	1
MeFOSAA	2355-31-9	11.7	10.0	117	63 - 144		B9J0277	04-Nov-19	1.00 g	08-Nov-19 19:59	1
EtFOSAA	2991-50-6	9.75	10.0	97.5	61 - 139		B9J0277	04-Nov-19	1.00 g	08-Nov-19 19:59	1
PFUnA	2058-94-8	11.1	10.0	111	64 - 136		B9J0277	04-Nov-19	1.00 g	08-Nov-19 19:59	1
PFDS	335-77-3	9.41	10.0	93.9	59 - 134		B9J0277	04-Nov-19	1.00 g	08-Nov-19 19:59	1
PFDoA	307-55-1	10.9	10.0	109	69 - 135		B9J0277	04-Nov-19	1.00 g	08-Nov-19 19:59	1
PFTrDA	72629-94-8	11.1	10.0	111	66 - 139		B9J0277	04-Nov-19	1.00 g	08-Nov-19 19:59	1
PFTeDA	376-06-7	10.3	10.0	103	69 - 133		B9J0277	04-Nov-19	1.00 g	08-Nov-19 19:59	1

Labeled Standards	Type	% Rec	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	76.9	50- 150		B9J0277	04-Nov-19	1.00 g	08-Nov-19 19:59	1
13C3-PFPeA	IS	61.1	50- 150		B9J0277	04-Nov-19	1.00 g	08-Nov-19 19:59	1
13C3-PFBS	IS	78.4	50- 150		B9J0277	04-Nov-19	1.00 g	08-Nov-19 19:59	1
13C2-4:2 FTS	IS	74.8	50- 150		B9J0277	04-Nov-19	1.00 g	08-Nov-19 19:59	1
13C2-PFHxA	IS	58.2	50- 150		B9J0277	04-Nov-19	1.00 g	08-Nov-19 19:59	1
13C4-PFHpA	IS	59.8	50- 150		B9J0277	04-Nov-19	1.00 g	08-Nov-19 19:59	1
13C3-PFHxS	IS	79.0	50- 150		B9J0277	04-Nov-19	1.00 g	08-Nov-19 19:59	1
13C2-6:2 FTS	IS	70.4	50- 150		B9J0277	04-Nov-19	1.00 g	08-Nov-19 19:59	1
13C5-PFNA	IS	61.5	50- 150		B9J0277	04-Nov-19	1.00 g	08-Nov-19 19:59	1
13C8-PFOSA	IS	33.9	50- 150	H	B9J0277	04-Nov-19	1.00 g	08-Nov-19 19:59	1
13C2-PFOA	IS	64.6	50- 150		B9J0277	04-Nov-19	1.00 g	08-Nov-19 19:59	1

Sample ID: OPR **PFAS Isotope Dilution Method**

Client Data

Name: Woodard & Curran
Project: SJC PFAS Investigation
Matrix: Solid

Laboratory Data

Lab Sample: B9J0277-BS1
Column: BEH C18

Labeled Standards	Type	% Rec	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C8-PFOS	IS	69.6	50- 150		B9J0277	04-Nov-19	1.00 g	08-Nov-19 19:59	1
13C2-PFDA	IS	60.8	50- 150		B9J0277	04-Nov-19	1.00 g	08-Nov-19 19:59	1
13C2-8:2 FTS	IS	78.3	50- 150		B9J0277	04-Nov-19	1.00 g	08-Nov-19 19:59	1
d3-MeFOSAA	IS	47.3	50- 150	H	B9J0277	04-Nov-19	1.00 g	08-Nov-19 19:59	1
13C2-PFUnA	IS	50.2	50- 150		B9J0277	04-Nov-19	1.00 g	08-Nov-19 19:59	1
d5-EtFOSAA	IS	57.5	50- 150		B9J0277	04-Nov-19	1.00 g	08-Nov-19 19:59	1
13C2-PFDoA	IS	50.7	50- 150		B9J0277	04-Nov-19	1.00 g	08-Nov-19 19:59	1
13C2-PFTeDA	IS	58.3	50- 150		B9J0277	04-Nov-19	1.00 g	08-Nov-19 19:59	1

Sample ID: L10-1-1 **PFAS Isotope Dilution Method**

Client Data				**Laboratory Data**			
Name:	Woodard & Curran	Matrix:	Soil	Lab Sample:	1903732-01	Column:	BEH C18
Project:	SJC PFAS Investigation	Date Collected:	16-Oct-19 20:00	Date Received:	18-Oct-19 07:24		
Location:	Location 10			% Solids:	94.1		

Analyte	CAS Number	Conc. (ng/g)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	ND	1.99		B9J0277	04-Nov-19	1.07 g	08-Nov-19 20:31	1
PFPeA	2706-90-3	6.77	1.99		B9J0277	04-Nov-19	1.07 g	08-Nov-19 20:31	1
PFBS	375-73-5	ND	1.99		B9J0277	04-Nov-19	1.07 g	08-Nov-19 20:31	1
4:2 FTS	757124-72-4	ND	1.99		B9J0277	04-Nov-19	1.07 g	08-Nov-19 20:31	1
PFHxA	307-24-4	10.8	1.99		B9J0277	04-Nov-19	1.07 g	08-Nov-19 20:31	1
PFPeS	2706-91-4	ND	1.99		B9J0277	04-Nov-19	1.07 g	08-Nov-19 20:31	1
PFHpA	375-85-9	ND	1.99		B9J0277	04-Nov-19	1.07 g	08-Nov-19 20:31	1
PFHxS	355-46-4	7.69	1.99		B9J0277	04-Nov-19	1.07 g	08-Nov-19 20:31	1
6:2 FTS	27619-97-2	322	1.99		B9J0277	04-Nov-19	1.07 g	08-Nov-19 20:31	1
PFOA	335-67-1	5.10	1.99		B9J0277	04-Nov-19	1.07 g	08-Nov-19 20:31	1
PFHpS	375-92-8	ND	1.99		B9J0277	04-Nov-19	1.07 g	08-Nov-19 20:31	1
PFNA	375-95-1	ND	1.99		B9J0277	04-Nov-19	1.07 g	08-Nov-19 20:31	1
PFOSA	754-91-6	ND	1.99		B9J0277	04-Nov-19	1.07 g	08-Nov-19 20:31	1
PFOS	1763-23-1	368	1.99		B9J0277	04-Nov-19	1.07 g	08-Nov-19 20:31	1
PFDA	335-76-2	7.48	1.99		B9J0277	04-Nov-19	1.07 g	08-Nov-19 20:31	1
8:2 FTS	39108-34-4	286	1.99		B9J0277	04-Nov-19	1.07 g	08-Nov-19 20:31	1
MeFOSAA	2355-31-9	ND	1.99		B9J0277	04-Nov-19	1.07 g	08-Nov-19 20:31	1
EtFOSAA	2991-50-6	ND	1.99		B9J0277	04-Nov-19	1.07 g	08-Nov-19 20:31	1
PFUnA	2058-94-8	ND	1.99		B9J0277	04-Nov-19	1.07 g	08-Nov-19 20:31	1
PFDS	335-77-3	ND	1.99		B9J0277	04-Nov-19	1.07 g	08-Nov-19 20:31	1
PFDoA	307-55-1	ND	1.99		B9J0277	04-Nov-19	1.07 g	08-Nov-19 20:31	1
PFTrDA	72629-94-8	ND	1.99		B9J0277	04-Nov-19	1.07 g	08-Nov-19 20:31	1
PFTeDA	376-06-7	ND	1.99		B9J0277	04-Nov-19	1.07 g	08-Nov-19 20:31	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	90.7	50 - 150		B9J0277	04-Nov-19	1.07 g	08-Nov-19 20:31	1
13C3-PFPeA	IS	69.7	50 - 150		B9J0277	04-Nov-19	1.07 g	08-Nov-19 20:31	1
13C3-PFBS	IS	77.4	50 - 150		B9J0277	04-Nov-19	1.07 g	08-Nov-19 20:31	1
13C2-4:2 FTS	IS	72.3	50 - 150		B9J0277	04-Nov-19	1.07 g	08-Nov-19 20:31	1
13C2-PFHxA	IS	66.6	50 - 150		B9J0277	04-Nov-19	1.07 g	08-Nov-19 20:31	1
13C4-PFHpA	IS	70.7	50 - 150		B9J0277	04-Nov-19	1.07 g	08-Nov-19 20:31	1
13C3-PFHxS	IS	75.3	50 - 150		B9J0277	04-Nov-19	1.07 g	08-Nov-19 20:31	1
13C2-6:2 FTS	IS	56.5	50 - 150		B9J0277	04-Nov-19	1.07 g	08-Nov-19 20:31	1
13C5-PFNA	IS	63.7	50 - 150		B9J0277	04-Nov-19	1.07 g	08-Nov-19 20:31	1
13C8-PFOSA	IS	48.6	50 - 150	H	B9J0277	04-Nov-19	1.07 g	08-Nov-19 20:31	1
13C2-PFOA	IS	69.7	50 - 150		B9J0277	04-Nov-19	1.07 g	08-Nov-19 20:31	1
13C8-PFOS	IS	59.3	50 - 150		B9J0277	04-Nov-19	1.07 g	08-Nov-19 20:31	1
13C2-PFDA	IS	54.8	50 - 150		B9J0277	04-Nov-19	1.07 g	08-Nov-19 20:31	1
13C2-8:2 FTS	IS	69.6	50 - 150		B9J0277	04-Nov-19	1.07 g	08-Nov-19 20:31	1

Sample ID: L10-1-1 **PFAS Isotope Dilution Method**

Client Data				**Laboratory Data**			
Name:	Woodard & Curran	Matrix:	Soil	Lab Sample:	1903732-01	Column:	BEH C18
Project:	SJC PFAS Investigation	Date Collected:	16-Oct-19 20:00	Date Received:	18-Oct-19 07:24		
Location:	Location 10			% Solids:	94.1		

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
d3-MeFOSAA	IS	56.7	50 - 150		B9J0277	04-Nov-19	1.07 g	08-Nov-19 20:31	1
13C2-PFUnA	IS	54.7	50 - 150		B9J0277	04-Nov-19	1.07 g	08-Nov-19 20:31	1
d5-EtFOSAA	IS	68.0	50 - 150		B9J0277	04-Nov-19	1.07 g	08-Nov-19 20:31	1
13C2-PFDoA	IS	57.3	50 - 150		B9J0277	04-Nov-19	1.07 g	08-Nov-19 20:31	1
13C2-PFTeDA	IS	41.4	50 - 150	H	B9J0277	04-Nov-19	1.07 g	08-Nov-19 20:31	1

RL - Reporting limit

The results are reported in dry weight.
The sample size is reported in wet weight.
Results reported to RL.

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

Sample ID: L10-1-1 **PFAS Isotope Dilution Method**

Name:	Woodard & Curran	Lab Sample:	B9J0277-MS1/B9J0277-MSD1	Source Lab Sample:	1903732-01
Project:	SJC PFAS Investigation	QC Batch:	B9J0277	Date Extracted:	04-Nov-19
Matrix:	Solid	Samp Size:	1.07/1.06 g	Column:	BEH C18

Analyte	CAS Number	Sample (ng/g)	MS (ng/g)	MS Spike	MS % Rec	MS Quals	MSD (ng/g)	MSD Spike	MSD % Rec	RPD	MSD Quals	%Rec Limits	RPD Limits	MS Analyzed	MS Dil	MSD Analyzed	MSD Dil
PFBA	375-22-4	ND	12.0	9.94	106		11.3	10.0	98.2	7.64		71-135	30	08-Nov-19 20:10	1	08-Nov-19 20:20	1
PFPeA	2706-90-3	6.77	17.8	9.94	111		17.0	10.0	102	8.45		69-132	30	08-Nov-19 20:10	1	08-Nov-19 20:20	1
PFBS	375-73-5	ND	11.4	9.94	111		10.2	10.0	98.7	11.7		72-128	30	08-Nov-19 20:10	1	08-Nov-19 20:20	1
4:2 FTS	757124-72-4	ND	10.4	9.94	101		10.2	10.0	98.9	2.10		62-145	30	08-Nov-19 20:10	1	08-Nov-19 20:20	1
PFHxA	307-24-4	10.8	20.0	9.94	92.8		20.5	10.0	96.6	4.01		70-132	30	08-Nov-19 20:10	1	08-Nov-19 20:20	1
PFPeS	2706-91-4	ND	11.4	9.94	109		9.77	10.0	92.1	16.8		73-123	30	08-Nov-19 20:10	1	08-Nov-19 20:20	1
PFHpA	375-85-9	ND	11.6	9.94	103		11.9	10.0	106	2.87		71-131	30	08-Nov-19 20:10	1	08-Nov-19 20:20	1
PFHxS	355-46-4	7.69	17.7	9.94	101		16.8	10.0	90.7	10.7		67-130	30	08-Nov-19 20:10	1	08-Nov-19 20:20	1
6:2 FTS	27619-97-2	322	308	9.94	-135	H	303	10.0	-183	30.2	H	64-140	30	08-Nov-19 20:10	1	08-Nov-19 20:20	1
PFOA	335-67-1	5.10	15.2	9.94	101		14.5	10.0	93.5	7.71		69-133	30	08-Nov-19 20:10	1	08-Nov-19 20:20	1
PFHpS	375-92-8	ND	13.1	9.94	128		14.2	10.0	138	7.52	H	70-132	30	08-Nov-19 20:10	1	08-Nov-19 20:20	1
PFNA	375-95-1	ND	12.9	9.94	110		12.1	10.0	102	7.55		72-129	30	08-Nov-19 20:10	1	08-Nov-19 20:20	1
PFOSA	754-91-6	ND	12.7	9.94	113		13.5	10.0	121	6.84		67-137	30	08-Nov-19 20:10	1	08-Nov-19 20:20	1
PFOS	1763-23-1	368	363	9.96	-50.3	H	397	10.1	288	285	H	68-136	30	08-Nov-19 20:10	1	08-Nov-19 20:20	1
PFDA	335-76-2	7.48	18.2	9.94	108		18.5	10.0	110	1.83		69-133	30	08-Nov-19 20:10	1	08-Nov-19 20:20	1
8:2 FTS	39108-34-4	286	341	9.94	549	H	294	10.0	78.9	150	H	65-137	30	08-Nov-19 20:10	1	08-Nov-19 20:20	1
MeFOSAA	2355-31-9	ND	10.4	9.94	103		9.89	10.0	97.5	5.49		63-144	30	08-Nov-19 20:10	1	08-Nov-19 20:20	1
EtFOSAA	2991-50-6	ND	10.1	9.94	102		10.4	10.0	104	1.94		61-139	30	08-Nov-19 20:10	1	08-Nov-19 20:20	1
PFUnA	2058-94-8	ND	11.3	9.94	110		11.0	10.0	107	2.76		64-136	30	08-Nov-19 20:10	1	08-Nov-19 20:20	1
PFDS	335-77-3	ND	10.4	9.96	102		12.4	10.1	120	16.2		59-134	30	08-Nov-19 20:10	1	08-Nov-19 20:20	1
PFDoA	307-55-1	ND	10.9	9.94	105		11.0	10.0	106	0.948		69-135	30	08-Nov-19 20:10	1	08-Nov-19 20:20	1
PFTrDA	72629-94-8	ND	9.46	9.94	94.9		9.47	10.0	94.4	0.528		66-139	30	08-Nov-19 20:10	1	08-Nov-19 20:20	1
PFTeDA	376-06-7	ND	11.3	9.94	113		10.7	10.0	106	6.39		69-133	30	08-Nov-19 20:10	1	08-Nov-19 20:20	1

Labeled Standards	Type	MS % Rec	MS Quals	MSD % Rec	MSD Quals	Limits	MS Analyzed	MS Dil	MSD Analyzed	MSD Dil
13C3-PFBA	IS	80.8		92.2		50-150	08-Nov-19 20:10	1	08-Nov-19 20:20	1
13C3-PFPeA	IS	63.4		71.4		50-150	08-Nov-19 20:10	1	08-Nov-19 20:20	1
13C3-PFBS	IS	72.1		81.1		50-150	08-Nov-19 20:10	1	08-Nov-19 20:20	1
13C2-4:2 FTS	IS	72.3		76.9		50-150	08-Nov-19 20:10	1	08-Nov-19 20:20	1
13C2-PFHxA	IS	66.5		68.2		50-150	08-Nov-19 20:10	1	08-Nov-19 20:20	1
13C4-PFHpA	IS	63.7		70.6		50-150	08-Nov-19 20:10	1	08-Nov-19 20:20	1
13C3-PFHxS	IS	75.0		77.3		50-150	08-Nov-19 20:10	1	08-Nov-19 20:20	1
13C2-6:2 FTS	IS	60.5		61.4		50-150	08-Nov-19 20:10	1	08-Nov-19 20:20	1

Sample ID: L10-1-1 **PFAS Isotope Dilution Method**

Name:	Woodard & Curran	Lab Sample:	B9J0277-MS1/B9J0277-MSD1	Source Lab Sample:	1903732-01
Project:	SJC PFAS Investigation	QC Batch:	B9J0277	Date Extracted:	04-Nov-19
Matrix:	Solid	Samp Size:	1.07/1.06 g	Column:	BEH C18

Labeled Standards	Type	MS % Rec	MS Quals	MSD % Rec	MSD Quals	Limits	MS Analyzed	MS Dil	MSD Analyzed	MSD Dil
13C5-PFNA	IS	62.5		66.7		50-150	08-Nov-19 20:10	1	08-Nov-19 20:20	1
13C8-PFOSA	IS	44.4	H	37.3	H	50-150	08-Nov-19 20:10	1	08-Nov-19 20:20	1
13C2-PFOA	IS	68.9		74.9		50-150	08-Nov-19 20:10	1	08-Nov-19 20:20	1
13C8-PFOS	IS	59.5		56.1		50-150	08-Nov-19 20:10	1	08-Nov-19 20:20	1
13C2-PFDA	IS	59.8		58.4		50-150	08-Nov-19 20:10	1	08-Nov-19 20:20	1
13C2-8:2 FTS	IS	59.1		67.7		50-150	08-Nov-19 20:10	1	08-Nov-19 20:20	1
d3-MeFOSAA	IS	57.6		57.5		50-150	08-Nov-19 20:10	1	08-Nov-19 20:20	1
13C2-PFUnA	IS	57.3		56.2		50-150	08-Nov-19 20:10	1	08-Nov-19 20:20	1
d5-EtFOSAA	IS	65.4		63.9		50-150	08-Nov-19 20:10	1	08-Nov-19 20:20	1
13C2-PFDoA	IS	60.1		57.7		50-150	08-Nov-19 20:10	1	08-Nov-19 20:20	1
13C2-PFTeDA	IS	42.1	H	46.2	H	50-150	08-Nov-19 20:10	1	08-Nov-19 20:20	1

Sample ID: L10-1-5 **PFAS Isotope Dilution Method**

Client Data				**Laboratory Data**			
Name:	Woodard & Curran	Matrix:	Soil	Lab Sample:	1903732-02	Column:	BEH C18
Project:	SJC PFAS Investigation	Date Collected:	16-Oct-19 20:05	Date Received:	18-Oct-19 07:24		
Location:	Location 10			% Solids:	79.4		

Analyte	CAS Number	Conc. (ng/g)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	ND	1.98		B9J0277	04-Nov-19	1.27 g	08-Nov-19 20:41	1
PFPeA	2706-90-3	7.74	1.98		B9J0277	04-Nov-19	1.27 g	08-Nov-19 20:41	1
PFBS	375-73-5	ND	1.98		B9J0277	04-Nov-19	1.27 g	08-Nov-19 20:41	1
4:2 FTS	757124-72-4	ND	1.98		B9J0277	04-Nov-19	1.27 g	08-Nov-19 20:41	1
PFHxA	307-24-4	12.2	1.98		B9J0277	04-Nov-19	1.27 g	08-Nov-19 20:41	1
PFPeS	2706-91-4	ND	1.98		B9J0277	04-Nov-19	1.27 g	08-Nov-19 20:41	1
PFHpA	375-85-9	ND	1.98		B9J0277	04-Nov-19	1.27 g	08-Nov-19 20:41	1
PFHxS	355-46-4	30.0	1.98		B9J0277	04-Nov-19	1.27 g	08-Nov-19 20:41	1
6:2 FTS	27619-97-2	606	9.91	D	B9J0277	04-Nov-19	1.27 g	12-Nov-19 18:27	5
PFOA	335-67-1	7.29	1.98		B9J0277	04-Nov-19	1.27 g	08-Nov-19 20:41	1
PFHpS	375-92-8	ND	1.98		B9J0277	04-Nov-19	1.27 g	08-Nov-19 20:41	1
PFNA	375-95-1	ND	1.98		B9J0277	04-Nov-19	1.27 g	08-Nov-19 20:41	1
PFOSA	754-91-6	ND	1.98		B9J0277	04-Nov-19	1.27 g	08-Nov-19 20:41	1
PFOS	1763-23-1	ND	1.98		B9J0277	04-Nov-19	1.27 g	08-Nov-19 20:41	1
PFDA	335-76-2	ND	1.98		B9J0277	04-Nov-19	1.27 g	08-Nov-19 20:41	1
8:2 FTS	39108-34-4	ND	1.98		B9J0277	04-Nov-19	1.27 g	08-Nov-19 20:41	1
MeFOSAA	2355-31-9	ND	1.98		B9J0277	04-Nov-19	1.27 g	08-Nov-19 20:41	1
EtFOSAA	2991-50-6	ND	1.98		B9J0277	04-Nov-19	1.27 g	08-Nov-19 20:41	1
PFUnA	2058-94-8	ND	1.98		B9J0277	04-Nov-19	1.27 g	08-Nov-19 20:41	1
PFDS	335-77-3	ND	1.98		B9J0277	04-Nov-19	1.27 g	08-Nov-19 20:41	1
PFDoA	307-55-1	ND	1.98		B9J0277	04-Nov-19	1.27 g	08-Nov-19 20:41	1
PFTrDA	72629-94-8	ND	1.98		B9J0277	04-Nov-19	1.27 g	08-Nov-19 20:41	1
PFTeDA	376-06-7	ND	1.98		B9J0277	04-Nov-19	1.27 g	08-Nov-19 20:41	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	89.8	50 - 150		B9J0277	04-Nov-19	1.27 g	08-Nov-19 20:41	1
13C3-PFPeA	IS	66.2	50 - 150		B9J0277	04-Nov-19	1.27 g	08-Nov-19 20:41	1
13C3-PFBS	IS	77.9	50 - 150		B9J0277	04-Nov-19	1.27 g	08-Nov-19 20:41	1
13C2-4:2 FTS	IS	68.7	50 - 150		B9J0277	04-Nov-19	1.27 g	08-Nov-19 20:41	1
13C2-PFHxA	IS	65.8	50 - 150		B9J0277	04-Nov-19	1.27 g	08-Nov-19 20:41	1
13C4-PFHpA	IS	65.4	50 - 150		B9J0277	04-Nov-19	1.27 g	08-Nov-19 20:41	1
13C3-PFHxS	IS	67.3	50 - 150		B9J0277	04-Nov-19	1.27 g	08-Nov-19 20:41	1
13C2-6:2 FTS	IS	152	50 - 150	D, H	B9J0277	04-Nov-19	1.27 g	12-Nov-19 18:27	5
13C5-PFNA	IS	57.2	50 - 150		B9J0277	04-Nov-19	1.27 g	08-Nov-19 20:41	1
13C8-PFOSA	IS	41.6	50 - 150	H	B9J0277	04-Nov-19	1.27 g	08-Nov-19 20:41	1
13C2-PFOA	IS	69.5	50 - 150		B9J0277	04-Nov-19	1.27 g	08-Nov-19 20:41	1
13C8-PFOS	IS	66.8	50 - 150		B9J0277	04-Nov-19	1.27 g	08-Nov-19 20:41	1
13C2-PFDA	IS	55.1	50 - 150		B9J0277	04-Nov-19	1.27 g	08-Nov-19 20:41	1
13C2-8:2 FTS	IS	70.4	50 - 150		B9J0277	04-Nov-19	1.27 g	08-Nov-19 20:41	1

Sample ID: L10-1-5 **PFAS Isotope Dilution Method**

Client Data				**Laboratory Data**			
Name:	Woodard & Curran	Matrix:	Soil	Lab Sample:	1903732-02	Column:	BEH C18
Project:	SJC PFAS Investigation	Date Collected:	16-Oct-19 20:05	Date Received:	18-Oct-19 07:24		
Location:	Location 10			% Solids:	79.4		

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
d3-MeFOSAA	IS	55.3	50 - 150		B9J0277	04-Nov-19	1.27 g	08-Nov-19 20:41	1
13C2-PFUnA	IS	49.7	50 - 150	H	B9J0277	04-Nov-19	1.27 g	08-Nov-19 20:41	1
d5-EtFOSAA	IS	60.9	50 - 150		B9J0277	04-Nov-19	1.27 g	08-Nov-19 20:41	1
13C2-PFDoA	IS	54.4	50 - 150		B9J0277	04-Nov-19	1.27 g	08-Nov-19 20:41	1
13C2-PFTeDA	IS	61.6	50 - 150		B9J0277	04-Nov-19	1.27 g	08-Nov-19 20:41	1

RL - Reporting limit

The results are reported in dry weight.
The sample size is reported in wet weight.
Results reported to RL.

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

Sample ID: L10-1-10 **PFAS Isotope Dilution Method**

Client Data				**Laboratory Data**			
Name:	Woodard & Curran	Matrix:	Soil	Lab Sample:	1903732-03	Column:	BEH C18
Project:	SJC PFAS Investigation	Date Collected:	16-Oct-19 20:10	Date Received:	18-Oct-19 07:24		
Location:	Location 10			% Solids:	84.7		

Analyte	CAS Number	Conc. (ng/g)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	ND	2.00		B9J0277	04-Nov-19	1.18 g	08-Nov-19 20:52	1
PFPeA	2706-90-3	7.67	2.00		B9J0277	04-Nov-19	1.18 g	08-Nov-19 20:52	1
PFBS	375-73-5	ND	2.00		B9J0277	04-Nov-19	1.18 g	08-Nov-19 20:52	1
4:2 FTS	757124-72-4	ND	2.00		B9J0277	04-Nov-19	1.18 g	08-Nov-19 20:52	1
PFHxA	307-24-4	7.75	2.00		B9J0277	04-Nov-19	1.18 g	08-Nov-19 20:52	1
PFPeS	2706-91-4	ND	2.00		B9J0277	04-Nov-19	1.18 g	08-Nov-19 20:52	1
PFHpA	375-85-9	ND	2.00		B9J0277	04-Nov-19	1.18 g	08-Nov-19 20:52	1
PFHxS	355-46-4	14.0	2.00		B9J0277	04-Nov-19	1.18 g	08-Nov-19 20:52	1
6:2 FTS	27619-97-2	323	2.00		B9J0277	04-Nov-19	1.18 g	08-Nov-19 20:52	1
PFOA	335-67-1	2.91	2.00		B9J0277	04-Nov-19	1.18 g	08-Nov-19 20:52	1
PFHpS	375-92-8	ND	2.00		B9J0277	04-Nov-19	1.18 g	08-Nov-19 20:52	1
PFNA	375-95-1	ND	2.00		B9J0277	04-Nov-19	1.18 g	08-Nov-19 20:52	1
PFOSA	754-91-6	ND	2.00		B9J0277	04-Nov-19	1.18 g	08-Nov-19 20:52	1
PFOS	1763-23-1	ND	2.00		B9J0277	04-Nov-19	1.18 g	08-Nov-19 20:52	1
PFDA	335-76-2	ND	2.00		B9J0277	04-Nov-19	1.18 g	08-Nov-19 20:52	1
8:2 FTS	39108-34-4	ND	2.00		B9J0277	04-Nov-19	1.18 g	08-Nov-19 20:52	1
MeFOSAA	2355-31-9	ND	2.00		B9J0277	04-Nov-19	1.18 g	08-Nov-19 20:52	1
EtFOSAA	2991-50-6	ND	2.00		B9J0277	04-Nov-19	1.18 g	08-Nov-19 20:52	1
PFUnA	2058-94-8	ND	2.00		B9J0277	04-Nov-19	1.18 g	08-Nov-19 20:52	1
PFDS	335-77-3	ND	2.00		B9J0277	04-Nov-19	1.18 g	08-Nov-19 20:52	1
PFDoA	307-55-1	ND	2.00		B9J0277	04-Nov-19	1.18 g	08-Nov-19 20:52	1
PFTrDA	72629-94-8	ND	2.00		B9J0277	04-Nov-19	1.18 g	08-Nov-19 20:52	1
PFTeDA	376-06-7	ND	2.00		B9J0277	04-Nov-19	1.18 g	08-Nov-19 20:52	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	89.8	50 - 150		B9J0277	04-Nov-19	1.18 g	08-Nov-19 20:52	1
13C3-PFPeA	IS	70.7	50 - 150		B9J0277	04-Nov-19	1.18 g	08-Nov-19 20:52	1
13C3-PFBS	IS	81.8	50 - 150		B9J0277	04-Nov-19	1.18 g	08-Nov-19 20:52	1
13C2-4:2 FTS	IS	75.7	50 - 150		B9J0277	04-Nov-19	1.18 g	08-Nov-19 20:52	1
13C2-PFHxA	IS	68.2	50 - 150		B9J0277	04-Nov-19	1.18 g	08-Nov-19 20:52	1
13C4-PFHpA	IS	68.2	50 - 150		B9J0277	04-Nov-19	1.18 g	08-Nov-19 20:52	1
13C3-PFHxS	IS	82.2	50 - 150		B9J0277	04-Nov-19	1.18 g	08-Nov-19 20:52	1
13C2-6:2 FTS	IS	61.1	50 - 150		B9J0277	04-Nov-19	1.18 g	08-Nov-19 20:52	1
13C5-PFNA	IS	64.0	50 - 150		B9J0277	04-Nov-19	1.18 g	08-Nov-19 20:52	1
13C8-PFOSA	IS	40.6	50 - 150	H	B9J0277	04-Nov-19	1.18 g	08-Nov-19 20:52	1
13C2-PFOA	IS	75.2	50 - 150		B9J0277	04-Nov-19	1.18 g	08-Nov-19 20:52	1
13C8-PFOS	IS	72.1	50 - 150		B9J0277	04-Nov-19	1.18 g	08-Nov-19 20:52	1
13C2-PFDA	IS	59.1	50 - 150		B9J0277	04-Nov-19	1.18 g	08-Nov-19 20:52	1
13C2-8:2 FTS	IS	79.2	50 - 150		B9J0277	04-Nov-19	1.18 g	08-Nov-19 20:52	1

Sample ID: L10-1-10

PFAS Isotope Dilution Method

Client Data				**Laboratory Data**			
Name:	Woodard & Curran	Matrix:	Soil	Lab Sample:	1903732-03	Column:	BEH C18
Project:	SJC PFAS Investigation	Date Collected:	16-Oct-19 20:10	Date Received:	18-Oct-19 07:24		
Location:	Location 10			% Solids:	84.7		

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
d3-MeFOSAA	IS	49.3	50 - 150	H	B9J0277	04-Nov-19	1.18 g	08-Nov-19 20:52	1
13C2-PFUnA	IS	53.6	50 - 150		B9J0277	04-Nov-19	1.18 g	08-Nov-19 20:52	1
d5-EtFOSAA	IS	60.5	50 - 150		B9J0277	04-Nov-19	1.18 g	08-Nov-19 20:52	1
13C2-PFDoA	IS	55.2	50 - 150		B9J0277	04-Nov-19	1.18 g	08-Nov-19 20:52	1
13C2-PFTeDA	IS	57.8	50 - 150		B9J0277	04-Nov-19	1.18 g	08-Nov-19 20:52	1

RL - Reporting limit

The results are reported in dry weight.
The sample size is reported in wet weight.
Results reported to RL.

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

Sample ID: L11-4-1 **PFAS Isotope Dilution Method**

Client Data				**Laboratory Data**			
Name:	Woodard & Curran	Matrix:	Soil	Lab Sample:	1903732-08	Column:	BEH C18
Project:	SJC PFAS Investigation	Date Collected:	17-Oct-19 01:37	Date Received:	18-Oct-19 07:24		
Location:	Location 11			% Solids:	80.4		

Analyte	CAS Number	Conc. (ng/g)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	ND	1.97		B9J0277	04-Nov-19	1.26 g	08-Nov-19 21:03	1
PFPeA	2706-90-3	ND	1.97		B9J0277	04-Nov-19	1.26 g	08-Nov-19 21:03	1
PFBS	375-73-5	ND	1.97		B9J0277	04-Nov-19	1.26 g	08-Nov-19 21:03	1
4:2 FTS	757124-72-4	ND	1.97		B9J0277	04-Nov-19	1.26 g	08-Nov-19 21:03	1
PFHxA	307-24-4	ND	1.97		B9J0277	04-Nov-19	1.26 g	08-Nov-19 21:03	1
PFPeS	2706-91-4	ND	1.97		B9J0277	04-Nov-19	1.26 g	08-Nov-19 21:03	1
PFHpA	375-85-9	ND	1.97		B9J0277	04-Nov-19	1.26 g	08-Nov-19 21:03	1
PFHxS	355-46-4	ND	1.97		B9J0277	04-Nov-19	1.26 g	08-Nov-19 21:03	1
6:2 FTS	27619-97-2	ND	1.97		B9J0277	04-Nov-19	1.26 g	08-Nov-19 21:03	1
PFOA	335-67-1	ND	1.97		B9J0277	04-Nov-19	1.26 g	08-Nov-19 21:03	1
PFHpS	375-92-8	ND	1.97		B9J0277	04-Nov-19	1.26 g	08-Nov-19 21:03	1
PFNA	375-95-1	ND	1.97		B9J0277	04-Nov-19	1.26 g	08-Nov-19 21:03	1
PFOSA	754-91-6	ND	1.97		B9J0277	04-Nov-19	1.26 g	08-Nov-19 21:03	1
PFOS	1763-23-1	ND	1.97		B9J0277	04-Nov-19	1.26 g	08-Nov-19 21:03	1
PFDA	335-76-2	ND	1.97		B9J0277	04-Nov-19	1.26 g	08-Nov-19 21:03	1
8:2 FTS	39108-34-4	ND	1.97		B9J0277	04-Nov-19	1.26 g	08-Nov-19 21:03	1
MeFOSAA	2355-31-9	ND	1.97		B9J0277	04-Nov-19	1.26 g	08-Nov-19 21:03	1
EtFOSAA	2991-50-6	ND	1.97		B9J0277	04-Nov-19	1.26 g	08-Nov-19 21:03	1
PFUnA	2058-94-8	ND	1.97		B9J0277	04-Nov-19	1.26 g	08-Nov-19 21:03	1
PFDS	335-77-3	ND	1.97		B9J0277	04-Nov-19	1.26 g	08-Nov-19 21:03	1
PFDoA	307-55-1	ND	1.97		B9J0277	04-Nov-19	1.26 g	08-Nov-19 21:03	1
PFTrDA	72629-94-8	ND	1.97		B9J0277	04-Nov-19	1.26 g	08-Nov-19 21:03	1
PFTeDA	376-06-7	ND	1.97		B9J0277	04-Nov-19	1.26 g	08-Nov-19 21:03	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	88.4	50 - 150		B9J0277	04-Nov-19	1.26 g	08-Nov-19 21:03	1
13C3-PFPeA	IS	68.8	50 - 150		B9J0277	04-Nov-19	1.26 g	08-Nov-19 21:03	1
13C3-PFBS	IS	77.5	50 - 150		B9J0277	04-Nov-19	1.26 g	08-Nov-19 21:03	1
13C2-4:2 FTS	IS	73.6	50 - 150		B9J0277	04-Nov-19	1.26 g	08-Nov-19 21:03	1
13C2-PFHxA	IS	66.2	50 - 150		B9J0277	04-Nov-19	1.26 g	08-Nov-19 21:03	1
13C4-PFHpA	IS	70.4	50 - 150		B9J0277	04-Nov-19	1.26 g	08-Nov-19 21:03	1
13C3-PFHxS	IS	74.5	50 - 150		B9J0277	04-Nov-19	1.26 g	08-Nov-19 21:03	1
13C2-6:2 FTS	IS	73.0	50 - 150		B9J0277	04-Nov-19	1.26 g	08-Nov-19 21:03	1
13C5-PFNA	IS	63.3	50 - 150		B9J0277	04-Nov-19	1.26 g	08-Nov-19 21:03	1
13C8-PFOSA	IS	46.8	50 - 150	H	B9J0277	04-Nov-19	1.26 g	08-Nov-19 21:03	1
13C2-PFOA	IS	72.9	50 - 150		B9J0277	04-Nov-19	1.26 g	08-Nov-19 21:03	1
13C8-PFOS	IS	69.2	50 - 150		B9J0277	04-Nov-19	1.26 g	08-Nov-19 21:03	1
13C2-PFDA	IS	57.5	50 - 150		B9J0277	04-Nov-19	1.26 g	08-Nov-19 21:03	1
13C2-8:2 FTS	IS	78.9	50 - 150		B9J0277	04-Nov-19	1.26 g	08-Nov-19 21:03	1

Sample ID: L11-4-1 **PFAS Isotope Dilution Method**

Client Data				**Laboratory Data**			
Name:	Woodard & Curran	Matrix:	Soil	Lab Sample:	1903732-08	Column:	BEH C18
Project:	SJC PFAS Investigation	Date Collected:	17-Oct-19 01:37	Date Received:	18-Oct-19 07:24		
Location:	Location 11			% Solids:	80.4		

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
d3-MeFOSAA	IS	53.1	50 - 150		B9J0277	04-Nov-19	1.26 g	08-Nov-19 21:03	1
13C2-PFUnA	IS	54.5	50 - 150		B9J0277	04-Nov-19	1.26 g	08-Nov-19 21:03	1
d5-EtFOSAA	IS	64.4	50 - 150		B9J0277	04-Nov-19	1.26 g	08-Nov-19 21:03	1
13C2-PFDoA	IS	58.8	50 - 150		B9J0277	04-Nov-19	1.26 g	08-Nov-19 21:03	1
13C2-PFTeDA	IS	67.9	50 - 150		B9J0277	04-Nov-19	1.26 g	08-Nov-19 21:03	1

RL - Reporting limit

The results are reported in dry weight.
The sample size is reported in wet weight.
Results reported to RL.

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

Sample ID: L11-4-10 **PFAS Isotope Dilution Method**

Client Data

Name: Woodard & Curran
Project: SJC PFAS Investigation
Location: Location 11
Matrix: Soil
Date Collected: 17-Oct-19 01:43

Laboratory Data

Lab Sample: 1903732-09
Date Received: 18-Oct-19 07:24
% Solids: 82.8
Column: BEH C18

Analyte	CAS Number	Conc. (ng/g)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	ND	1.95		B9J0277	04-Nov-19	1.24 g	08-Nov-19 21:13	1
PFPeA	2706-90-3	ND	1.95		B9J0277	04-Nov-19	1.24 g	08-Nov-19 21:13	1
PFBS	375-73-5	ND	1.95		B9J0277	04-Nov-19	1.24 g	08-Nov-19 21:13	1
4:2 FTS	757124-72-4	ND	1.95		B9J0277	04-Nov-19	1.24 g	08-Nov-19 21:13	1
PFHxA	307-24-4	ND	1.95		B9J0277	04-Nov-19	1.24 g	08-Nov-19 21:13	1
PFPeS	2706-91-4	ND	1.95		B9J0277	04-Nov-19	1.24 g	08-Nov-19 21:13	1
PFHpA	375-85-9	ND	1.95		B9J0277	04-Nov-19	1.24 g	08-Nov-19 21:13	1
PFHxS	355-46-4	ND	1.95		B9J0277	04-Nov-19	1.24 g	08-Nov-19 21:13	1
6:2 FTS	27619-97-2	ND	1.95		B9J0277	04-Nov-19	1.24 g	08-Nov-19 21:13	1
PFOA	335-67-1	ND	1.95		B9J0277	04-Nov-19	1.24 g	08-Nov-19 21:13	1
PFHpS	375-92-8	ND	1.95		B9J0277	04-Nov-19	1.24 g	08-Nov-19 21:13	1
PFNA	375-95-1	ND	1.95		B9J0277	04-Nov-19	1.24 g	08-Nov-19 21:13	1
PFOSA	754-91-6	ND	1.95		B9J0277	04-Nov-19	1.24 g	08-Nov-19 21:13	1
PFOS	1763-23-1	ND	1.95		B9J0277	04-Nov-19	1.24 g	08-Nov-19 21:13	1
PFDA	335-76-2	ND	1.95		B9J0277	04-Nov-19	1.24 g	08-Nov-19 21:13	1
8:2 FTS	39108-34-4	ND	1.95		B9J0277	04-Nov-19	1.24 g	08-Nov-19 21:13	1
MeFOSAA	2355-31-9	ND	1.95		B9J0277	04-Nov-19	1.24 g	08-Nov-19 21:13	1
EtFOSAA	2991-50-6	ND	1.95		B9J0277	04-Nov-19	1.24 g	08-Nov-19 21:13	1
PFUnA	2058-94-8	ND	1.95		B9J0277	04-Nov-19	1.24 g	08-Nov-19 21:13	1
PFDS	335-77-3	ND	1.95		B9J0277	04-Nov-19	1.24 g	08-Nov-19 21:13	1
PFDoA	307-55-1	ND	1.95		B9J0277	04-Nov-19	1.24 g	08-Nov-19 21:13	1
PFTrDA	72629-94-8	ND	1.95		B9J0277	04-Nov-19	1.24 g	08-Nov-19 21:13	1
PFTeDA	376-06-7	ND	1.95		B9J0277	04-Nov-19	1.24 g	08-Nov-19 21:13	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	87.6	50 - 150		B9J0277	04-Nov-19	1.24 g	08-Nov-19 21:13	1
13C3-PFPeA	IS	70.2	50 - 150		B9J0277	04-Nov-19	1.24 g	08-Nov-19 21:13	1
13C3-PFBS	IS	77.5	50 - 150		B9J0277	04-Nov-19	1.24 g	08-Nov-19 21:13	1
13C2-4:2 FTS	IS	72.5	50 - 150		B9J0277	04-Nov-19	1.24 g	08-Nov-19 21:13	1
13C2-PFHxA	IS	63.9	50 - 150		B9J0277	04-Nov-19	1.24 g	08-Nov-19 21:13	1
13C4-PFHpA	IS	70.6	50 - 150		B9J0277	04-Nov-19	1.24 g	08-Nov-19 21:13	1
13C3-PFHxS	IS	76.8	50 - 150		B9J0277	04-Nov-19	1.24 g	08-Nov-19 21:13	1
13C2-6:2 FTS	IS	76.1	50 - 150		B9J0277	04-Nov-19	1.24 g	08-Nov-19 21:13	1
13C5-PFNA	IS	62.4	50 - 150		B9J0277	04-Nov-19	1.24 g	08-Nov-19 21:13	1
13C8-PFOSA	IS	48.4	50 - 150	H	B9J0277	04-Nov-19	1.24 g	08-Nov-19 21:13	1
13C2-PFOA	IS	76.4	50 - 150		B9J0277	04-Nov-19	1.24 g	08-Nov-19 21:13	1
13C8-PFOS	IS	69.0	50 - 150		B9J0277	04-Nov-19	1.24 g	08-Nov-19 21:13	1
13C2-PFDA	IS	57.3	50 - 150		B9J0277	04-Nov-19	1.24 g	08-Nov-19 21:13	1
13C2-8:2 FTS	IS	76.2	50 - 150		B9J0277	04-Nov-19	1.24 g	08-Nov-19 21:13	1

Sample ID: L11-4-10 **PFAS Isotope Dilution Method**

Client Data				**Laboratory Data**			
Name:	Woodard & Curran	Matrix:	Soil	Lab Sample:	1903732-09	Column:	BEH C18
Project:	SJC PFAS Investigation	Date Collected:	17-Oct-19 01:43	Date Received:	18-Oct-19 07:24		
Location:	Location 11			% Solids:	82.8		

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
d3-MeFOSAA	IS	61.3	50 - 150		B9J0277	04-Nov-19	1.24 g	08-Nov-19 21:13	1
13C2-PFUnA	IS	54.1	50 - 150		B9J0277	04-Nov-19	1.24 g	08-Nov-19 21:13	1
d5-EtFOSAA	IS	64.7	50 - 150		B9J0277	04-Nov-19	1.24 g	08-Nov-19 21:13	1
13C2-PFDoA	IS	56.1	50 - 150		B9J0277	04-Nov-19	1.24 g	08-Nov-19 21:13	1
13C2-PFTeDA	IS	60.1	50 - 150		B9J0277	04-Nov-19	1.24 g	08-Nov-19 21:13	1

RL - Reporting limit

The results are reported in dry weight.
The sample size is reported in wet weight.
Results reported to RL.

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

Sample ID: L11-4-5 **PFAS Isotope Dilution Method**

Client Data				**Laboratory Data**			
Name:	Woodard & Curran	Matrix:	Soil	Lab Sample:	1903732-10	Column:	BEH C18
Project:	SJC PFAS Investigation	Date Collected:	17-Oct-19 01:40	Date Received:	18-Oct-19 07:24		
Location:	Location 11			% Solids:	82.0		

Analyte	CAS Number	Conc. (ng/g)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	ND	1.97		B9J0277	04-Nov-19	1.24 g	08-Nov-19 21:24	1
PFPeA	2706-90-3	ND	1.97		B9J0277	04-Nov-19	1.24 g	08-Nov-19 21:24	1
PFBS	375-73-5	ND	1.97		B9J0277	04-Nov-19	1.24 g	08-Nov-19 21:24	1
4:2 FTS	757124-72-4	ND	1.97		B9J0277	04-Nov-19	1.24 g	08-Nov-19 21:24	1
PFHxA	307-24-4	ND	1.97		B9J0277	04-Nov-19	1.24 g	08-Nov-19 21:24	1
PFPeS	2706-91-4	ND	1.97		B9J0277	04-Nov-19	1.24 g	08-Nov-19 21:24	1
PFHpA	375-85-9	ND	1.97		B9J0277	04-Nov-19	1.24 g	08-Nov-19 21:24	1
PFHxS	355-46-4	ND	1.97		B9J0277	04-Nov-19	1.24 g	08-Nov-19 21:24	1
6:2 FTS	27619-97-2	ND	1.97		B9J0277	04-Nov-19	1.24 g	08-Nov-19 21:24	1
PFOA	335-67-1	ND	1.97		B9J0277	04-Nov-19	1.24 g	08-Nov-19 21:24	1
PFHpS	375-92-8	ND	1.97		B9J0277	04-Nov-19	1.24 g	08-Nov-19 21:24	1
PFNA	375-95-1	ND	1.97		B9J0277	04-Nov-19	1.24 g	08-Nov-19 21:24	1
PFOSA	754-91-6	ND	1.97		B9J0277	04-Nov-19	1.24 g	08-Nov-19 21:24	1
PFOS	1763-23-1	ND	1.97		B9J0277	04-Nov-19	1.24 g	08-Nov-19 21:24	1
PFDA	335-76-2	ND	1.97		B9J0277	04-Nov-19	1.24 g	08-Nov-19 21:24	1
8:2 FTS	39108-34-4	ND	1.97		B9J0277	04-Nov-19	1.24 g	08-Nov-19 21:24	1
MeFOSAA	2355-31-9	ND	1.97		B9J0277	04-Nov-19	1.24 g	08-Nov-19 21:24	1
EtFOSAA	2991-50-6	ND	1.97		B9J0277	04-Nov-19	1.24 g	08-Nov-19 21:24	1
PFUnA	2058-94-8	ND	1.97		B9J0277	04-Nov-19	1.24 g	08-Nov-19 21:24	1
PFDS	335-77-3	ND	1.97		B9J0277	04-Nov-19	1.24 g	08-Nov-19 21:24	1
PFDoA	307-55-1	ND	1.97		B9J0277	04-Nov-19	1.24 g	08-Nov-19 21:24	1
PFTrDA	72629-94-8	ND	1.97		B9J0277	04-Nov-19	1.24 g	08-Nov-19 21:24	1
PFTeDA	376-06-7	ND	1.97		B9J0277	04-Nov-19	1.24 g	08-Nov-19 21:24	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	94.7	50 - 150		B9J0277	04-Nov-19	1.24 g	08-Nov-19 21:24	1
13C3-PFPeA	IS	73.1	50 - 150		B9J0277	04-Nov-19	1.24 g	08-Nov-19 21:24	1
13C3-PFBS	IS	82.6	50 - 150		B9J0277	04-Nov-19	1.24 g	08-Nov-19 21:24	1
13C2-4:2 FTS	IS	76.6	50 - 150		B9J0277	04-Nov-19	1.24 g	08-Nov-19 21:24	1
13C2-PFHxA	IS	68.9	50 - 150		B9J0277	04-Nov-19	1.24 g	08-Nov-19 21:24	1
13C4-PFHpA	IS	72.2	50 - 150		B9J0277	04-Nov-19	1.24 g	08-Nov-19 21:24	1
13C3-PFHxS	IS	78.6	50 - 150		B9J0277	04-Nov-19	1.24 g	08-Nov-19 21:24	1
13C2-6:2 FTS	IS	73.2	50 - 150		B9J0277	04-Nov-19	1.24 g	08-Nov-19 21:24	1
13C5-PFNA	IS	64.8	50 - 150		B9J0277	04-Nov-19	1.24 g	08-Nov-19 21:24	1
13C8-PFOSA	IS	48.6	50 - 150	H	B9J0277	04-Nov-19	1.24 g	08-Nov-19 21:24	1
13C2-PFOA	IS	76.9	50 - 150		B9J0277	04-Nov-19	1.24 g	08-Nov-19 21:24	1
13C8-PFOS	IS	73.6	50 - 150		B9J0277	04-Nov-19	1.24 g	08-Nov-19 21:24	1
13C2-PFDA	IS	62.8	50 - 150		B9J0277	04-Nov-19	1.24 g	08-Nov-19 21:24	1
13C2-8:2 FTS	IS	83.7	50 - 150		B9J0277	04-Nov-19	1.24 g	08-Nov-19 21:24	1

Sample ID: L11-4-5 **PFAS Isotope Dilution Method**

Client Data				**Laboratory Data**			
Name:	Woodard & Curran	Matrix:	Soil	Lab Sample:	1903732-10	Column:	BEH C18
Project:	SJC PFAS Investigation	Date Collected:	17-Oct-19 01:40	Date Received:	18-Oct-19 07:24		
Location:	Location 11			% Solids:	82.0		

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
d3-MeFOSAA	IS	51.3	50 - 150		B9J0277	04-Nov-19	1.24 g	08-Nov-19 21:24	1
13C2-PFUnA	IS	54.7	50 - 150		B9J0277	04-Nov-19	1.24 g	08-Nov-19 21:24	1
d5-EtFOSAA	IS	68.1	50 - 150		B9J0277	04-Nov-19	1.24 g	08-Nov-19 21:24	1
13C2-PFDoA	IS	53.1	50 - 150		B9J0277	04-Nov-19	1.24 g	08-Nov-19 21:24	1
13C2-PFTeDA	IS	60.1	50 - 150		B9J0277	04-Nov-19	1.24 g	08-Nov-19 21:24	1

RL - Reporting limit

The results are reported in dry weight.
The sample size is reported in wet weight.
Results reported to RL.

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

Sample ID: L11-1-1 **PFAS Isotope Dilution Method**

Client Data

Name:	Woodard & Curran	Matrix:	Soil
Project:	SJC PFAS Investigation	Date Collected:	17-Oct-19 00:33
Location:	Location 11		

Laboratory Data

Lab Sample:	1903732-11	Column:	BEH C18
Date Received:	18-Oct-19 07:24		
% Solids:	79.3		

Analyte	CAS Number	Conc. (ng/g)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	ND	1.96		B9J0277	04-Nov-19	1.29 g	08-Nov-19 21:34	1
PFPeA	2706-90-3	ND	1.96		B9J0277	04-Nov-19	1.29 g	08-Nov-19 21:34	1
PFBS	375-73-5	ND	1.96		B9J0277	04-Nov-19	1.29 g	08-Nov-19 21:34	1
4:2 FTS	757124-72-4	ND	1.96		B9J0277	04-Nov-19	1.29 g	08-Nov-19 21:34	1
PFHxA	307-24-4	ND	1.96		B9J0277	04-Nov-19	1.29 g	08-Nov-19 21:34	1
PFPeS	2706-91-4	ND	1.96		B9J0277	04-Nov-19	1.29 g	08-Nov-19 21:34	1
PFHpA	375-85-9	ND	1.96		B9J0277	04-Nov-19	1.29 g	08-Nov-19 21:34	1
PFHxS	355-46-4	ND	1.96		B9J0277	04-Nov-19	1.29 g	08-Nov-19 21:34	1
6:2 FTS	27619-97-2	ND	1.96		B9J0277	04-Nov-19	1.29 g	08-Nov-19 21:34	1
PFOA	335-67-1	ND	1.96		B9J0277	04-Nov-19	1.29 g	08-Nov-19 21:34	1
PFHpS	375-92-8	ND	1.96		B9J0277	04-Nov-19	1.29 g	08-Nov-19 21:34	1
PFNA	375-95-1	ND	1.96		B9J0277	04-Nov-19	1.29 g	08-Nov-19 21:34	1
PFOSA	754-91-6	ND	1.96		B9J0277	04-Nov-19	1.29 g	08-Nov-19 21:34	1
PFOS	1763-23-1	ND	1.96		B9J0277	04-Nov-19	1.29 g	08-Nov-19 21:34	1
PFDA	335-76-2	ND	1.96		B9J0277	04-Nov-19	1.29 g	08-Nov-19 21:34	1
8:2 FTS	39108-34-4	ND	1.96		B9J0277	04-Nov-19	1.29 g	08-Nov-19 21:34	1
MeFOSAA	2355-31-9	ND	1.96		B9J0277	04-Nov-19	1.29 g	08-Nov-19 21:34	1
EtFOSAA	2991-50-6	ND	1.96		B9J0277	04-Nov-19	1.29 g	08-Nov-19 21:34	1
PFUnA	2058-94-8	ND	1.96		B9J0277	04-Nov-19	1.29 g	08-Nov-19 21:34	1
PFDS	335-77-3	ND	1.96		B9J0277	04-Nov-19	1.29 g	08-Nov-19 21:34	1
PFDoA	307-55-1	ND	1.96		B9J0277	04-Nov-19	1.29 g	08-Nov-19 21:34	1
PFTrDA	72629-94-8	ND	1.96		B9J0277	04-Nov-19	1.29 g	08-Nov-19 21:34	1
PFTeDA	376-06-7	ND	1.96		B9J0277	04-Nov-19	1.29 g	08-Nov-19 21:34	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	89.9	50 - 150		B9J0277	04-Nov-19	1.29 g	08-Nov-19 21:34	1
13C3-PFPeA	IS	70.6	50 - 150		B9J0277	04-Nov-19	1.29 g	08-Nov-19 21:34	1
13C3-PFBS	IS	70.9	50 - 150		B9J0277	04-Nov-19	1.29 g	08-Nov-19 21:34	1
13C2-4:2 FTS	IS	66.6	50 - 150		B9J0277	04-Nov-19	1.29 g	08-Nov-19 21:34	1
13C2-PFHxA	IS	69.1	50 - 150		B9J0277	04-Nov-19	1.29 g	08-Nov-19 21:34	1
13C4-PFHpA	IS	72.1	50 - 150		B9J0277	04-Nov-19	1.29 g	08-Nov-19 21:34	1
13C3-PFHxS	IS	68.6	50 - 150		B9J0277	04-Nov-19	1.29 g	08-Nov-19 21:34	1
13C2-6:2 FTS	IS	70.9	50 - 150		B9J0277	04-Nov-19	1.29 g	08-Nov-19 21:34	1
13C5-PFNA	IS	63.4	50 - 150		B9J0277	04-Nov-19	1.29 g	08-Nov-19 21:34	1
13C8-PFOSA	IS	53.9	50 - 150		B9J0277	04-Nov-19	1.29 g	08-Nov-19 21:34	1
13C2-PFOA	IS	72.8	50 - 150		B9J0277	04-Nov-19	1.29 g	08-Nov-19 21:34	1
13C8-PFOS	IS	65.8	50 - 150		B9J0277	04-Nov-19	1.29 g	08-Nov-19 21:34	1
13C2-PFDA	IS	60.3	50 - 150		B9J0277	04-Nov-19	1.29 g	08-Nov-19 21:34	1
13C2-8:2 FTS	IS	76.3	50 - 150		B9J0277	04-Nov-19	1.29 g	08-Nov-19 21:34	1

Sample ID: L11-1-1

PFAS Isotope Dilution Method

Client Data				**Laboratory Data**			
Name:	Woodard & Curran	Matrix:	Soil	Lab Sample:	1903732-11	Column:	BEH C18
Project:	SJC PFAS Investigation	Date Collected:	17-Oct-19 00:33	Date Received:	18-Oct-19 07:24		
Location:	Location 11			% Solids:	79.3		

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
d3-MeFOSAA	IS	62.9	50 - 150		B9J0277	04-Nov-19	1.29 g	08-Nov-19 21:34	1
13C2-PFUnA	IS	54.2	50 - 150		B9J0277	04-Nov-19	1.29 g	08-Nov-19 21:34	1
d5-EtFOSAA	IS	67.3	50 - 150		B9J0277	04-Nov-19	1.29 g	08-Nov-19 21:34	1
13C2-PFDoA	IS	56.1	50 - 150		B9J0277	04-Nov-19	1.29 g	08-Nov-19 21:34	1
13C2-PFTeDA	IS	63.3	50 - 150		B9J0277	04-Nov-19	1.29 g	08-Nov-19 21:34	1

RL - Reporting limit

The results are reported in dry weight.
The sample size is reported in wet weight.
Results reported to RL.

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

Sample ID: L11-1-5 **PFAS Isotope Dilution Method**

Client Data

Name: Woodard & Curran
Project: SJC PFAS Investigation
Location: Location 11
Matrix: Soil
Date Collected: 17-Oct-19 00:36

Laboratory Data

Lab Sample: 1903732-12
Date Received: 18-Oct-19 07:24
% Solids: 73.5
Column: BEH C18

Analyte	CAS Number	Conc. (ng/g)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	ND	2.00		B9J0277	04-Nov-19	1.36 g	08-Nov-19 21:45	1
PFPeA	2706-90-3	ND	2.00		B9J0277	04-Nov-19	1.36 g	08-Nov-19 21:45	1
PFBS	375-73-5	ND	2.00		B9J0277	04-Nov-19	1.36 g	08-Nov-19 21:45	1
4:2 FTS	757124-72-4	ND	2.00		B9J0277	04-Nov-19	1.36 g	08-Nov-19 21:45	1
PFHxA	307-24-4	ND	2.00		B9J0277	04-Nov-19	1.36 g	08-Nov-19 21:45	1
PFPeS	2706-91-4	ND	2.00		B9J0277	04-Nov-19	1.36 g	08-Nov-19 21:45	1
PFHpA	375-85-9	ND	2.00		B9J0277	04-Nov-19	1.36 g	08-Nov-19 21:45	1
PFHxS	355-46-4	ND	2.00		B9J0277	04-Nov-19	1.36 g	08-Nov-19 21:45	1
6:2 FTS	27619-97-2	ND	2.00		B9J0277	04-Nov-19	1.36 g	08-Nov-19 21:45	1
PFOA	335-67-1	ND	2.00		B9J0277	04-Nov-19	1.36 g	08-Nov-19 21:45	1
PFHpS	375-92-8	ND	2.00		B9J0277	04-Nov-19	1.36 g	08-Nov-19 21:45	1
PFNA	375-95-1	ND	2.00		B9J0277	04-Nov-19	1.36 g	08-Nov-19 21:45	1
PFOSA	754-91-6	ND	2.00		B9J0277	04-Nov-19	1.36 g	08-Nov-19 21:45	1
PFOS	1763-23-1	ND	2.00		B9J0277	04-Nov-19	1.36 g	08-Nov-19 21:45	1
PFDA	335-76-2	ND	2.00		B9J0277	04-Nov-19	1.36 g	08-Nov-19 21:45	1
8:2 FTS	39108-34-4	ND	2.00		B9J0277	04-Nov-19	1.36 g	08-Nov-19 21:45	1
MeFOSAA	2355-31-9	ND	2.00		B9J0277	04-Nov-19	1.36 g	08-Nov-19 21:45	1
EtFOSAA	2991-50-6	ND	2.00		B9J0277	04-Nov-19	1.36 g	08-Nov-19 21:45	1
PFUnA	2058-94-8	ND	2.00		B9J0277	04-Nov-19	1.36 g	08-Nov-19 21:45	1
PFDS	335-77-3	ND	2.00		B9J0277	04-Nov-19	1.36 g	08-Nov-19 21:45	1
PFDoA	307-55-1	ND	2.00		B9J0277	04-Nov-19	1.36 g	08-Nov-19 21:45	1
PFTrDA	72629-94-8	ND	2.00		B9J0277	04-Nov-19	1.36 g	08-Nov-19 21:45	1
PFTeDA	376-06-7	ND	2.00		B9J0277	04-Nov-19	1.36 g	08-Nov-19 21:45	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	96.5	50 - 150		B9J0277	04-Nov-19	1.36 g	08-Nov-19 21:45	1
13C3-PFPeA	IS	76.9	50 - 150		B9J0277	04-Nov-19	1.36 g	08-Nov-19 21:45	1
13C3-PFBS	IS	87.9	50 - 150		B9J0277	04-Nov-19	1.36 g	08-Nov-19 21:45	1
13C2-4:2 FTS	IS	84.8	50 - 150		B9J0277	04-Nov-19	1.36 g	08-Nov-19 21:45	1
13C2-PFHxA	IS	69.1	50 - 150		B9J0277	04-Nov-19	1.36 g	08-Nov-19 21:45	1
13C4-PFHpA	IS	76.1	50 - 150		B9J0277	04-Nov-19	1.36 g	08-Nov-19 21:45	1
13C3-PFHxS	IS	89.2	50 - 150		B9J0277	04-Nov-19	1.36 g	08-Nov-19 21:45	1
13C2-6:2 FTS	IS	86.5	50 - 150		B9J0277	04-Nov-19	1.36 g	08-Nov-19 21:45	1
13C5-PFNA	IS	64.8	50 - 150		B9J0277	04-Nov-19	1.36 g	08-Nov-19 21:45	1
13C8-PFOSA	IS	41.2	50 - 150	H	B9J0277	04-Nov-19	1.36 g	08-Nov-19 21:45	1
13C2-PFOA	IS	75.2	50 - 150		B9J0277	04-Nov-19	1.36 g	08-Nov-19 21:45	1
13C8-PFOS	IS	78.3	50 - 150		B9J0277	04-Nov-19	1.36 g	08-Nov-19 21:45	1
13C2-PFDA	IS	64.1	50 - 150		B9J0277	04-Nov-19	1.36 g	08-Nov-19 21:45	1
13C2-8:2 FTS	IS	86.4	50 - 150		B9J0277	04-Nov-19	1.36 g	08-Nov-19 21:45	1

Sample ID: L11-1-5

PFAS Isotope Dilution Method

Client Data			
Name:	Woodard & Curran	Matrix:	Soil
Project:	SJC PFAS Investigation	Date Collected:	17-Oct-19 00:36
Location:	Location 11		

Laboratory Data			
Lab Sample:	1903732-12	Column:	BEH C18
Date Received:	18-Oct-19 07:24		
% Solids:	73.5		

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
d3-MeFOSAA	IS	58.7	50 - 150		B9J0277	04-Nov-19	1.36 g	08-Nov-19 21:45	1
13C2-PFUnA	IS	56.7	50 - 150		B9J0277	04-Nov-19	1.36 g	08-Nov-19 21:45	1
d5-EtFOSAA	IS	73.6	50 - 150		B9J0277	04-Nov-19	1.36 g	08-Nov-19 21:45	1
13C2-PFDoA	IS	59.7	50 - 150		B9J0277	04-Nov-19	1.36 g	08-Nov-19 21:45	1
13C2-PFTeDA	IS	64.4	50 - 150		B9J0277	04-Nov-19	1.36 g	08-Nov-19 21:45	1

RL - Reporting limit

The results are reported in dry weight.
The sample size is reported in wet weight.
Results reported to RL.

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

Sample ID: L11-1-10 **PFAS Isotope Dilution Method**

Client Data				**Laboratory Data**			
Name:	Woodard & Curran	Matrix:	Soil	Lab Sample:	1903732-13	Column:	BEH C18
Project:	SJC PFAS Investigation	Date Collected:	17-Oct-19 00:40	Date Received:	18-Oct-19 07:24		
Location:	Location 11			% Solids:	76.8		

Analyte	CAS Number	Conc. (ng/g)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	ND	2.00		B9J0277	04-Nov-19	1.30 g	08-Nov-19 21:55	1
PFPeA	2706-90-3	ND	2.00		B9J0277	04-Nov-19	1.30 g	08-Nov-19 21:55	1
PFBS	375-73-5	ND	2.00		B9J0277	04-Nov-19	1.30 g	08-Nov-19 21:55	1
4:2 FTS	757124-72-4	ND	2.00		B9J0277	04-Nov-19	1.30 g	08-Nov-19 21:55	1
PFHxA	307-24-4	ND	2.00		B9J0277	04-Nov-19	1.30 g	08-Nov-19 21:55	1
PFPeS	2706-91-4	ND	2.00		B9J0277	04-Nov-19	1.30 g	08-Nov-19 21:55	1
PFHpA	375-85-9	ND	2.00		B9J0277	04-Nov-19	1.30 g	08-Nov-19 21:55	1
PFHxS	355-46-4	ND	2.00		B9J0277	04-Nov-19	1.30 g	08-Nov-19 21:55	1
6:2 FTS	27619-97-2	ND	2.00		B9J0277	04-Nov-19	1.30 g	08-Nov-19 21:55	1
PFOA	335-67-1	ND	2.00		B9J0277	04-Nov-19	1.30 g	08-Nov-19 21:55	1
PFHpS	375-92-8	ND	2.00		B9J0277	04-Nov-19	1.30 g	08-Nov-19 21:55	1
PFNA	375-95-1	ND	2.00		B9J0277	04-Nov-19	1.30 g	08-Nov-19 21:55	1
PFOSA	754-91-6	ND	2.00		B9J0277	04-Nov-19	1.30 g	08-Nov-19 21:55	1
PFOS	1763-23-1	ND	2.00		B9J0277	04-Nov-19	1.30 g	08-Nov-19 21:55	1
PFDA	335-76-2	ND	2.00		B9J0277	04-Nov-19	1.30 g	08-Nov-19 21:55	1
8:2 FTS	39108-34-4	ND	2.00		B9J0277	04-Nov-19	1.30 g	08-Nov-19 21:55	1
MeFOSAA	2355-31-9	ND	2.00		B9J0277	04-Nov-19	1.30 g	08-Nov-19 21:55	1
EtFOSAA	2991-50-6	ND	2.00		B9J0277	04-Nov-19	1.30 g	08-Nov-19 21:55	1
PFUnA	2058-94-8	ND	2.00		B9J0277	04-Nov-19	1.30 g	08-Nov-19 21:55	1
PFDS	335-77-3	ND	2.00		B9J0277	04-Nov-19	1.30 g	08-Nov-19 21:55	1
PFDoA	307-55-1	ND	2.00		B9J0277	04-Nov-19	1.30 g	08-Nov-19 21:55	1
PFTrDA	72629-94-8	ND	2.00		B9J0277	04-Nov-19	1.30 g	08-Nov-19 21:55	1
PFTeDA	376-06-7	ND	2.00		B9J0277	04-Nov-19	1.30 g	08-Nov-19 21:55	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	94.4	50 - 150		B9J0277	04-Nov-19	1.30 g	08-Nov-19 21:55	1
13C3-PFPeA	IS	72.4	50 - 150		B9J0277	04-Nov-19	1.30 g	08-Nov-19 21:55	1
13C3-PFBS	IS	77.4	50 - 150		B9J0277	04-Nov-19	1.30 g	08-Nov-19 21:55	1
13C2-4:2 FTS	IS	73.1	50 - 150		B9J0277	04-Nov-19	1.30 g	08-Nov-19 21:55	1
13C2-PFHxA	IS	69.0	50 - 150		B9J0277	04-Nov-19	1.30 g	08-Nov-19 21:55	1
13C4-PFHpA	IS	67.3	50 - 150		B9J0277	04-Nov-19	1.30 g	08-Nov-19 21:55	1
13C3-PFHxS	IS	75.9	50 - 150		B9J0277	04-Nov-19	1.30 g	08-Nov-19 21:55	1
13C2-6:2 FTS	IS	69.7	50 - 150		B9J0277	04-Nov-19	1.30 g	08-Nov-19 21:55	1
13C5-PFNA	IS	64.5	50 - 150		B9J0277	04-Nov-19	1.30 g	08-Nov-19 21:55	1
13C8-PFOSA	IS	52.7	50 - 150		B9J0277	04-Nov-19	1.30 g	08-Nov-19 21:55	1
13C2-PFOA	IS	74.5	50 - 150		B9J0277	04-Nov-19	1.30 g	08-Nov-19 21:55	1
13C8-PFOS	IS	62.9	50 - 150		B9J0277	04-Nov-19	1.30 g	08-Nov-19 21:55	1
13C2-PFDA	IS	60.9	50 - 150		B9J0277	04-Nov-19	1.30 g	08-Nov-19 21:55	1
13C2-8:2 FTS	IS	67.7	50 - 150		B9J0277	04-Nov-19	1.30 g	08-Nov-19 21:55	1

Sample ID: L11-1-10 **PFAS Isotope Dilution Method**

Client Data				**Laboratory Data**			
Name:	Woodard & Curran	Matrix:	Soil	Lab Sample:	1903732-13	Column:	BEH C18
Project:	SJC PFAS Investigation	Date Collected:	17-Oct-19 00:40	Date Received:	18-Oct-19 07:24		
Location:	Location 11			% Solids:	76.8		

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
d3-MeFOSAA	IS	61.4	50 - 150		B9J0277	04-Nov-19	1.30 g	08-Nov-19 21:55	1
13C2-PFUnA	IS	53.6	50 - 150		B9J0277	04-Nov-19	1.30 g	08-Nov-19 21:55	1
d5-EtFOSAA	IS	65.2	50 - 150		B9J0277	04-Nov-19	1.30 g	08-Nov-19 21:55	1
13C2-PFDoA	IS	56.6	50 - 150		B9J0277	04-Nov-19	1.30 g	08-Nov-19 21:55	1
13C2-PFTeDA	IS	49.9	50 - 150	H	B9J0277	04-Nov-19	1.30 g	08-Nov-19 21:55	1

RL - Reporting limit

The results are reported in dry weight.
The sample size is reported in wet weight.
Results reported to RL.

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

Sample ID: L11-2-1 **PFAS Isotope Dilution Method**

Client Data				**Laboratory Data**			
Name:	Woodard & Curran	Matrix:	Soil	Lab Sample:	1903732-14	Column:	BEH C18
Project:	SJC PFAS Investigation	Date Collected:	17-Oct-19 01:15	Date Received:	18-Oct-19 07:24		
Location:	Location 11			% Solids:	89.2		

Analyte	CAS Number	Conc. (ng/g)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	ND	1.99		B9J0277	04-Nov-19	1.13 g	08-Nov-19 22:06	1
PFPeA	2706-90-3	ND	1.99		B9J0277	04-Nov-19	1.13 g	08-Nov-19 22:06	1
PFBS	375-73-5	ND	1.99		B9J0277	04-Nov-19	1.13 g	08-Nov-19 22:06	1
4:2 FTS	757124-72-4	ND	1.99		B9J0277	04-Nov-19	1.13 g	08-Nov-19 22:06	1
PFHxA	307-24-4	ND	1.99		B9J0277	04-Nov-19	1.13 g	08-Nov-19 22:06	1
PFPeS	2706-91-4	ND	1.99		B9J0277	04-Nov-19	1.13 g	08-Nov-19 22:06	1
PFHpA	375-85-9	ND	1.99		B9J0277	04-Nov-19	1.13 g	08-Nov-19 22:06	1
PFHxS	355-46-4	ND	1.99		B9J0277	04-Nov-19	1.13 g	08-Nov-19 22:06	1
6:2 FTS	27619-97-2	ND	1.99		B9J0277	04-Nov-19	1.13 g	08-Nov-19 22:06	1
PFOA	335-67-1	ND	1.99		B9J0277	04-Nov-19	1.13 g	08-Nov-19 22:06	1
PFHpS	375-92-8	ND	1.99		B9J0277	04-Nov-19	1.13 g	08-Nov-19 22:06	1
PFNA	375-95-1	ND	1.99		B9J0277	04-Nov-19	1.13 g	08-Nov-19 22:06	1
PFOSA	754-91-6	ND	1.99		B9J0277	04-Nov-19	1.13 g	08-Nov-19 22:06	1
PFOS	1763-23-1	ND	1.99		B9J0277	04-Nov-19	1.13 g	08-Nov-19 22:06	1
PFDA	335-76-2	ND	1.99		B9J0277	04-Nov-19	1.13 g	08-Nov-19 22:06	1
8:2 FTS	39108-34-4	ND	1.99		B9J0277	04-Nov-19	1.13 g	08-Nov-19 22:06	1
MeFOSAA	2355-31-9	ND	1.99		B9J0277	04-Nov-19	1.13 g	08-Nov-19 22:06	1
EtFOSAA	2991-50-6	ND	1.99		B9J0277	04-Nov-19	1.13 g	08-Nov-19 22:06	1
PFUnA	2058-94-8	ND	1.99		B9J0277	04-Nov-19	1.13 g	08-Nov-19 22:06	1
PFDS	335-77-3	ND	1.99		B9J0277	04-Nov-19	1.13 g	08-Nov-19 22:06	1
PFDoA	307-55-1	ND	1.99		B9J0277	04-Nov-19	1.13 g	08-Nov-19 22:06	1
PFTrDA	72629-94-8	ND	1.99		B9J0277	04-Nov-19	1.13 g	08-Nov-19 22:06	1
PFTeDA	376-06-7	ND	1.99		B9J0277	04-Nov-19	1.13 g	08-Nov-19 22:06	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	101	50 - 150		B9J0277	04-Nov-19	1.13 g	08-Nov-19 22:06	1
13C3-PFPeA	IS	80.5	50 - 150		B9J0277	04-Nov-19	1.13 g	08-Nov-19 22:06	1
13C3-PFBS	IS	81.0	50 - 150		B9J0277	04-Nov-19	1.13 g	08-Nov-19 22:06	1
13C2-4:2 FTS	IS	76.6	50 - 150		B9J0277	04-Nov-19	1.13 g	08-Nov-19 22:06	1
13C2-PFHxA	IS	69.7	50 - 150		B9J0277	04-Nov-19	1.13 g	08-Nov-19 22:06	1
13C4-PFHpA	IS	75.4	50 - 150		B9J0277	04-Nov-19	1.13 g	08-Nov-19 22:06	1
13C3-PFHxS	IS	83.2	50 - 150		B9J0277	04-Nov-19	1.13 g	08-Nov-19 22:06	1
13C2-6:2 FTS	IS	75.3	50 - 150		B9J0277	04-Nov-19	1.13 g	08-Nov-19 22:06	1
13C5-PFNA	IS	67.4	50 - 150		B9J0277	04-Nov-19	1.13 g	08-Nov-19 22:06	1
13C8-PFOSA	IS	57.7	50 - 150		B9J0277	04-Nov-19	1.13 g	08-Nov-19 22:06	1
13C2-PFOA	IS	80.9	50 - 150		B9J0277	04-Nov-19	1.13 g	08-Nov-19 22:06	1
13C8-PFOS	IS	70.5	50 - 150		B9J0277	04-Nov-19	1.13 g	08-Nov-19 22:06	1
13C2-PFDA	IS	64.1	50 - 150		B9J0277	04-Nov-19	1.13 g	08-Nov-19 22:06	1
13C2-8:2 FTS	IS	90.6	50 - 150		B9J0277	04-Nov-19	1.13 g	08-Nov-19 22:06	1

Sample ID: L11-2-1 **PFAS Isotope Dilution Method**

Client Data				**Laboratory Data**			
Name:	Woodard & Curran	Matrix:	Soil	Lab Sample:	1903732-14	Column:	BEH C18
Project:	SJC PFAS Investigation	Date Collected:	17-Oct-19 01:15	Date Received:	18-Oct-19 07:24		
Location:	Location 11			% Solids:	89.2		

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
d3-MeFOSAA	IS	62.1	50 - 150		B9J0277	04-Nov-19	1.13 g	08-Nov-19 22:06	1
13C2-PFUnA	IS	60.9	50 - 150		B9J0277	04-Nov-19	1.13 g	08-Nov-19 22:06	1
d5-EtFOSAA	IS	71.0	50 - 150		B9J0277	04-Nov-19	1.13 g	08-Nov-19 22:06	1
13C2-PFDoA	IS	62.5	50 - 150		B9J0277	04-Nov-19	1.13 g	08-Nov-19 22:06	1
13C2-PFTeDA	IS	69.9	50 - 150		B9J0277	04-Nov-19	1.13 g	08-Nov-19 22:06	1

RL - Reporting limit

The results are reported in dry weight.
The sample size is reported in wet weight.
Results reported to RL.

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

Sample ID: L11-2-5 **PFAS Isotope Dilution Method**

Client Data				**Laboratory Data**			
Name:	Woodard & Curran	Matrix:	Soil	Lab Sample:	1903732-15	Column:	BEH C18
Project:	SJC PFAS Investigation	Date Collected:	17-Oct-19 01:18	Date Received:	18-Oct-19 07:24		
Location:	Location 11			% Solids:	79.6		

Analyte	CAS Number	Conc. (ng/g)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	ND	1.96		B9J0277	04-Nov-19	1.28 g	08-Nov-19 22:38	1
PFPeA	2706-90-3	ND	1.96		B9J0277	04-Nov-19	1.28 g	08-Nov-19 22:38	1
PFBS	375-73-5	ND	1.96		B9J0277	04-Nov-19	1.28 g	08-Nov-19 22:38	1
4:2 FTS	757124-72-4	ND	1.96		B9J0277	04-Nov-19	1.28 g	08-Nov-19 22:38	1
PFHxA	307-24-4	ND	1.96		B9J0277	04-Nov-19	1.28 g	08-Nov-19 22:38	1
PFPeS	2706-91-4	ND	1.96		B9J0277	04-Nov-19	1.28 g	08-Nov-19 22:38	1
PFHpA	375-85-9	ND	1.96		B9J0277	04-Nov-19	1.28 g	08-Nov-19 22:38	1
PFHxS	355-46-4	ND	1.96		B9J0277	04-Nov-19	1.28 g	08-Nov-19 22:38	1
6:2 FTS	27619-97-2	ND	1.96		B9J0277	04-Nov-19	1.28 g	08-Nov-19 22:38	1
PFOA	335-67-1	ND	1.96		B9J0277	04-Nov-19	1.28 g	08-Nov-19 22:38	1
PFHpS	375-92-8	ND	1.96		B9J0277	04-Nov-19	1.28 g	08-Nov-19 22:38	1
PFNA	375-95-1	ND	1.96		B9J0277	04-Nov-19	1.28 g	08-Nov-19 22:38	1
PFOSA	754-91-6	ND	1.96		B9J0277	04-Nov-19	1.28 g	08-Nov-19 22:38	1
PFOS	1763-23-1	ND	1.96		B9J0277	04-Nov-19	1.28 g	08-Nov-19 22:38	1
PFDA	335-76-2	ND	1.96		B9J0277	04-Nov-19	1.28 g	08-Nov-19 22:38	1
8:2 FTS	39108-34-4	ND	1.96		B9J0277	04-Nov-19	1.28 g	08-Nov-19 22:38	1
MeFOSAA	2355-31-9	ND	1.96		B9J0277	04-Nov-19	1.28 g	08-Nov-19 22:38	1
EtFOSAA	2991-50-6	ND	1.96		B9J0277	04-Nov-19	1.28 g	08-Nov-19 22:38	1
PFUnA	2058-94-8	ND	1.96		B9J0277	04-Nov-19	1.28 g	08-Nov-19 22:38	1
PFDS	335-77-3	ND	1.96		B9J0277	04-Nov-19	1.28 g	08-Nov-19 22:38	1
PFDoA	307-55-1	ND	1.96		B9J0277	04-Nov-19	1.28 g	08-Nov-19 22:38	1
PFTrDA	72629-94-8	ND	1.96		B9J0277	04-Nov-19	1.28 g	08-Nov-19 22:38	1
PFTeDA	376-06-7	ND	1.96		B9J0277	04-Nov-19	1.28 g	08-Nov-19 22:38	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	81.9	50 - 150		B9J0277	04-Nov-19	1.28 g	08-Nov-19 22:38	1
13C3-PFPeA	IS	66.7	50 - 150		B9J0277	04-Nov-19	1.28 g	08-Nov-19 22:38	1
13C3-PFBS	IS	79.1	50 - 150		B9J0277	04-Nov-19	1.28 g	08-Nov-19 22:38	1
13C2-4:2 FTS	IS	73.9	50 - 150		B9J0277	04-Nov-19	1.28 g	08-Nov-19 22:38	1
13C2-PFHxA	IS	62.4	50 - 150		B9J0277	04-Nov-19	1.28 g	08-Nov-19 22:38	1
13C4-PFHpA	IS	65.9	50 - 150		B9J0277	04-Nov-19	1.28 g	08-Nov-19 22:38	1
13C3-PFHxS	IS	75.0	50 - 150		B9J0277	04-Nov-19	1.28 g	08-Nov-19 22:38	1
13C2-6:2 FTS	IS	71.4	50 - 150		B9J0277	04-Nov-19	1.28 g	08-Nov-19 22:38	1
13C5-PFNA	IS	61.1	50 - 150		B9J0277	04-Nov-19	1.28 g	08-Nov-19 22:38	1
13C8-PFOSA	IS	38.3	50 - 150	H	B9J0277	04-Nov-19	1.28 g	08-Nov-19 22:38	1
13C2-PFOA	IS	72.1	50 - 150		B9J0277	04-Nov-19	1.28 g	08-Nov-19 22:38	1
13C8-PFOS	IS	68.2	50 - 150		B9J0277	04-Nov-19	1.28 g	08-Nov-19 22:38	1
13C2-PFDA	IS	55.6	50 - 150		B9J0277	04-Nov-19	1.28 g	08-Nov-19 22:38	1
13C2-8:2 FTS	IS	80.9	50 - 150		B9J0277	04-Nov-19	1.28 g	08-Nov-19 22:38	1

Sample ID: L11-2-5 **PFAS Isotope Dilution Method**

Client Data				**Laboratory Data**			
Name:	Woodard & Curran	Matrix:	Soil	Lab Sample:	1903732-15	Column:	BEH C18
Project:	SJC PFAS Investigation	Date Collected:	17-Oct-19 01:18	Date Received:	18-Oct-19 07:24		
Location:	Location 11			% Solids:	79.6		

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
d3-MeFOSAA	IS	49.5	50 - 150	H	B9J0277	04-Nov-19	1.28 g	08-Nov-19 22:38	1
13C2-PFUnA	IS	49.5	50 - 150	H	B9J0277	04-Nov-19	1.28 g	08-Nov-19 22:38	1
d5-EtFOSAA	IS	61.5	50 - 150		B9J0277	04-Nov-19	1.28 g	08-Nov-19 22:38	1
13C2-PFDoA	IS	51.1	50 - 150		B9J0277	04-Nov-19	1.28 g	08-Nov-19 22:38	1
13C2-PFTeDA	IS	57.5	50 - 150		B9J0277	04-Nov-19	1.28 g	08-Nov-19 22:38	1

RL - Reporting limit

The results are reported in dry weight.
The sample size is reported in wet weight.
Results reported to RL.

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

Sample ID: L11-2-10	**PFAS Isotope Dilution Method**

Client Data

Name:	Woodard & Curran	Matrix:	Soil
Project:	SJC PFAS Investigation	Date Collected:	17-Oct-19 01:20
Location:	Location 11		

Laboratory Data

Lab Sample:	1903732-16	Column:	BEH C18
Date Received:	18-Oct-19 07:24		
% Solids:	76.3		

Analyte	CAS Number	Conc. (ng/g)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	ND	1.94		B9J0277	04-Nov-19	1.35 g	08-Nov-19 22:48	1
PFPeA	2706-90-3	ND	1.94		B9J0277	04-Nov-19	1.35 g	08-Nov-19 22:48	1
PFBS	375-73-5	ND	1.94		B9J0277	04-Nov-19	1.35 g	08-Nov-19 22:48	1
4:2 FTS	757124-72-4	ND	1.94		B9J0277	04-Nov-19	1.35 g	08-Nov-19 22:48	1
PFHxA	307-24-4	ND	1.94		B9J0277	04-Nov-19	1.35 g	08-Nov-19 22:48	1
PFPeS	2706-91-4	ND	1.94		B9J0277	04-Nov-19	1.35 g	08-Nov-19 22:48	1
PFHpA	375-85-9	ND	1.94		B9J0277	04-Nov-19	1.35 g	08-Nov-19 22:48	1
PFHxS	355-46-4	ND	1.94		B9J0277	04-Nov-19	1.35 g	08-Nov-19 22:48	1
6:2 FTS	27619-97-2	ND	1.94		B9J0277	04-Nov-19	1.35 g	08-Nov-19 22:48	1
PFOA	335-67-1	ND	1.94		B9J0277	04-Nov-19	1.35 g	08-Nov-19 22:48	1
PFHpS	375-92-8	ND	1.94		B9J0277	04-Nov-19	1.35 g	08-Nov-19 22:48	1
PFNA	375-95-1	ND	1.94		B9J0277	04-Nov-19	1.35 g	08-Nov-19 22:48	1
PFOSA	754-91-6	ND	1.94		B9J0277	04-Nov-19	1.35 g	08-Nov-19 22:48	1
PFOS	1763-23-1	ND	1.94		B9J0277	04-Nov-19	1.35 g	08-Nov-19 22:48	1
PFDA	335-76-2	ND	1.94		B9J0277	04-Nov-19	1.35 g	08-Nov-19 22:48	1
8:2 FTS	39108-34-4	ND	1.94		B9J0277	04-Nov-19	1.35 g	08-Nov-19 22:48	1
MeFOSAA	2355-31-9	ND	1.94		B9J0277	04-Nov-19	1.35 g	08-Nov-19 22:48	1
EtFOSAA	2991-50-6	ND	1.94		B9J0277	04-Nov-19	1.35 g	08-Nov-19 22:48	1
PFUnA	2058-94-8	ND	1.94		B9J0277	04-Nov-19	1.35 g	08-Nov-19 22:48	1
PFDS	335-77-3	ND	1.94		B9J0277	04-Nov-19	1.35 g	08-Nov-19 22:48	1
PFDoA	307-55-1	ND	1.94		B9J0277	04-Nov-19	1.35 g	08-Nov-19 22:48	1
PFTrDA	72629-94-8	ND	1.94		B9J0277	04-Nov-19	1.35 g	08-Nov-19 22:48	1
PFTeDA	376-06-7	ND	1.94		B9J0277	04-Nov-19	1.35 g	08-Nov-19 22:48	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	90.2	50 - 150		B9J0277	04-Nov-19	1.35 g	08-Nov-19 22:48	1
13C3-PFPeA	IS	75.7	50 - 150		B9J0277	04-Nov-19	1.35 g	08-Nov-19 22:48	1
13C3-PFBS	IS	79.7	50 - 150		B9J0277	04-Nov-19	1.35 g	08-Nov-19 22:48	1
13C2-4:2 FTS	IS	79.6	50 - 150		B9J0277	04-Nov-19	1.35 g	08-Nov-19 22:48	1
13C2-PFHxA	IS	70.2	50 - 150		B9J0277	04-Nov-19	1.35 g	08-Nov-19 22:48	1
13C4-PFHpA	IS	69.4	50 - 150		B9J0277	04-Nov-19	1.35 g	08-Nov-19 22:48	1
13C3-PFHxS	IS	78.9	50 - 150		B9J0277	04-Nov-19	1.35 g	08-Nov-19 22:48	1
13C2-6:2 FTS	IS	74.5	50 - 150		B9J0277	04-Nov-19	1.35 g	08-Nov-19 22:48	1
13C5-PFNA	IS	61.5	50 - 150		B9J0277	04-Nov-19	1.35 g	08-Nov-19 22:48	1
13C8-PFOSA	IS	48.5	50 - 150	H	B9J0277	04-Nov-19	1.35 g	08-Nov-19 22:48	1
13C2-PFOA	IS	81.8	50 - 150		B9J0277	04-Nov-19	1.35 g	08-Nov-19 22:48	1
13C8-PFOS	IS	71.7	50 - 150		B9J0277	04-Nov-19	1.35 g	08-Nov-19 22:48	1
13C2-PFDA	IS	61.1	50 - 150		B9J0277	04-Nov-19	1.35 g	08-Nov-19 22:48	1
13C2-8:2 FTS	IS	75.7	50 - 150		B9J0277	04-Nov-19	1.35 g	08-Nov-19 22:48	1

Sample ID: L11-2-10 **PFAS Isotope Dilution Method**

Client Data				**Laboratory Data**			
Name:	Woodard & Curran	Matrix:	Soil	Lab Sample:	1903732-16	Column:	BEH C18
Project:	SJC PFAS Investigation	Date Collected:	17-Oct-19 01:20	Date Received:	18-Oct-19 07:24		
Location:	Location 11			% Solids:	76.3		

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
d3-MeFOSAA	IS	50.4	50 - 150		B9J0277	04-Nov-19	1.35 g	08-Nov-19 22:48	1
13C2-PFUnA	IS	61.3	50 - 150		B9J0277	04-Nov-19	1.35 g	08-Nov-19 22:48	1
d5-EtFOSAA	IS	71.7	50 - 150		B9J0277	04-Nov-19	1.35 g	08-Nov-19 22:48	1
13C2-PFDoA	IS	61.6	50 - 150		B9J0277	04-Nov-19	1.35 g	08-Nov-19 22:48	1
13C2-PFTeDA	IS	50.8	50 - 150		B9J0277	04-Nov-19	1.35 g	08-Nov-19 22:48	1

RL - Reporting limit

The results are reported in dry weight.
The sample size is reported in wet weight.
Results reported to RL.

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

Sample ID: L11-3-1 **PFAS Isotope Dilution Method**

Client Data				**Laboratory Data**			
Name:	Woodard & Curran	Matrix:	Soil	Lab Sample:	1903732-17	Column:	BEH C18
Project:	SJC PFAS Investigation	Date Collected:	17-Oct-19 02:13	Date Received:	18-Oct-19 07:24		
Location:	Location 11			% Solids:	89.9		

Analyte	CAS Number	Conc. (ng/g)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	ND	2.00		B9J0277	04-Nov-19	1.11 g	08-Nov-19 22:59	1
PFPeA	2706-90-3	ND	2.00		B9J0277	04-Nov-19	1.11 g	08-Nov-19 22:59	1
PFBS	375-73-5	ND	2.00		B9J0277	04-Nov-19	1.11 g	08-Nov-19 22:59	1
4:2 FTS	757124-72-4	ND	2.00		B9J0277	04-Nov-19	1.11 g	08-Nov-19 22:59	1
PFHxA	307-24-4	ND	2.00		B9J0277	04-Nov-19	1.11 g	08-Nov-19 22:59	1
PFPeS	2706-91-4	ND	2.00		B9J0277	04-Nov-19	1.11 g	08-Nov-19 22:59	1
PFHpA	375-85-9	ND	2.00		B9J0277	04-Nov-19	1.11 g	08-Nov-19 22:59	1
PFHxS	355-46-4	ND	2.00		B9J0277	04-Nov-19	1.11 g	08-Nov-19 22:59	1
6:2 FTS	27619-97-2	ND	2.00		B9J0277	04-Nov-19	1.11 g	08-Nov-19 22:59	1
PFOA	335-67-1	ND	2.00		B9J0277	04-Nov-19	1.11 g	08-Nov-19 22:59	1
PFHpS	375-92-8	ND	2.00		B9J0277	04-Nov-19	1.11 g	08-Nov-19 22:59	1
PFNA	375-95-1	ND	2.00		B9J0277	04-Nov-19	1.11 g	08-Nov-19 22:59	1
PFOSA	754-91-6	ND	2.00		B9J0277	04-Nov-19	1.11 g	08-Nov-19 22:59	1
PFOS	1763-23-1	ND	2.00		B9J0277	04-Nov-19	1.11 g	08-Nov-19 22:59	1
PFDA	335-76-2	ND	2.00		B9J0277	04-Nov-19	1.11 g	08-Nov-19 22:59	1
8:2 FTS	39108-34-4	ND	2.00		B9J0277	04-Nov-19	1.11 g	08-Nov-19 22:59	1
MeFOSAA	2355-31-9	ND	2.00		B9J0277	04-Nov-19	1.11 g	08-Nov-19 22:59	1
EtFOSAA	2991-50-6	ND	2.00		B9J0277	04-Nov-19	1.11 g	08-Nov-19 22:59	1
PFUnA	2058-94-8	ND	2.00		B9J0277	04-Nov-19	1.11 g	08-Nov-19 22:59	1
PFDS	335-77-3	ND	2.00		B9J0277	04-Nov-19	1.11 g	08-Nov-19 22:59	1
PFDoA	307-55-1	ND	2.00		B9J0277	04-Nov-19	1.11 g	08-Nov-19 22:59	1
PFTrDA	72629-94-8	ND	2.00		B9J0277	04-Nov-19	1.11 g	08-Nov-19 22:59	1
PFTeDA	376-06-7	ND	2.00		B9J0277	04-Nov-19	1.11 g	08-Nov-19 22:59	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	103	50 - 150		B9J0277	04-Nov-19	1.11 g	08-Nov-19 22:59	1
13C3-PFPeA	IS	80.5	50 - 150		B9J0277	04-Nov-19	1.11 g	08-Nov-19 22:59	1
13C3-PFBS	IS	83.5	50 - 150		B9J0277	04-Nov-19	1.11 g	08-Nov-19 22:59	1
13C2-4:2 FTS	IS	80.5	50 - 150		B9J0277	04-Nov-19	1.11 g	08-Nov-19 22:59	1
13C2-PFHxA	IS	71.9	50 - 150		B9J0277	04-Nov-19	1.11 g	08-Nov-19 22:59	1
13C4-PFHpA	IS	76.4	50 - 150		B9J0277	04-Nov-19	1.11 g	08-Nov-19 22:59	1
13C3-PFHxS	IS	77.7	50 - 150		B9J0277	04-Nov-19	1.11 g	08-Nov-19 22:59	1
13C2-6:2 FTS	IS	73.4	50 - 150		B9J0277	04-Nov-19	1.11 g	08-Nov-19 22:59	1
13C5-PFNA	IS	68.0	50 - 150		B9J0277	04-Nov-19	1.11 g	08-Nov-19 22:59	1
13C8-PFOSA	IS	48.8	50 - 150	H	B9J0277	04-Nov-19	1.11 g	08-Nov-19 22:59	1
13C2-PFOA	IS	82.3	50 - 150		B9J0277	04-Nov-19	1.11 g	08-Nov-19 22:59	1
13C8-PFOS	IS	74.1	50 - 150		B9J0277	04-Nov-19	1.11 g	08-Nov-19 22:59	1
13C2-PFDA	IS	65.0	50 - 150		B9J0277	04-Nov-19	1.11 g	08-Nov-19 22:59	1
13C2-8:2 FTS	IS	87.8	50 - 150		B9J0277	04-Nov-19	1.11 g	08-Nov-19 22:59	1

Sample ID: L11-3-1

PFAS Isotope Dilution Method

Client Data			
Name:	Woodard & Curran	Matrix:	Soil
Project:	SJC PFAS Investigation	Date Collected:	17-Oct-19 02:13
Location:	Location 11		

Laboratory Data			
Lab Sample:	1903732-17	Column:	BEH C18
Date Received:	18-Oct-19 07:24		
% Solids:	89.9		

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
d3-MeFOSAA	IS	62.3	50 - 150		B9J0277	04-Nov-19	1.11 g	08-Nov-19 22:59	1
13C2-PFUnA	IS	59.6	50 - 150		B9J0277	04-Nov-19	1.11 g	08-Nov-19 22:59	1
d5-EtFOSAA	IS	73.0	50 - 150		B9J0277	04-Nov-19	1.11 g	08-Nov-19 22:59	1
13C2-PFDoA	IS	63.3	50 - 150		B9J0277	04-Nov-19	1.11 g	08-Nov-19 22:59	1
13C2-PFTeDA	IS	68.9	50 - 150		B9J0277	04-Nov-19	1.11 g	08-Nov-19 22:59	1

RL - Reporting limit

The results are reported in dry weight.
The sample size is reported in wet weight.
Results reported to RL.

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

Sample ID: L11-3-5 **PFAS Isotope Dilution Method**

Client Data				**Laboratory Data**			
Name:	Woodard & Curran	Matrix:	Soil	Lab Sample:	1903732-18	Column:	BEH C18
Project:	SJC PFAS Investigation	Date Collected:	17-Oct-19 02:16	Date Received:	18-Oct-19 07:24		
Location:	Location 11			% Solids:	82.8		

Analyte	CAS Number	Conc. (ng/g)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	ND	1.93		B9J0277	04-Nov-19	1.25 g	08-Nov-19 23:10	1
PFPeA	2706-90-3	ND	1.93		B9J0277	04-Nov-19	1.25 g	08-Nov-19 23:10	1
PFBS	375-73-5	ND	1.93		B9J0277	04-Nov-19	1.25 g	08-Nov-19 23:10	1
4:2 FTS	757124-72-4	ND	1.93		B9J0277	04-Nov-19	1.25 g	08-Nov-19 23:10	1
PFHxA	307-24-4	ND	1.93		B9J0277	04-Nov-19	1.25 g	08-Nov-19 23:10	1
PFPeS	2706-91-4	ND	1.93		B9J0277	04-Nov-19	1.25 g	08-Nov-19 23:10	1
PFHpA	375-85-9	ND	1.93		B9J0277	04-Nov-19	1.25 g	08-Nov-19 23:10	1
PFHxS	355-46-4	ND	1.93		B9J0277	04-Nov-19	1.25 g	08-Nov-19 23:10	1
6:2 FTS	27619-97-2	ND	1.93		B9J0277	04-Nov-19	1.25 g	08-Nov-19 23:10	1
PFOA	335-67-1	ND	1.93		B9J0277	04-Nov-19	1.25 g	08-Nov-19 23:10	1
PFHpS	375-92-8	ND	1.93		B9J0277	04-Nov-19	1.25 g	08-Nov-19 23:10	1
PFNA	375-95-1	ND	1.93		B9J0277	04-Nov-19	1.25 g	08-Nov-19 23:10	1
PFOSA	754-91-6	ND	1.93		B9J0277	04-Nov-19	1.25 g	08-Nov-19 23:10	1
PFOS	1763-23-1	ND	1.93		B9J0277	04-Nov-19	1.25 g	08-Nov-19 23:10	1
PFDA	335-76-2	ND	1.93		B9J0277	04-Nov-19	1.25 g	08-Nov-19 23:10	1
8:2 FTS	39108-34-4	ND	1.93		B9J0277	04-Nov-19	1.25 g	08-Nov-19 23:10	1
MeFOSAA	2355-31-9	ND	1.93		B9J0277	04-Nov-19	1.25 g	08-Nov-19 23:10	1
EtFOSAA	2991-50-6	ND	1.93		B9J0277	04-Nov-19	1.25 g	08-Nov-19 23:10	1
PFUnA	2058-94-8	ND	1.93		B9J0277	04-Nov-19	1.25 g	08-Nov-19 23:10	1
PFDS	335-77-3	ND	1.93		B9J0277	04-Nov-19	1.25 g	08-Nov-19 23:10	1
PFDoA	307-55-1	ND	1.93		B9J0277	04-Nov-19	1.25 g	08-Nov-19 23:10	1
PFTrDA	72629-94-8	ND	1.93		B9J0277	04-Nov-19	1.25 g	08-Nov-19 23:10	1
PFTeDA	376-06-7	ND	1.93		B9J0277	04-Nov-19	1.25 g	08-Nov-19 23:10	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	95.7	50 - 150		B9J0277	04-Nov-19	1.25 g	08-Nov-19 23:10	1
13C3-PFPeA	IS	75.1	50 - 150		B9J0277	04-Nov-19	1.25 g	08-Nov-19 23:10	1
13C3-PFBS	IS	80.2	50 - 150		B9J0277	04-Nov-19	1.25 g	08-Nov-19 23:10	1
13C2-4:2 FTS	IS	76.4	50 - 150		B9J0277	04-Nov-19	1.25 g	08-Nov-19 23:10	1
13C2-PFHxA	IS	72.0	50 - 150		B9J0277	04-Nov-19	1.25 g	08-Nov-19 23:10	1
13C4-PFHpA	IS	73.7	50 - 150		B9J0277	04-Nov-19	1.25 g	08-Nov-19 23:10	1
13C3-PFHxS	IS	77.4	50 - 150		B9J0277	04-Nov-19	1.25 g	08-Nov-19 23:10	1
13C2-6:2 FTS	IS	76.8	50 - 150		B9J0277	04-Nov-19	1.25 g	08-Nov-19 23:10	1
13C5-PFNA	IS	66.9	50 - 150		B9J0277	04-Nov-19	1.25 g	08-Nov-19 23:10	1
13C8-PFOSA	IS	54.3	50 - 150		B9J0277	04-Nov-19	1.25 g	08-Nov-19 23:10	1
13C2-PFOA	IS	76.3	50 - 150		B9J0277	04-Nov-19	1.25 g	08-Nov-19 23:10	1
13C8-PFOS	IS	70.5	50 - 150		B9J0277	04-Nov-19	1.25 g	08-Nov-19 23:10	1
13C2-PFDA	IS	63.8	50 - 150		B9J0277	04-Nov-19	1.25 g	08-Nov-19 23:10	1
13C2-8:2 FTS	IS	79.9	50 - 150		B9J0277	04-Nov-19	1.25 g	08-Nov-19 23:10	1

Sample ID: L11-3-5 **PFAS Isotope Dilution Method**

Client Data				**Laboratory Data**			
Name:	Woodard & Curran	Matrix:	Soil	Lab Sample:	1903732-18	Column:	BEH C18
Project:	SJC PFAS Investigation	Date Collected:	17-Oct-19 02:16	Date Received:	18-Oct-19 07:24		
Location:	Location 11			% Solids:	82.8		

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
d3-MeFOSAA	IS	57.0	50 - 150		B9J0277	04-Nov-19	1.25 g	08-Nov-19 23:10	1
13C2-PFUnA	IS	57.2	50 - 150		B9J0277	04-Nov-19	1.25 g	08-Nov-19 23:10	1
d5-EtFOSAA	IS	68.4	50 - 150		B9J0277	04-Nov-19	1.25 g	08-Nov-19 23:10	1
13C2-PFDoA	IS	57.8	50 - 150		B9J0277	04-Nov-19	1.25 g	08-Nov-19 23:10	1
13C2-PFTeDA	IS	60.0	50 - 150		B9J0277	04-Nov-19	1.25 g	08-Nov-19 23:10	1

RL - Reporting limit

The results are reported in dry weight.
The sample size is reported in wet weight.
Results reported to RL.

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

Sample ID: L11-3-10 **PFAS Isotope Dilution Method**

Client Data				**Laboratory Data**			
Name:	Woodard & Curran	Matrix:	Soil	Lab Sample:	1903732-19	Column:	BEH C18
Project:	SJC PFAS Investigation	Date Collected:	17-Oct-19 02:18	Date Received:	18-Oct-19 07:24		
Location:	Location 11			% Solids:	78.9		

Analyte	CAS Number	Conc. (ng/g)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	ND	1.98		B9J0277	04-Nov-19	1.28 g	08-Nov-19 23:20	1
PFPeA	2706-90-3	ND	1.98		B9J0277	04-Nov-19	1.28 g	08-Nov-19 23:20	1
PFBS	375-73-5	ND	1.98		B9J0277	04-Nov-19	1.28 g	08-Nov-19 23:20	1
4:2 FTS	757124-72-4	ND	1.98		B9J0277	04-Nov-19	1.28 g	08-Nov-19 23:20	1
PFHxA	307-24-4	ND	1.98		B9J0277	04-Nov-19	1.28 g	08-Nov-19 23:20	1
PFPeS	2706-91-4	ND	1.98		B9J0277	04-Nov-19	1.28 g	08-Nov-19 23:20	1
PFHpA	375-85-9	ND	1.98		B9J0277	04-Nov-19	1.28 g	08-Nov-19 23:20	1
PFHxS	355-46-4	ND	1.98		B9J0277	04-Nov-19	1.28 g	08-Nov-19 23:20	1
6:2 FTS	27619-97-2	ND	1.98		B9J0277	04-Nov-19	1.28 g	08-Nov-19 23:20	1
PFOA	335-67-1	ND	1.98		B9J0277	04-Nov-19	1.28 g	08-Nov-19 23:20	1
PFHpS	375-92-8	ND	1.98		B9J0277	04-Nov-19	1.28 g	08-Nov-19 23:20	1
PFNA	375-95-1	ND	1.98		B9J0277	04-Nov-19	1.28 g	08-Nov-19 23:20	1
PFOSA	754-91-6	ND	1.98		B9J0277	04-Nov-19	1.28 g	08-Nov-19 23:20	1
PFOS	1763-23-1	ND	1.98		B9J0277	04-Nov-19	1.28 g	08-Nov-19 23:20	1
PFDA	335-76-2	ND	1.98		B9J0277	04-Nov-19	1.28 g	08-Nov-19 23:20	1
8:2 FTS	39108-34-4	ND	1.98		B9J0277	04-Nov-19	1.28 g	08-Nov-19 23:20	1
MeFOSAA	2355-31-9	ND	1.98		B9J0277	04-Nov-19	1.28 g	08-Nov-19 23:20	1
EtFOSAA	2991-50-6	ND	1.98		B9J0277	04-Nov-19	1.28 g	08-Nov-19 23:20	1
PFUnA	2058-94-8	ND	1.98		B9J0277	04-Nov-19	1.28 g	08-Nov-19 23:20	1
PFDS	335-77-3	ND	1.98		B9J0277	04-Nov-19	1.28 g	08-Nov-19 23:20	1
PFDoA	307-55-1	ND	1.98		B9J0277	04-Nov-19	1.28 g	08-Nov-19 23:20	1
PFTrDA	72629-94-8	ND	1.98		B9J0277	04-Nov-19	1.28 g	08-Nov-19 23:20	1
PFTeDA	376-06-7	ND	1.98		B9J0277	04-Nov-19	1.28 g	08-Nov-19 23:20	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	85.1	50 - 150		B9J0277	04-Nov-19	1.28 g	08-Nov-19 23:20	1
13C3-PFPeA	IS	64.9	50 - 150		B9J0277	04-Nov-19	1.28 g	08-Nov-19 23:20	1
13C3-PFBS	IS	80.7	50 - 150		B9J0277	04-Nov-19	1.28 g	08-Nov-19 23:20	1
13C2-4:2 FTS	IS	76.9	50 - 150		B9J0277	04-Nov-19	1.28 g	08-Nov-19 23:20	1
13C2-PFHxA	IS	66.7	50 - 150		B9J0277	04-Nov-19	1.28 g	08-Nov-19 23:20	1
13C4-PFHpA	IS	69.8	50 - 150		B9J0277	04-Nov-19	1.28 g	08-Nov-19 23:20	1
13C3-PFHxS	IS	77.0	50 - 150		B9J0277	04-Nov-19	1.28 g	08-Nov-19 23:20	1
13C2-6:2 FTS	IS	68.4	50 - 150		B9J0277	04-Nov-19	1.28 g	08-Nov-19 23:20	1
13C5-PFNA	IS	59.9	50 - 150		B9J0277	04-Nov-19	1.28 g	08-Nov-19 23:20	1
13C8-PFOSA	IS	42.0	50 - 150	H	B9J0277	04-Nov-19	1.28 g	08-Nov-19 23:20	1
13C2-PFOA	IS	70.5	50 - 150		B9J0277	04-Nov-19	1.28 g	08-Nov-19 23:20	1
13C8-PFOS	IS	68.3	50 - 150		B9J0277	04-Nov-19	1.28 g	08-Nov-19 23:20	1
13C2-PFDA	IS	61.9	50 - 150		B9J0277	04-Nov-19	1.28 g	08-Nov-19 23:20	1
13C2-8:2 FTS	IS	80.4	50 - 150		B9J0277	04-Nov-19	1.28 g	08-Nov-19 23:20	1

Sample ID: L11-3-10

PFAS Isotope Dilution Method

Client Data

Name:	Woodard & Curran	Matrix:	Soil
Project:	SJC PFAS Investigation	Date Collected:	17-Oct-19 02:18
Location:	Location 11		

Laboratory Data

Lab Sample:	1903732-19	Column:	BEH C18
Date Received:	18-Oct-19 07:24		
% Solids:	78.9		

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
d3-MeFOSAA	IS	54.7	50 - 150		B9J0277	04-Nov-19	1.28 g	08-Nov-19 23:20	1
13C2-PFUnA	IS	58.4	50 - 150		B9J0277	04-Nov-19	1.28 g	08-Nov-19 23:20	1
d5-EtFOSAA	IS	68.0	50 - 150		B9J0277	04-Nov-19	1.28 g	08-Nov-19 23:20	1
13C2-PFDoA	IS	59.6	50 - 150		B9J0277	04-Nov-19	1.28 g	08-Nov-19 23:20	1
13C2-PFTeDA	IS	48.3	50 - 150	H	B9J0277	04-Nov-19	1.28 g	08-Nov-19 23:20	1

RL - Reporting limit

The results are reported in dry weight.
The sample size is reported in wet weight.
Results reported to RL.

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

Sample ID: Method Blank **PFAS Isotope Dilution Method**

Client Data				**Laboratory Data**			
Name:	Woodard & Curran	Matrix:	Aqueous	Lab Sample:	B9J0240-BLK1	Column:	BEH C18
Project:	SJC PFAS Investigation						

Analyte	CAS Number	Conc. (ng/L)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	ND	2.00		B9J0240	30-Oct-19	0.250 L	06-Nov-19 21:02	1
PFPeA	2706-90-3	ND	2.00		B9J0240	30-Oct-19	0.250 L	06-Nov-19 21:02	1
PFBS	375-73-5	ND	2.00		B9J0240	30-Oct-19	0.250 L	06-Nov-19 21:02	1
4:2 FTS	757124-72-4	ND	2.00		B9J0240	30-Oct-19	0.250 L	06-Nov-19 21:02	1
PFHxA	307-24-4	ND	2.00		B9J0240	30-Oct-19	0.250 L	06-Nov-19 21:02	1
PFPeS	2706-91-4	ND	2.00		B9J0240	30-Oct-19	0.250 L	06-Nov-19 21:02	1
PFHpA	375-85-9	ND	2.00		B9J0240	30-Oct-19	0.250 L	06-Nov-19 21:02	1
PFHxS	355-46-4	ND	2.00		B9J0240	30-Oct-19	0.250 L	06-Nov-19 21:02	1
6:2 FTS	27619-97-2	ND	2.00		B9J0240	30-Oct-19	0.250 L	06-Nov-19 21:02	1
PFOA	335-67-1	ND	2.00		B9J0240	30-Oct-19	0.250 L	06-Nov-19 21:02	1
PFHpS	375-92-8	ND	2.00		B9J0240	30-Oct-19	0.250 L	06-Nov-19 21:02	1
PFNA	375-95-1	ND	2.00		B9J0240	30-Oct-19	0.250 L	06-Nov-19 21:02	1
PFOSA	754-91-6	ND	2.00		B9J0240	30-Oct-19	0.250 L	06-Nov-19 21:02	1
PFOS	1763-23-1	ND	2.00		B9J0240	30-Oct-19	0.250 L	06-Nov-19 21:02	1
PFDA	335-76-2	ND	2.00		B9J0240	30-Oct-19	0.250 L	06-Nov-19 21:02	1
8:2 FTS	39108-34-4	ND	2.00		B9J0240	30-Oct-19	0.250 L	06-Nov-19 21:02	1
MeFOSAA	2355-31-9	ND	2.00		B9J0240	30-Oct-19	0.250 L	06-Nov-19 21:02	1
EtFOSAA	2991-50-6	ND	2.00		B9J0240	30-Oct-19	0.250 L	06-Nov-19 21:02	1
PFUnA	2058-94-8	ND	2.00		B9J0240	30-Oct-19	0.250 L	06-Nov-19 21:02	1
PFDS	335-77-3	ND	2.00		B9J0240	30-Oct-19	0.250 L	06-Nov-19 21:02	1
PFDoA	307-55-1	ND	2.00		B9J0240	30-Oct-19	0.250 L	06-Nov-19 21:02	1
PFTrDA	72629-94-8	ND	2.00		B9J0240	30-Oct-19	0.250 L	06-Nov-19 21:02	1
PFTeDA	376-06-7	ND	2.00		B9J0240	30-Oct-19	0.250 L	06-Nov-19 21:02	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	113	50 - 150		B9J0240	30-Oct-19	0.250 L	06-Nov-19 21:02	1
13C3-PFPeA	IS	110	50 - 150		B9J0240	30-Oct-19	0.250 L	06-Nov-19 21:02	1
13C3-PFBS	IS	127	50 - 150		B9J0240	30-Oct-19	0.250 L	06-Nov-19 21:02	1
13C2-4:2 FTS	IS	123	50 - 150		B9J0240	30-Oct-19	0.250 L	06-Nov-19 21:02	1
13C2-PFHxA	IS	106	50 - 150		B9J0240	30-Oct-19	0.250 L	06-Nov-19 21:02	1
13C4-PFHpA	IS	101	50 - 150		B9J0240	30-Oct-19	0.250 L	06-Nov-19 21:02	1
13C3-PFHxS	IS	112	50 - 150		B9J0240	30-Oct-19	0.250 L	06-Nov-19 21:02	1
13C2-6:2 FTS	IS	108	50 - 150		B9J0240	30-Oct-19	0.250 L	06-Nov-19 21:02	1
13C5-PFNA	IS	115	50 - 150		B9J0240	30-Oct-19	0.250 L	06-Nov-19 21:02	1
13C8-PFOSA	IS	31.2	50 - 150	H	B9J0240	30-Oct-19	0.250 L	06-Nov-19 21:02	1
13C2-PFOA	IS	122	50 - 150		B9J0240	30-Oct-19	0.250 L	06-Nov-19 21:02	1
13C8-PFOS	IS	110	50 - 150		B9J0240	30-Oct-19	0.250 L	06-Nov-19 21:02	1
13C2-PFDA	IS	106	50 - 150		B9J0240	30-Oct-19	0.250 L	06-Nov-19 21:02	1
13C2-8:2 FTS	IS	109	50 - 150		B9J0240	30-Oct-19	0.250 L	06-Nov-19 21:02	1

Sample ID: Method Blank

PFAS Isotope Dilution Method

Client Data				**Laboratory Data**			
Name:	Woodard & Curran	Matrix:	Aqueous	Lab Sample:	B9J0240-BLK1	Column:	BEH C18
Project:	SJC PFAS Investigation						

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
d3-MeFOSAA	IS	97.2	50 - 150		B9J0240	30-Oct-19	0.250 L	06-Nov-19 21:02	1
13C2-PFUnA	IS	93.8	50 - 150		B9J0240	30-Oct-19	0.250 L	06-Nov-19 21:02	1
d5-EtFOSAA	IS	98.7	50 - 150		B9J0240	30-Oct-19	0.250 L	06-Nov-19 21:02	1
13C2-PFDoA	IS	89.0	50 - 150		B9J0240	30-Oct-19	0.250 L	06-Nov-19 21:02	1
13C2-PFTeDA	IS	89.2	50 - 150		B9J0240	30-Oct-19	0.250 L	06-Nov-19 21:02	1

RL - Reporting limit

Results reported to RL.

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

Sample ID: LCSD **PFAS Isotope Dilution Method**

Name:	Woodard & Curran	Lab Sample:	B9J0240-BS1/B9J0240-BSD1		
Project:	SJC PFAS Investigation	QC Batch:	B9J0240	Date Extracted:	30-Oct-19
Matrix:	Aqueous	Samp Size:	0.250/0.250 L	Column:	BEH C18

Analyte	CAS Number	LCS (ng/L)	LCS Spike	LCS % Rec	LCS Quals	LCSD (ng/L)	LCSD Spike	LCSD % Rec	RPD	LCSD Quals	%Rec Limits	RPD Limits	LCS Analyzed	LCS Dil	LCSD Analyzed	LCSD Dil
PFBA	375-22-4	42.2	40.0	106		41.1	40.0	103	2.57		73-129	30	06-Nov-19 21:12	1	06-Nov-19 21:23	1
PFPeA	2706-90-3	41.6	40.0	104		43.1	40.0	108	3.75		72-129	30	06-Nov-19 21:12	1	06-Nov-19 21:23	1
PFBS	375-73-5	42.4	40.0	106		40.4	40.0	101	5.04		72-130	30	06-Nov-19 21:12	1	06-Nov-19 21:23	1
4:2 FTS	757124-72-4	36.6	40.0	91.5		36.1	40.0	90.2	1.47		63-143	30	06-Nov-19 21:12	1	06-Nov-19 21:23	1
PFHxA	307-24-4	45.8	40.0	114		45.4	40.0	113	0.867		72-129	30	06-Nov-19 21:12	1	06-Nov-19 21:23	1
PFPeS	2706-91-4	45.4	40.0	113		41.8	40.0	105	8.23		71-127	30	06-Nov-19 21:12	1	06-Nov-19 21:23	1
PFHpA	375-85-9	46.4	40.0	116		43.6	40.0	109	6.22		72-130	30	06-Nov-19 21:12	1	06-Nov-19 21:23	1
PFHxS	355-46-4	39.3	40.0	98.1		38.4	40.0	95.9	2.27		68-131	30	06-Nov-19 21:12	1	06-Nov-19 21:23	1
6:2 FTS	27619-97-2	36.9	40.0	92.2		39.6	40.0	99.0	7.11		64-140	30	06-Nov-19 21:12	1	06-Nov-19 21:23	1
PFOA	335-67-1	46.2	40.0	115		42.4	40.0	106	8.41		71-133	30	06-Nov-19 21:12	1	06-Nov-19 21:23	1
PFHpS	375-92-8	44.6	40.0	111		45.3	40.0	113	1.51		69-134	30	06-Nov-19 21:12	1	06-Nov-19 21:23	1
PFNA	375-95-1	39.6	40.0	98.9		39.9	40.0	99.7	0.766		69-130	30	06-Nov-19 21:12	1	06-Nov-19 21:23	1
PFOSA	754-91-6	48.7	40.0	122		47.2	40.0	118	3.14		67-137	30	06-Nov-19 21:12	1	06-Nov-19 21:23	1
PFOS	1763-23-1	40.4	40.0	101		41.0	40.0	103	1.61		65-140	30	06-Nov-19 21:12	1	06-Nov-19 21:23	1
PFDA	335-76-2	43.9	40.0	110		43.1	40.0	108	1.84		71-129	30	06-Nov-19 21:12	1	06-Nov-19 21:23	1
8:2 FTS	39108-34-4	43.9	40.0	110		41.4	40.0	103	6.00		67-138	30	06-Nov-19 21:12	1	06-Nov-19 21:23	1
MeFOSAA	2355-31-9	33.6	40.0	83.9		33.4	40.0	83.5	0.550		65-136	30	06-Nov-19 21:12	1	06-Nov-19 21:23	1
EtFOSAA	2991-50-6	42.4	40.0	106		40.8	40.0	102	3.91		61-135	30	06-Nov-19 21:12	1	06-Nov-19 21:23	1
PFUnA	2058-94-8	40.5	40.0	101		42.0	40.0	105	3.62		69-133	30	06-Nov-19 21:12	1	06-Nov-19 21:23	1
PFDS	335-77-3	34.2	40.0	85.4		36.7	40.0	91.7	7.10		53-142	30	06-Nov-19 21:12	1	06-Nov-19 21:23	1
PFDoA	307-55-1	43.6	40.0	109		44.0	40.0	110	0.879		72-134	30	06-Nov-19 21:12	1	06-Nov-19 21:23	1
PFTrDA	72629-94-8	37.5	40.0	93.8		37.5	40.0	93.8	0.00135		65-144	30	06-Nov-19 21:12	1	06-Nov-19 21:23	1
PFTeDA	376-06-7	42.4	40.0	106		42.8	40.0	107	0.985		71-132	30	06-Nov-19 21:12	1	06-Nov-19 21:23	1

Labeled Standards	Type	LCS % Rec	LCS Quals	LCSD % Rec	LCSD Quals	Limits	LCS Analyzed	LCS Dil	LCSD Analyzed	LCSD Dil
13C3-PFBA	IS	115		122		50-150	06-Nov-19 21:12	1	06-Nov-19 21:23	1
13C3-PFPeA	IS	117		117		50-150	06-Nov-19 21:12	1	06-Nov-19 21:23	1
13C3-PFBS	IS	123		135		50-150	06-Nov-19 21:12	1	06-Nov-19 21:23	1
13C2-4:2 FTS	IS	116		120		50-150	06-Nov-19 21:12	1	06-Nov-19 21:23	1
13C2-PFHxA	IS	117		121		50-150	06-Nov-19 21:12	1	06-Nov-19 21:23	1
13C4-PFHpA	IS	106		115		50-150	06-Nov-19 21:12	1	06-Nov-19 21:23	1
13C3-PFHxS	IS	120		122		50-150	06-Nov-19 21:12	1	06-Nov-19 21:23	1
13C2-6:2 FTS	IS	119		111		50-150	06-Nov-19 21:12	1	06-Nov-19 21:23	1

Sample ID: LCSD **PFAS Isotope Dilution Method**

Name:	Woodard & Curran	Lab Sample:	B9J0240-BS1/B9J0240-BSD1	Date Extracted:	30-Oct-19
Project:	SJC PFAS Investigation	QC Batch:	B9J0240	Column:	BEH C18
Matrix:	Aqueous	Samp Size:	0.250/0.250 L		

Labeled Standards	Type	LCS % Rec	LCS Quals	LCSD % Rec	LCSD Quals	Limits	LCS Analyzed	LCS Dil	LCSD Analyzed	LCSD Dil
13C5-PFNA	IS	118		121		50 - 150	06-Nov-19 21:12	1	06-Nov-19 21:23	1
13C8-PFOSA	IS	41.2	H	41.5	H	50 - 150	06-Nov-19 21:12	1	06-Nov-19 21:23	1
13C2-PFOA	IS	113		122		50 - 150	06-Nov-19 21:12	1	06-Nov-19 21:23	1
13C8-PFOS	IS	113		114		50 - 150	06-Nov-19 21:12	1	06-Nov-19 21:23	1
13C2-PFDA	IS	108		117		50 - 150	06-Nov-19 21:12	1	06-Nov-19 21:23	1
13C2-8:2 FTS	IS	103		115		50 - 150	06-Nov-19 21:12	1	06-Nov-19 21:23	1
d3-MeFOSAA	IS	104		112		50 - 150	06-Nov-19 21:12	1	06-Nov-19 21:23	1
13C2-PFUnA	IS	92.0		100		50 - 150	06-Nov-19 21:12	1	06-Nov-19 21:23	1
d5-EtFOSAA	IS	95.4		107		50 - 150	06-Nov-19 21:12	1	06-Nov-19 21:23	1
13C2-PFDoA	IS	94.4		98.6		50 - 150	06-Nov-19 21:12	1	06-Nov-19 21:23	1
13C2-PFTeDA	IS	88.9		91.2		50 - 150	06-Nov-19 21:12	1	06-Nov-19 21:23	1

Sample ID: L10-1-GW **PFAS Isotope Dilution Method**

Client Data				**Laboratory Data**			
Name:	Woodard & Curran	Matrix:	Aqueous	Lab Sample:	1903732-04	Column:	BEH C18
Project:	SJC PFAS Investigation	Date Collected:	16-Oct-19 23:07	Date Received:	18-Oct-19 07:24		
Location:	Location 10						

Analyte	CAS Number	Conc. (ng/L)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	2340	10.4	D	B9J0240	30-Oct-19	0.239 L	07-Nov-19 18:31	5
PFPeA	2706-90-3	7730	41.8	D	B9J0240	30-Oct-19	0.239 L	11-Nov-19 15:55	20
PFBS	375-73-5	518	2.09		B9J0240	30-Oct-19	0.239 L	06-Nov-19 21:33	1
4:2 FTS	757124-72-4	40.2	2.09		B9J0240	30-Oct-19	0.239 L	06-Nov-19 21:33	1
PFHxA	307-24-4	7980	10.4	D	B9J0240	30-Oct-19	0.239 L	07-Nov-19 18:31	5
PFPeS	2706-91-4	497	2.09		B9J0240	30-Oct-19	0.239 L	06-Nov-19 21:33	1
PFHpA	375-85-9	1330	2.09		B9J0240	30-Oct-19	0.239 L	06-Nov-19 21:33	1
PFHxS	355-46-4	3850	10.4	D	B9J0240	30-Oct-19	0.239 L	07-Nov-19 18:31	5
6:2 FTS	27619-97-2	8880	41.8	D	B9J0240	30-Oct-19	0.239 L	11-Nov-19 15:55	20
PFOA	335-67-1	585	2.09		B9J0240	30-Oct-19	0.239 L	06-Nov-19 21:33	1
PFHpS	375-92-8	49.8	2.09		B9J0240	30-Oct-19	0.239 L	06-Nov-19 21:33	1
PFNA	375-95-1	3.96	2.09		B9J0240	30-Oct-19	0.239 L	06-Nov-19 21:33	1
PFOSA	754-91-6	ND	2.09		B9J0240	30-Oct-19	0.239 L	06-Nov-19 21:33	1
PFOS	1763-23-1	163	2.09		B9J0240	30-Oct-19	0.239 L	06-Nov-19 21:33	1
PFDA	335-76-2	2.24	2.09		B9J0240	30-Oct-19	0.239 L	06-Nov-19 21:33	1
8:2 FTS	39108-34-4	61.7	2.09		B9J0240	30-Oct-19	0.239 L	06-Nov-19 21:33	1
MeFOSAA	2355-31-9	ND	2.09		B9J0240	30-Oct-19	0.239 L	06-Nov-19 21:33	1
EtFOSAA	2991-50-6	ND	2.09		B9J0240	30-Oct-19	0.239 L	06-Nov-19 21:33	1
PFUnA	2058-94-8	ND	2.09		B9J0240	30-Oct-19	0.239 L	06-Nov-19 21:33	1
PFDS	335-77-3	ND	2.09		B9J0240	30-Oct-19	0.239 L	06-Nov-19 21:33	1
PFDoA	307-55-1	ND	2.09		B9J0240	30-Oct-19	0.239 L	06-Nov-19 21:33	1
PFTrDA	72629-94-8	ND	2.09		B9J0240	30-Oct-19	0.239 L	06-Nov-19 21:33	1
PFTeDA	376-06-7	ND	2.09		B9J0240	30-Oct-19	0.239 L	06-Nov-19 21:33	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	191	50 - 150	D, H	B9J0240	30-Oct-19	0.239 L	07-Nov-19 18:31	5
13C3-PFPeA	IS	610	50 - 150	D, H	B9J0240	30-Oct-19	0.239 L	11-Nov-19 15:55	20
13C3-PFBS	IS	108	50 - 150		B9J0240	30-Oct-19	0.239 L	06-Nov-19 21:33	1
13C2-4:2 FTS	IS	110	50 - 150		B9J0240	30-Oct-19	0.239 L	06-Nov-19 21:33	1
13C2-PFHxA	IS	227	50 - 150	D, H	B9J0240	30-Oct-19	0.239 L	07-Nov-19 18:31	5
13C4-PFHpA	IS	78.7	50 - 150		B9J0240	30-Oct-19	0.239 L	06-Nov-19 21:33	1
13C3-PFHxS	IS	215	50 - 150	D, H	B9J0240	30-Oct-19	0.239 L	07-Nov-19 18:31	5
13C2-6:2 FTS	IS	1190	50 - 150	D, H	B9J0240	30-Oct-19	0.239 L	11-Nov-19 15:55	20
13C5-PFNA	IS	110	50 - 150		B9J0240	30-Oct-19	0.239 L	06-Nov-19 21:33	1
13C8-PFOSA	IS	51.2	50 - 150		B9J0240	30-Oct-19	0.239 L	06-Nov-19 21:33	1
13C2-PFOA	IS	101	50 - 150		B9J0240	30-Oct-19	0.239 L	06-Nov-19 21:33	1
13C8-PFOS	IS	114	50 - 150		B9J0240	30-Oct-19	0.239 L	06-Nov-19 21:33	1
13C2-PFDA	IS	110	50 - 150		B9J0240	30-Oct-19	0.239 L	06-Nov-19 21:33	1
13C2-8:2 FTS	IS	103	50 - 150		B9J0240	30-Oct-19	0.239 L	06-Nov-19 21:33	1

Sample ID: L10-1-GW **PFAS Isotope Dilution Method**

Client Data				**Laboratory Data**			
Name:	Woodard & Curran	Matrix:	Aqueous	Lab Sample:	1903732-04	Column:	BEH C18
Project:	SJC PFAS Investigation	Date Collected:	16-Oct-19 23:07	Date Received:	18-Oct-19 07:24		
Location:	Location 10						

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
d3-MeFOSAA	IS	110	50 - 150		B9J0240	30-Oct-19	0.239 L	06-Nov-19 21:33	1
13C2-PFUnA	IS	96.4	50 - 150		B9J0240	30-Oct-19	0.239 L	06-Nov-19 21:33	1
d5-EtFOSAA	IS	109	50 - 150		B9J0240	30-Oct-19	0.239 L	06-Nov-19 21:33	1
13C2-PFDoA	IS	94.0	50 - 150		B9J0240	30-Oct-19	0.239 L	06-Nov-19 21:33	1
13C2-PFTeDA	IS	86.1	50 - 150		B9J0240	30-Oct-19	0.239 L	06-Nov-19 21:33	1

RL - Reporting limit

Results reported to RL.

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

Sample ID: L10-10-GW

PFAS Isotope Dilution Method

Client Data

Name: Woodard & Curran

Project: SJC PFAS Investigation

Location: Location 10

Matrix: Aqueous

Date Collected: 16-Oct-19 23:17

Laboratory Data

Lab Sample: 1903732-05

Date Received: 18-Oct-19 07:24

Column: BEH C18

Analyte	CAS Number	Conc. (ng/L)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	2180	10.8	D	B9J0240	30-Oct-19	0.231 L	07-Nov-19 18:41	5
PFPeA	2706-90-3	7080	43.3	D	B9J0240	30-Oct-19	0.231 L	11-Nov-19 16:06	20
PFBS	375-73-5	515	2.17		B9J0240	30-Oct-19	0.231 L	06-Nov-19 21:44	1
4:2 FTS	757124-72-4	45.1	2.17		B9J0240	30-Oct-19	0.231 L	06-Nov-19 21:44	1
PFHxA	307-24-4	8820	10.8	D	B9J0240	30-Oct-19	0.231 L	07-Nov-19 18:41	5
PFPeS	2706-91-4	477	2.17		B9J0240	30-Oct-19	0.231 L	06-Nov-19 21:44	1
PFHpA	375-85-9	1240	2.17		B9J0240	30-Oct-19	0.231 L	06-Nov-19 21:44	1
PFHxS	355-46-4	3560	10.8	D	B9J0240	30-Oct-19	0.231 L	07-Nov-19 18:41	5
6:2 FTS	27619-97-2	9040	43.3	D	B9J0240	30-Oct-19	0.231 L	11-Nov-19 16:06	20
PFOA	335-67-1	456	2.17		B9J0240	30-Oct-19	0.231 L	06-Nov-19 21:44	1
PFHpS	375-92-8	40.5	2.17		B9J0240	30-Oct-19	0.231 L	06-Nov-19 21:44	1
PFNA	375-95-1	ND	2.17		B9J0240	30-Oct-19	0.231 L	06-Nov-19 21:44	1
PFOSA	754-91-6	ND	2.17		B9J0240	30-Oct-19	0.231 L	06-Nov-19 21:44	1
PFOS	1763-23-1	137	2.17	Q	B9J0240	30-Oct-19	0.231 L	06-Nov-19 21:44	1
PFDA	335-76-2	2.19	2.17		B9J0240	30-Oct-19	0.231 L	06-Nov-19 21:44	1
8:2 FTS	39108-34-4	56.4	2.17		B9J0240	30-Oct-19	0.231 L	06-Nov-19 21:44	1
MeFOSAA	2355-31-9	ND	2.17		B9J0240	30-Oct-19	0.231 L	06-Nov-19 21:44	1
EtFOSAA	2991-50-6	ND	2.17		B9J0240	30-Oct-19	0.231 L	06-Nov-19 21:44	1
PFUnA	2058-94-8	ND	2.17		B9J0240	30-Oct-19	0.231 L	06-Nov-19 21:44	1
PFDS	335-77-3	ND	2.17		B9J0240	30-Oct-19	0.231 L	06-Nov-19 21:44	1
PFDoA	307-55-1	ND	2.17		B9J0240	30-Oct-19	0.231 L	06-Nov-19 21:44	1
PFTrDA	72629-94-8	ND	2.17		B9J0240	30-Oct-19	0.231 L	06-Nov-19 21:44	1
PFTeDA	376-06-7	ND	2.17		B9J0240	30-Oct-19	0.231 L	06-Nov-19 21:44	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	174	50 - 150	D, H	B9J0240	30-Oct-19	0.231 L	07-Nov-19 18:41	5
13C3-PFPeA	IS	454	50 - 150	D, H	B9J0240	30-Oct-19	0.231 L	11-Nov-19 16:06	20
13C3-PFBS	IS	108	50 - 150		B9J0240	30-Oct-19	0.231 L	06-Nov-19 21:44	1
13C2-4:2 FTS	IS	104	50 - 150		B9J0240	30-Oct-19	0.231 L	06-Nov-19 21:44	1
13C2-PFHxA	IS	182	50 - 150	D, H	B9J0240	30-Oct-19	0.231 L	07-Nov-19 18:41	5
13C4-PFHpA	IS	78.9	50 - 150		B9J0240	30-Oct-19	0.231 L	06-Nov-19 21:44	1
13C3-PFHxS	IS	188	50 - 150	D, H	B9J0240	30-Oct-19	0.231 L	07-Nov-19 18:41	5
13C2-6:2 FTS	IS	767	50 - 150	D, H	B9J0240	30-Oct-19	0.231 L	11-Nov-19 16:06	20
13C5-PFNA	IS	103	50 - 150		B9J0240	30-Oct-19	0.231 L	06-Nov-19 21:44	1
13C8-PFOSA	IS	51.2	50 - 150		B9J0240	30-Oct-19	0.231 L	06-Nov-19 21:44	1
13C2-PFOA	IS	107	50 - 150		B9J0240	30-Oct-19	0.231 L	06-Nov-19 21:44	1
13C8-PFOS	IS	106	50 - 150		B9J0240	30-Oct-19	0.231 L	06-Nov-19 21:44	1
13C2-PFDA	IS	100	50 - 150		B9J0240	30-Oct-19	0.231 L	06-Nov-19 21:44	1
13C2-8:2 FTS	IS	103	50 - 150		B9J0240	30-Oct-19	0.231 L	06-Nov-19 21:44	1

Sample ID: L10-10-GW

PFAS Isotope Dilution Method

Client Data				**Laboratory Data**			
Name:	Woodard & Curran	Matrix:	Aqueous	Lab Sample:	1903732-05	Column:	BEH C18
Project:	SJC PFAS Investigation	Date Collected:	16-Oct-19 23:17	Date Received:	18-Oct-19 07:24		
Location:	Location 10						

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
d3-MeFOSAA	IS	111	50 - 150		B9J0240	30-Oct-19	0.231 L	06-Nov-19 21:44	1
13C2-PFUnA	IS	92.7	50 - 150		B9J0240	30-Oct-19	0.231 L	06-Nov-19 21:44	1
d5-EtFOSAA	IS	105	50 - 150		B9J0240	30-Oct-19	0.231 L	06-Nov-19 21:44	1
13C2-PFDoA	IS	81.6	50 - 150		B9J0240	30-Oct-19	0.231 L	06-Nov-19 21:44	1
13C2-PFTeDA	IS	65.9	50 - 150		B9J0240	30-Oct-19	0.231 L	06-Nov-19 21:44	1

RL - Reporting limit

Results reported to RL.

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

Sample ID: EB-1 **PFAS Isotope Dilution Method**

Client Data				**Laboratory Data**			
Name:	Woodard & Curran	Matrix:	Aqueous	Lab Sample:	1903732-06	Column:	BEH C18
Project:	SJC PFAS Investigation	Date Collected:	16-Oct-19 22:50	Date Received:	18-Oct-19 07:24		
Location:	Location 10						

Analyte	CAS Number	Conc. (ng/L)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	ND	2.09		B9J0240	30-Oct-19	0.240 L	07-Nov-19 18:52	1
PFPeA	2706-90-3	8.02	2.09		B9J0240	30-Oct-19	0.240 L	07-Nov-19 18:52	1
PFBS	375-73-5	ND	2.09		B9J0240	30-Oct-19	0.240 L	07-Nov-19 18:52	1
4:2 FTS	757124-72-4	ND	2.09		B9J0240	30-Oct-19	0.240 L	07-Nov-19 18:52	1
PFHxA	307-24-4	7.38	2.09		B9J0240	30-Oct-19	0.240 L	07-Nov-19 18:52	1
PFPeS	2706-91-4	ND	2.09		B9J0240	30-Oct-19	0.240 L	07-Nov-19 18:52	1
PFHpA	375-85-9	ND	2.09		B9J0240	30-Oct-19	0.240 L	07-Nov-19 18:52	1
PFHxS	355-46-4	3.26	2.09		B9J0240	30-Oct-19	0.240 L	07-Nov-19 18:52	1
6:2 FTS	27619-97-2	39.7	2.09		B9J0240	30-Oct-19	0.240 L	07-Nov-19 18:52	1
PFOA	335-67-1	ND	2.09		B9J0240	30-Oct-19	0.240 L	07-Nov-19 18:52	1
PFHpS	375-92-8	ND	2.09		B9J0240	30-Oct-19	0.240 L	07-Nov-19 18:52	1
PFNA	375-95-1	ND	2.09		B9J0240	30-Oct-19	0.240 L	07-Nov-19 18:52	1
PFOSA	754-91-6	ND	2.09		B9J0240	30-Oct-19	0.240 L	07-Nov-19 18:52	1
PFOS	1763-23-1	ND	2.09		B9J0240	30-Oct-19	0.240 L	07-Nov-19 18:52	1
PFDA	335-76-2	ND	2.09		B9J0240	30-Oct-19	0.240 L	07-Nov-19 18:52	1
8:2 FTS	39108-34-4	ND	2.09		B9J0240	30-Oct-19	0.240 L	07-Nov-19 18:52	1
MeFOSAA	2355-31-9	ND	2.09		B9J0240	30-Oct-19	0.240 L	07-Nov-19 18:52	1
EtFOSAA	2991-50-6	ND	2.09		B9J0240	30-Oct-19	0.240 L	07-Nov-19 18:52	1
PFUnA	2058-94-8	ND	2.09		B9J0240	30-Oct-19	0.240 L	07-Nov-19 18:52	1
PFDS	335-77-3	ND	2.09		B9J0240	30-Oct-19	0.240 L	07-Nov-19 18:52	1
PFDoA	307-55-1	ND	2.09		B9J0240	30-Oct-19	0.240 L	07-Nov-19 18:52	1
PFTrDA	72629-94-8	ND	2.09		B9J0240	30-Oct-19	0.240 L	07-Nov-19 18:52	1
PFTeDA	376-06-7	ND	2.09		B9J0240	30-Oct-19	0.240 L	07-Nov-19 18:52	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	116	50 - 150		B9J0240	30-Oct-19	0.240 L	07-Nov-19 18:52	1
13C3-PFPeA	IS	94.6	50 - 150		B9J0240	30-Oct-19	0.240 L	07-Nov-19 18:52	1
13C3-PFBS	IS	116	50 - 150		B9J0240	30-Oct-19	0.240 L	07-Nov-19 18:52	1
13C2-4:2 FTS	IS	103	50 - 150		B9J0240	30-Oct-19	0.240 L	07-Nov-19 18:52	1
13C2-PFHxA	IS	102	50 - 150		B9J0240	30-Oct-19	0.240 L	07-Nov-19 18:52	1
13C4-PFHpA	IS	99.7	50 - 150		B9J0240	30-Oct-19	0.240 L	07-Nov-19 18:52	1
13C3-PFHxS	IS	112	50 - 150		B9J0240	30-Oct-19	0.240 L	07-Nov-19 18:52	1
13C2-6:2 FTS	IS	98.1	50 - 150		B9J0240	30-Oct-19	0.240 L	07-Nov-19 18:52	1
13C5-PFNA	IS	100	50 - 150		B9J0240	30-Oct-19	0.240 L	07-Nov-19 18:52	1
13C8-PFOSA	IS	25.4	50 - 150	H	B9J0240	30-Oct-19	0.240 L	07-Nov-19 18:52	1
13C2-PFOA	IS	99.4	50 - 150		B9J0240	30-Oct-19	0.240 L	07-Nov-19 18:52	1
13C8-PFOS	IS	99.1	50 - 150		B9J0240	30-Oct-19	0.240 L	07-Nov-19 18:52	1
13C2-PFDA	IS	108	50 - 150		B9J0240	30-Oct-19	0.240 L	07-Nov-19 18:52	1
13C2-8:2 FTS	IS	95.0	50 - 150		B9J0240	30-Oct-19	0.240 L	07-Nov-19 18:52	1

Sample ID: EB-1 **PFAS Isotope Dilution Method**

Client Data				**Laboratory Data**			
Name:	Woodard & Curran	Matrix:	Aqueous	Lab Sample:	1903732-06	Column:	BEH C18
Project:	SJC PFAS Investigation	Date Collected:	16-Oct-19 22:50	Date Received:	18-Oct-19 07:24		
Location:	Location 10						

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
d3-MeFOSAA	IS	92.2	50 - 150		B9J0240	30-Oct-19	0.240 L	07-Nov-19 18:52	1
13C2-PFUnA	IS	104	50 - 150		B9J0240	30-Oct-19	0.240 L	07-Nov-19 18:52	1
d5-EtFOSAA	IS	101	50 - 150		B9J0240	30-Oct-19	0.240 L	07-Nov-19 18:52	1
13C2-PFDoA	IS	92.3	50 - 150		B9J0240	30-Oct-19	0.240 L	07-Nov-19 18:52	1
13C2-PFTeDA	IS	88.8	50 - 150		B9J0240	30-Oct-19	0.240 L	07-Nov-19 18:52	1

RL - Reporting limit

Results reported to RL.

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

Sample ID: FB-1 **PFAS Isotope Dilution Method**

Client Data				Laboratory Data			
Name:	Woodard & Curran	Matrix:	Aqueous	Lab Sample:	1903732-07	Column:	BEH C18
Project:	SJC PFAS Investigation	Date Collected:	16-Oct-19 22:45	Date Received:	18-Oct-19 07:24		
Location:	Location 10						

Analyte	CAS Number	Conc. (ng/L)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	ND	2.04		B9J0240	30-Oct-19	0.245 L	06-Nov-19 22:05	1
PFPeA	2706-90-3	ND	2.04		B9J0240	30-Oct-19	0.245 L	06-Nov-19 22:05	1
PFBS	375-73-5	ND	2.04		B9J0240	30-Oct-19	0.245 L	06-Nov-19 22:05	1
4:2 FTS	757124-72-4	ND	2.04		B9J0240	30-Oct-19	0.245 L	06-Nov-19 22:05	1
PFHxA	307-24-4	ND	2.04		B9J0240	30-Oct-19	0.245 L	06-Nov-19 22:05	1
PFPeS	2706-91-4	ND	2.04		B9J0240	30-Oct-19	0.245 L	06-Nov-19 22:05	1
PFHpA	375-85-9	ND	2.04		B9J0240	30-Oct-19	0.245 L	06-Nov-19 22:05	1
PFHxS	355-46-4	ND	2.04		B9J0240	30-Oct-19	0.245 L	06-Nov-19 22:05	1
6:2 FTS	27619-97-2	ND	2.04		B9J0240	30-Oct-19	0.245 L	06-Nov-19 22:05	1
PFOA	335-67-1	ND	2.04		B9J0240	30-Oct-19	0.245 L	06-Nov-19 22:05	1
PFHpS	375-92-8	ND	2.04		B9J0240	30-Oct-19	0.245 L	06-Nov-19 22:05	1
PFNA	375-95-1	ND	2.04		B9J0240	30-Oct-19	0.245 L	06-Nov-19 22:05	1
PFOSA	754-91-6	ND	2.04		B9J0240	30-Oct-19	0.245 L	06-Nov-19 22:05	1
PFOS	1763-23-1	ND	2.04		B9J0240	30-Oct-19	0.245 L	06-Nov-19 22:05	1
PFDA	335-76-2	ND	2.04		B9J0240	30-Oct-19	0.245 L	06-Nov-19 22:05	1
8:2 FTS	39108-34-4	ND	2.04		B9J0240	30-Oct-19	0.245 L	06-Nov-19 22:05	1
MeFOSAA	2355-31-9	ND	2.04		B9J0240	30-Oct-19	0.245 L	06-Nov-19 22:05	1
EtFOSAA	2991-50-6	ND	2.04		B9J0240	30-Oct-19	0.245 L	06-Nov-19 22:05	1
PFUnA	2058-94-8	ND	2.04		B9J0240	30-Oct-19	0.245 L	06-Nov-19 22:05	1
PFDS	335-77-3	ND	2.04		B9J0240	30-Oct-19	0.245 L	06-Nov-19 22:05	1
PFDoA	307-55-1	ND	2.04		B9J0240	30-Oct-19	0.245 L	06-Nov-19 22:05	1
PFTrDA	72629-94-8	ND	2.04		B9J0240	30-Oct-19	0.245 L	06-Nov-19 22:05	1
PFTeDA	376-06-7	ND	2.04		B9J0240	30-Oct-19	0.245 L	06-Nov-19 22:05	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	113	50 - 150		B9J0240	30-Oct-19	0.245 L	06-Nov-19 22:05	1
13C3-PFPeA	IS	111	50 - 150		B9J0240	30-Oct-19	0.245 L	06-Nov-19 22:05	1
13C3-PFBS	IS	126	50 - 150		B9J0240	30-Oct-19	0.245 L	06-Nov-19 22:05	1
13C2-4:2 FTS	IS	123	50 - 150		B9J0240	30-Oct-19	0.245 L	06-Nov-19 22:05	1
13C2-PFHxA	IS	113	50 - 150		B9J0240	30-Oct-19	0.245 L	06-Nov-19 22:05	1
13C4-PFHpA	IS	112	50 - 150		B9J0240	30-Oct-19	0.245 L	06-Nov-19 22:05	1
13C3-PFHxS	IS	112	50 - 150		B9J0240	30-Oct-19	0.245 L	06-Nov-19 22:05	1
13C2-6:2 FTS	IS	118	50 - 150		B9J0240	30-Oct-19	0.245 L	06-Nov-19 22:05	1
13C5-PFNA	IS	119	50 - 150		B9J0240	30-Oct-19	0.245 L	06-Nov-19 22:05	1
13C8-PFOSA	IS	50.0	50 - 150		B9J0240	30-Oct-19	0.245 L	06-Nov-19 22:05	1
13C2-PFOA	IS	126	50 - 150		B9J0240	30-Oct-19	0.245 L	06-Nov-19 22:05	1
13C8-PFOS	IS	115	50 - 150		B9J0240	30-Oct-19	0.245 L	06-Nov-19 22:05	1
13C2-PFDA	IS	116	50 - 150		B9J0240	30-Oct-19	0.245 L	06-Nov-19 22:05	1
13C2-8:2 FTS	IS	111	50 - 150		B9J0240	30-Oct-19	0.245 L	06-Nov-19 22:05	1

Sample ID: FB-1

PFAS Isotope Dilution Method

Client Data				**Laboratory Data**			
Name:	Woodard & Curran	Matrix:	Aqueous	Lab Sample:	1903732-07	Column:	BEH C18
Project:	SJC PFAS Investigation	Date Collected:	16-Oct-19 22:45	Date Received:	18-Oct-19 07:24		
Location:	Location 10						

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
d3-MeFOSAA	IS	121	50 - 150		B9J0240	30-Oct-19	0.245 L	06-Nov-19 22:05	1
13C2-PFUnA	IS	112	50 - 150		B9J0240	30-Oct-19	0.245 L	06-Nov-19 22:05	1
d5-EtFOSAA	IS	115	50 - 150		B9J0240	30-Oct-19	0.245 L	06-Nov-19 22:05	1
13C2-PFDoA	IS	105	50 - 150		B9J0240	30-Oct-19	0.245 L	06-Nov-19 22:05	1
13C2-PFTeDA	IS	98.8	50 - 150		B9J0240	30-Oct-19	0.245 L	06-Nov-19 22:05	1

RL - Reporting limit

Results reported to RL.

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

Sample ID: L11-3-GW **PFAS Isotope Dilution Method**

Client Data				**Laboratory Data**			
Name:	Woodard & Curran	Matrix:	Aqueous	Lab Sample:	1903732-20	Column:	BEH C18
Project:	SJC PFAS Investigation	Date Collected:	17-Oct-19 03:00	Date Received:	18-Oct-19 07:24		
Location:	Location 11						

Analyte	CAS Number	Conc. (ng/L)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	10.2	2.10		B9J0240	30-Oct-19	0.238 L	06-Nov-19 22:16	1
PFPeA	2706-90-3	ND	2.10		B9J0240	30-Oct-19	0.238 L	06-Nov-19 22:16	1
PFBS	375-73-5	ND	2.10		B9J0240	30-Oct-19	0.238 L	06-Nov-19 22:16	1
4:2 FTS	757124-72-4	ND	2.10		B9J0240	30-Oct-19	0.238 L	06-Nov-19 22:16	1
PFHxA	307-24-4	ND	2.10		B9J0240	30-Oct-19	0.238 L	06-Nov-19 22:16	1
PFPeS	2706-91-4	ND	2.10		B9J0240	30-Oct-19	0.238 L	06-Nov-19 22:16	1
PFHpA	375-85-9	ND	2.10		B9J0240	30-Oct-19	0.238 L	06-Nov-19 22:16	1
PFHxS	355-46-4	ND	2.10		B9J0240	30-Oct-19	0.238 L	06-Nov-19 22:16	1
6:2 FTS	27619-97-2	ND	2.10		B9J0240	30-Oct-19	0.238 L	06-Nov-19 22:16	1
PFOA	335-67-1	3.14	2.10		B9J0240	30-Oct-19	0.238 L	06-Nov-19 22:16	1
PFHpS	375-92-8	ND	2.10		B9J0240	30-Oct-19	0.238 L	06-Nov-19 22:16	1
PFNA	375-95-1	ND	2.10		B9J0240	30-Oct-19	0.238 L	06-Nov-19 22:16	1
PFOSA	754-91-6	ND	2.10		B9J0240	30-Oct-19	0.238 L	06-Nov-19 22:16	1
PFOS	1763-23-1	ND	2.10		B9J0240	30-Oct-19	0.238 L	06-Nov-19 22:16	1
PFDA	335-76-2	ND	2.10		B9J0240	30-Oct-19	0.238 L	06-Nov-19 22:16	1
8:2 FTS	39108-34-4	ND	2.10		B9J0240	30-Oct-19	0.238 L	06-Nov-19 22:16	1
MeFOSAA	2355-31-9	ND	2.10		B9J0240	30-Oct-19	0.238 L	06-Nov-19 22:16	1
EtFOSAA	2991-50-6	ND	2.10		B9J0240	30-Oct-19	0.238 L	06-Nov-19 22:16	1
PFUnA	2058-94-8	ND	2.10		B9J0240	30-Oct-19	0.238 L	06-Nov-19 22:16	1
PFDS	335-77-3	ND	2.10		B9J0240	30-Oct-19	0.238 L	06-Nov-19 22:16	1
PFDoA	307-55-1	ND	2.10		B9J0240	30-Oct-19	0.238 L	06-Nov-19 22:16	1
PFTrDA	72629-94-8	ND	2.10		B9J0240	30-Oct-19	0.238 L	06-Nov-19 22:16	1
PFTeDA	376-06-7	ND	2.10		B9J0240	30-Oct-19	0.238 L	06-Nov-19 22:16	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	88.7	50 - 150		B9J0240	30-Oct-19	0.238 L	06-Nov-19 22:16	1
13C3-PFPeA	IS	105	50 - 150		B9J0240	30-Oct-19	0.238 L	06-Nov-19 22:16	1
13C3-PFBS	IS	123	50 - 150		B9J0240	30-Oct-19	0.238 L	06-Nov-19 22:16	1
13C2-4:2 FTS	IS	104	50 - 150		B9J0240	30-Oct-19	0.238 L	06-Nov-19 22:16	1
13C2-PFHxA	IS	107	50 - 150		B9J0240	30-Oct-19	0.238 L	06-Nov-19 22:16	1
13C4-PFHpA	IS	104	50 - 150		B9J0240	30-Oct-19	0.238 L	06-Nov-19 22:16	1
13C3-PFHxS	IS	111	50 - 150		B9J0240	30-Oct-19	0.238 L	06-Nov-19 22:16	1
13C2-6:2 FTS	IS	100	50 - 150		B9J0240	30-Oct-19	0.238 L	06-Nov-19 22:16	1
13C5-PFNA	IS	110	50 - 150		B9J0240	30-Oct-19	0.238 L	06-Nov-19 22:16	1
13C8-PFOSA	IS	30.4	50 - 150	H	B9J0240	30-Oct-19	0.238 L	06-Nov-19 22:16	1
13C2-PFOA	IS	117	50 - 150		B9J0240	30-Oct-19	0.238 L	06-Nov-19 22:16	1
13C8-PFOS	IS	103	50 - 150		B9J0240	30-Oct-19	0.238 L	06-Nov-19 22:16	1
13C2-PFDA	IS	101	50 - 150		B9J0240	30-Oct-19	0.238 L	06-Nov-19 22:16	1
13C2-8:2 FTS	IS	102	50 - 150		B9J0240	30-Oct-19	0.238 L	06-Nov-19 22:16	1

Sample ID: L11-3-GW **PFAS Isotope Dilution Method**

Client Data				**Laboratory Data**			
Name:	Woodard & Curran	Matrix:	Aqueous	Lab Sample:	1903732-20	Column:	BEH C18
Project:	SJC PFAS Investigation	Date Collected:	17-Oct-19 03:00	Date Received:	18-Oct-19 07:24		
Location:	Location 11						

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
d3-MeFOSAA	IS	96.0	50 - 150		B9J0240	30-Oct-19	0.238 L	06-Nov-19 22:16	1
13C2-PFUnA	IS	83.5	50 - 150		B9J0240	30-Oct-19	0.238 L	06-Nov-19 22:16	1
d5-EtFOSAA	IS	92.3	50 - 150		B9J0240	30-Oct-19	0.238 L	06-Nov-19 22:16	1
13C2-PFDoA	IS	63.2	50 - 150		B9J0240	30-Oct-19	0.238 L	06-Nov-19 22:16	1
13C2-PFTeDA	IS	11.2	50 - 150	H	B9J0240	30-Oct-19	0.238 L	06-Nov-19 22:16	1

RL - Reporting limit

Results reported to RL.

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

DATA QUALIFIERS & ABBREVIATIONS

B	This compound was also detected in the method blank
Conc.	Concentration
CRS	Cleanup Recovery Standard
D	Dilution
DL	Detection limit
E	The associated compound concentration exceeded the calibration range of the instrument
H	Recovery and/or RPD was outside laboratory acceptance limits
I	Chemical Interference
IS	Internal Standard
J	The amount detected is below the Reporting Limit/LOQ
LOD	Limit of Detection
LOQ	Limit of Quantitation
M	Estimated Maximum Possible Concentration (CA Region 2 projects only)
NA	Not applicable
ND	Not Detected
OPR	Ongoing Precision and Recovery sample
P	The reported concentration may include contribution from chlorinated diphenyl ether(s).
Q	The ion transition ratio is outside of the acceptance criteria.
RL	Reporting Limit
TEQ	Toxic Equivalency
U	Not Detected (specific projects only)
*	See Cover Letter

Unless otherwise noted, solid sample results are reported in dry weight. Tissue samples are reported in wet weight.

Vista Analytical Laboratory Certifications

Accrediting Authority	Certificate Number
Alaska Department of Environmental Conservation	17-013
Arkansas Department of Environmental Quality	19-013-0
California Department of Health – ELAP	2892
DoD ELAP - A2LA Accredited - ISO/IEC 17025:2005	3091.01
Florida Department of Health	E87777-23
Hawaii Department of Health	N/A
Louisiana Department of Environmental Quality	01977
Maine Department of Health	2018017
Massachusetts Department of Environmental Protection	N/A
Michigan Department of Environmental Quality	9932
Minnesota Department of Health	1521520
New Hampshire Environmental Accreditation Program	207718-B
New Jersey Department of Environmental Protection	190001
New York Department of Health	11411
Oregon Laboratory Accreditation Program	4042-010
Pennsylvania Department of Environmental Protection	016
Texas Commission on Environmental Quality	T104704189-19-10
Vermont Department of Health	VT-4042
Virginia Department of General Services	10272
Washington Department of Ecology	C584-19
Wisconsin Department of Natural Resources	998036160

Current certificates and lists of licensed parameters are located in the Quality Assurance office and are available upon request.

NELAP Accredited Test Methods

MATRIX: Air	
Description of Test	**Method**
Determination of Polychlorinated p-Dioxins & Polychlorinated Dibenzofurans	EPA 23
Determination of Polychlorinated p-Dioxins & Polychlorinated Dibenzofurans	EPA TO-9A

MATRIX: Biological Tissue	
Description of Test	**Method**
Tetra- through Octa-Chlorinated Dioxins and Furans by Isotope Dilution GC/HRMS	EPA 1613B
Brominated Diphenyl Ethers by HRGC/HRMS	EPA 1614A
Chlorinated Biphenyl Congeners in Water, Soil, Sediment, and Tissue by GC/HRMS	EPA 1668A/C
Pesticides in Water, Soil, Sediment, Biosolids, and Tissue by HRGC/HRMS	EPA 1699
Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/MS/MS	EPA 537
Polychlorinated Dibenzo-p-Dioxins and Polychlorinated Dibenzofurans by GC/HRMS	EPA 8280A/B
Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by GC/HRMS	EPA 8290/8290A

MATRIX: Drinking Water	
Description of Test	**Method**
2,3,7,8-Tetrachlorodibenzo- p-dioxin (2,3,7,8-TCDD) GC/HRMS	EPA 1613/1613B
1,4-Dioxane (1,4-Diethyleneoxide) analysis by GC/HRMS	EPA 522
Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/MS/MS	EPA 537
Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/MS/MS	ISO 25101 2009

MATRIX: Non-Potable Water	
Description of Test	**Method**
Tetra- through Octa-Chlorinated Dioxins and Furans by Isotope Dilution GC/HRMS	EPA 1613B
Brominated Diphenyl Ethers by HRGC/HRMS	EPA 1614A
Chlorinated Biphenyl Congeners in Water, Soil, Sediment, and Tissue by GC/HRMS	EPA 1668A/C
Pesticides in Water, Soil, Sediment, Biosolids, and Tissue by HRGC/HRMS	EPA 1699
Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/MS/MS	EPA 537
Dioxin by GC/HRMS	EPA 613
Polychlorinated Dibenzo-p-Dioxins and Polychlorinated Dibenzofurans by GC/HRMS	EPA 8280A/B
Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by GC/HRMS	EPA 8290/8290A

MATRIX: Solids	
Description of Test	**Method**
Tetra-Octa Chlorinated Dioxins and Furans by Isotope Dilution GC/HRMS	EPA 1613
Tetra- through Octa-Chlorinated Dioxins and Furans by Isotope Dilution GC/HRMS	EPA 1613B
Brominated Diphenyl Ethers by HRGC/HRMS	EPA 1614A
Chlorinated Biphenyl Congeners in Water, Soil, Sediment, and Tissue by GC/HRMS	EPA 1668A/C
Pesticides in Water, Soil, Sediment, Biosolids, and Tissue by HRGC/HRMS	EPA 1699
Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/MS/MS	EPA 537
Polychlorinated Dibenzo-p-Dioxins and Polychlorinated Dibenzofurans by GC/HRMS	EPA 8280A/B
Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by GC/HRMS	EPA 8290/8290A

Rev. No.: 0
Rev. Date: 06/27/2017

ID: LR - 537COC

Vista
Analytical Laboratory

CHAIN OF CUSTODY

For Laboratory Use Only
Work Order #: 1903732 Temp: 2.0 °C
Storage ID: R-13, WR-2 Storage Secured: Yes ☑ No ☐

Project ID: SJC PFAS Investigation PO#: ______ Sampler (name): Kevin Almestad/ George Valenzuela

TAT (check one): Standard: ☒ 21 days
Rush (surcharge may apply) ☐ 14 days ☐ 7 days Specify: ______

Invoice to:
Name: Jim Strandberg
Company: Woodard & Curran
Address: 2175 N California Blvd Ste 315
City: Walnut Creek
State: CA
Ph#: 925-627-4100
Fax#: 925-627-4101

Relinquished by (printed name and signature)	Date	Time	~~Received~~ Relinquished KA by (printed name and signature)	Date	Time
Kevin Almestad	10/17/19	1815	FedEX	10/18/19	0724

~~Relinquished~~ recieved KA by (printed name and signature)	Date	Time	Received by (printed name and signature)	Date	Time
Fedex /	10/17/19	1815	Ashley Mason	10/18/19	0724

SHIP TO: Vista Analytical Laboratory
1104 Windfield Way
El Dorado Hills, CA 95762
(916) 673-1520 * Fax (916) 673-0106

ATTN: Jade

Method of Shipment: Fedex

Tracking No.: ______

Add Analysis(es) Requested

				Container(s)			Mod. EPA Method 537					EPA Method 537(DW only)			
Sample ID	Date	Time	Location/Sample Description	Quantity	Type	Matrix	PFOA/PFOS	UCMR3 PFAS List:6	537 List: 14	Full List of 26	Other: Please List Below CA Airport 24 List	PFOA/PFOS	UCMR3 PFAS List:6	PFAS List: 14	Comments
L10-1-1	10/16/19	2000	Location 10	1	PJ	SO					X				
L10-1-5	↓	2005	↓	1	PJ	SO					↓				
L10-1-10		2010		1	PJ	SO									
L10-1-GW		2307		2	P	AQ									
L10-10-GW		2317		2	P	AQ									
EB-1		2250		2	P	AQ									
FB-1		2245		2	P	AQ									
L11-4-1	10/17/19	0137	Location 11	1	PJ	SO									
L11-4-10	↓	0143	↓	1	PJ	SO					↓				
L11-4-5		0140		1	PJ	SO									

Special Instructions/Comments: Geotracker EDF

SEND DOCUMENTATION AND RESULTS TO:

Name: Jim Strandberg
Company: Woodard & Curran, Inc
Address: 2175 N California Blvd, Suite 315
City: Walnut Creek State: CA Zip: 94597
Phone: (510)-301-3776 Fax: ______
Email: Jstrandberg@woodardcurran.com

Container Types: P= HDPE, PJ= HDPE Jar
O = Other: ______

Bottle Preservation Type: T = Thiosulfate,
TZ = Trizma: ______

Matrix Types: AQ = Aqueous, DW = Drinking Water, EF = Effluent, PP = Pulp/Paper, SD = Sediment,
SL = Sludge, SO = Soil, WW = Wastewater, B = Blood/Serum, O = Other: ______

Page: 1 of 2

Rev. No.: 0
Rev. Date: 06/27/2017

ID: LR - 537COC

Vista Analytical Laboratory

CHAIN OF CUSTODY

For Laboratory Use Only
Work Order #: 1903732
Temp: 2.0 °C
Storage ID: R-13, WR-2
Storage Secured: Yes ☑ No ☐

Project ID: SSC PFAS Investigation
PO#:
Sampler: KA/GV (name)

TAT (check one): Standard: ☒ 21 days
Rush (surcharge may apply) ☐ 14 days ☐ 7 days Specify:

Invoice to: Name	Company	Address	City	State	Ph#	Fax#
Jim Strandberg	woodard & Curran	2175 N California Blvd, ste 315	walnut creek	CA	925-627-4100	925-627-4101

Relinquished by (printed name and signature)	Date	Time	Received by (printed name and signature)	Date	Time
Kevin Alvestad	10/17/19	1815	/ Fedex	10/17/19	1615
FedEX	10/18/19	0724	Ashley Mason	10/18/19	0724

SHIP TO: Vista Analytical Laboratory
1104 Windfield Way
El Dorado Hills, CA 95762
(916) 673-1520 * Fax (916) 673-0106

ATTN: Jade

Method of Shipment: Fedex
Tracking No.:

Add Analysis(es) Requested

				Container(s)			Mod. EPA Method 537					EPA Method 537(DW only)			
Sample ID	Date	Time	Location/Sample Description	Quantity	Type	Matrix	PFOA/PFOS	UCMR3 PFAS List:6	537 List: 14	Full List of 26	Other: Please List Below CA Airport 24 list	PFOA/PFOS	UCMR3 PFAS List:6	PFAS List: 14	Comments
L11-1-1	10/17/19	0033	Location 11	1	PJ	SO					X				
L11-1-5		0036		1	PJ	SO									
L11-1-10		0040		1	PJ	SO									
L11-2-1		0115		1	PJ	SO									
L11-2-5		0118		1	PJ	SO									
L11-2-10		0120		1	PJ	SO									
L11-3-1		0213		1	PJ	SO									
L11-3-5		0216		1	PJ	SO									
L11-3-10		0218		1	PJ	SO									
L11-3-GW	↓	0300	↓	2	P	AQ					↓				

Special Instructions/Comments: Geotracker EDF

SEND DOCUMENTATION AND RESULTS TO:

Name: Jim Standberg
Company: woodard & Curran, Inc.
Address: 2175 N California Blvd, ste 315
City: walnut Creek State: CA Zip: 94597
Phone: (510)-301-3776 Fax:
Email: Jstrandberg@woodardcurran.com

Container Types: P= HDPE, PJ= HDPE Jar
O = Other:

Bottle Preservation Type: T = Thiosulfate,
TZ = Trizma:

Matrix Types: AQ = Aqueous, DW = Drinking Water, EF = Effluent, PP = Pulp/Paper, SD = Sediment, SL = Sludge, SO = Soil, WW = Wastewater, B = Blood/Serum, O = Other:

Page: 2 of 2

Vista
Analytical Laboratory

Sample Log-In Checklist

Page # 1 **of** 1

Vista Work Order #: 1903732 **TAT** std

Samples Arrival:	**Date/Time** 10/18/19 0724	**Initials:** ajm	**Location:** WR-2 **Shelf/Rack:** N/A

Delivered By: [✓ FedEx] UPS On Trac GSO DHL Hand Delivered Other

Preservation: [✓ Ice] Blue Ice Dry Ice None

Temp °C: 2.0 **(uncorrected)** **Temp °C:** 2.0 **(corrected)**	**Probe used:** Y / [✓ N]	**Thermometer ID:** IR-3

	YES	NO	NA
Shipping Container(s) Intact?	✓		
Shipping Custody Seals Intact?	✓		
Airbill ——— Trk # 7803 3869 2094	✓		
Shipping Documentation Present?	✓		

Shipping Container [✓ Vista] Client [✓ Retain] Return Dispose

	YES	NO	NA
Chain of Custody / Sample Documentation Present?	✓		
Chain of Custody / Sample Documentation Complete?	✓		
Holding Time Acceptable?	✓		

Logged In:	**Date/Time** 10/21/19 0836	**Initials:** MMS	**Location:** R-13, WR-2 ↓ ↓ **Shelf/Rack:** 8-2, E-3

	YES	NO	NA
COC Anomaly/Sample Acceptance Form completed?		✓	✓

Comments:

ID.: LR – SLC *Rev No.: 4* *Rev Date: 10/08/2019* *Page: 1 of 1*

CoC/Label Reconciliation Report WO# 1903732

LabNumber	CoC Sample ID	Label ID matches COCID	Label ID doesn't match COCID	SampleAlias	Sampled	Label Sampled matches	Sampled doesn't match	Container	Container Correct	BaseMatrix	Sample Comments
1903732-01 A	L10-1-1	☑		Location 10	D 16-Oct-19 20:00	☐		HDPE Jar, 6 oz	☑	Solid	
1903732-02 A	L10-1-5	☑		Location 10	B 16-Oct-19 20:05	☐		HDPE Jar, 6 oz	☑	Solid	
1903732-03 A	L10-1-10	☑		Location 10	C 16-Oct-19 20:10	☐		HDPE Jar, 6 oz	☑	Solid	
1903732-04 A	L10-1-GW	☑		Location 10	A 16-Oct-19 23:07	~~☑~~	SC 10/21/19	HDPE Bottle, 250 mL	☑	Aqueous	
1903732-04 B	L10-1-GW	☑		Location 10	↓ 16-Oct-19 23:07	~~☑~~		HDPE Bottle, 250 mL	☑	Aqueous	
1903732-05 A	L10-10-GW	☑		Location 10	16-Oct-19 23:17	☑		HDPE Bottle, 250 mL	☑	Aqueous	
1903732-05 B	L10-10-GW	☑		Location 10	16-Oct-19 23:17	☑		HDPE Bottle, 250 mL	☑	Aqueous	
1903732-06 A	EB-1	☑		Location 10	16-Oct-19 22:50	☑		HDPE Bottle, 250 mL	☑	Aqueous	
1903732-06 B	EB-1	☑		Location 10	16-Oct-19 22:50	☑		HDPE Bottle, 250 mL	☑	Aqueous	
1903732-07 A	FB-1	☑		Location 10	16-Oct-19 22:45	☑		HDPE Bottle, 250 mL	☑	Aqueous	
1903732-07 B	FB-1	☑		Location 10	16-Oct-19 22:45	☑		HDPE Bottle, 250 mL	☑	Aqueous	
1903732-08 A	L11-4-1	☑		Location 11	17-Oct-19 01:37	☑		HDPE Jar, 6 oz	☑	Solid	
1903732-09 A	L11-4-10	☑		Location 11	17-Oct-19 01:43	☑		HDPE Jar, 6 oz	☑	Solid	
1903732-10 A	L11-4-5	☑		Location 11	17-Oct-19 01:40	☑		HDPE Jar, 6 oz	☑	Solid	
1903732-11 A	L11-1-1	☑		Location 11	17-Oct-19 00:33	☑		HDPE Jar, 6 oz	☑	Solid	
1903732-12 A	L11-1-5	☑		Location 11	17-Oct-19 00:36	☑		HDPE Jar, 6 oz	☑	Solid	
1903732-13 A	L11-1-10	☑		Location 11	17-Oct-19 00:40	☑		HDPE Jar, 6 oz	☑	Solid	
1903732-14 A	L11-2-1	☑		Location 11	17-Oct-19 01:15	☑		HDPE Jar, 6 oz	☑	Solid	
1903732-15 A	L11-2-5	☑		Location 11	17-Oct-19 01:18	☑		HDPE Jar, 6 oz	☑	Solid	
1903732-16 A	L11-2-10	☑		Location 11	17-Oct-19 01:20	☑		HDPE Jar, 6 oz	☑	Solid	
1903732-17 A	L11-3-1	☑		Location 11	17-Oct-19 02:13	☑		HDPE Jar, 6 oz	☑	Solid	
1903732-18 A	L11-3-5	☑		Location 11	17-Oct-19 02:16	☑		HDPE Jar, 6 oz	☑	Solid	
1903732-19 A	L11-3-10	☑		Location 11	17-Oct-19 02:18	☑		HDPE Jar, 6 oz	☑	Solid	
1903732-20 A	L11-3-GW	☑		Location 11	17-Oct-19 03:00	☑		HDPE Bottle, 250 mL	☑	Aqueous	
1903732-20 B	L11-3-GW	☑		Location 11	17-Oct-19 03:00	☑		HDPE Bottle, 250 mL	☑	Aqueous	

	Yes	No	NA
Sample Container Intact?	✓		
Sample Custody Seals Intact?			✓
Adequate Sample Volume?	✓		
Preservation Documented: Na2S2O3 Trizma [✓ None] Other			✓
If Chlorinated or Drinking Water Samples, Acceptable Preservation?			✓

Verifed by/Date: SC 10/21/19

Comments:

A- time on client label is 23:17
time on printed label is 23:07
reconciled by sample ID

B- time on clientlabel is 22:05
time on printed label is 20:05
reconciled by sample ID

C- time on client label is 22:10
time on printed label is 20:10
reconciled by sample ID

D- time on client label is 22:00
time on printed label is 20:00
reconciled by sample ID

November 21, 2019

Vista Work Order No. 1903734

Mr. Jim Strandberg
Woodard & Curran
2175 North California Boulevard, Suite 315
Walnut Creek, CA 94596

Dear Mr. Strandberg,

Enclosed are the results for the sample set received at Vista Analytical Laboratory on October 19, 2019 under your Project Name 'SJC PFAS Investigation'.

Vista Analytical Laboratory is committed to serving you effectively. If you require additional information, please contact me at 916-673-1520 or by email at mmaier@vista-analytical.com.

Thank you for choosing Vista as part of your analytical support team.

Sincerely,

Martha Maier
Laboratory Director

Vista Work Order No. 1903734
Case Narrative

Sample Condition on Receipt:

Nine soil samples and one aqueous sample were received in good condition and within the method temperature requirements. The samples were received and stored securely in accordance with Vista standard operating procedures and EPA methodology.

Analytical Notes:

PFAS Isotope Dilution Method - Soil

The soil samples were extracted and analyzed for a selected list of PFAS. The results for PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Results for all other analytes include the linear isomers only.

Holding Times

The samples were extracted and analyzed within the hold times.

Quality Control

The Initial Calibration and Continuing Calibration Verifications met the method acceptance criteria.

A Method Blank and Ongoing Precision and Recovery (OPR) sample were extracted and analyzed with the preparation batch. No analytes were detected in the Method Blank above the Reporting Limit (RL). The OPR recoveries were within the method acceptance criteria.

The internal standard recoveries outside the acceptance criteria are flagged with an "H" qualifier.

An MS/MSD was performed on sample "L10-2-1". The MS/MSD recoveries and/or RPDs were out of the acceptance criteria for PFBA, PFPeA, PFHxA, PFHxS and 6:2 FTS.

PFAS Isotope Dilution Method - Aqueous

The aqueous sample was extracted and analyzed for a selected list of PFAS. The results for PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Results for all other analytes include the linear isomers only.

Holding Times

The sample was extracted and analyzed within the method hold times.

Quality Control

The Initial Calibration and Continuing Calibration Verifications met the acceptance criteria.

A Method Blank and Laboratory Control Sample (LCS)/Laboratory Control Sample Duplicate (LCSD) were extracted and analyzed with the preparation batch. No analytes were detected in the Method Blank above the Reporting Limit. The LCS/LCSD recoveries were within the method acceptance criteria.

The internal standard recoveries outside the acceptance criteria are flagged with an "H" qualifier.

TABLE OF CONTENTS

Sample Inventory Report

Vista Sample ID	Client Sample ID	Sampled	Received	Components/Containers
1903734-01	L10-2-1	17-Oct-19 22:01	19-Oct-19 09:58	HDPE Jar, 6 oz
1903734-02	L10-2-5	17-Oct-19 22:03	19-Oct-19 09:58	HDPE Jar, 6 oz
1903734-03	L10-2-10	17-Oct-19 22:07	19-Oct-19 09:58	HDPE Jar, 6 oz
1903734-04	L10-3-1	17-Oct-19 21:43	19-Oct-19 09:58	HDPE Jar, 6 oz
1903734-05	L10-3-5	17-Oct-19 21:46	19-Oct-19 09:58	HDPE Jar, 6 oz
1903734-06	L10-3-10	17-Oct-19 21:50	19-Oct-19 09:58	HDPE Jar, 6 oz
1903734-07	L12-1-1	17-Oct-19 23:12	19-Oct-19 09:58	HDPE Jar, 6 oz
1903734-08	L12-1-5	17-Oct-19 23:16	19-Oct-19 09:58	HDPE Jar, 6 oz
1903734-09	L12-1-10	17-Oct-19 23:19	19-Oct-19 09:58	HDPE Jar, 6 oz
1903734-10	FB-2	18-Oct-19 00:35	19-Oct-19 09:58	HDPE Bottle, 250 mL HDPE Bottle, 250 mL

ANALYTICAL RESULTS

Sample ID: Method Blank **PFAS Isotope Dilution Method**

Client Data
Name: Woodard & Curran
Project: SJC PFAS Investigation
Matrix: Solid

Laboratory Data
Lab Sample: B9J0278-BLK1
Column: BEH C18

Analyte	CAS Number	Conc. (ng/g)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	ND	2.00		B9J0278	06-Nov-19	1.00 g	08-Nov-19 23:31	1
PFPeA	2706-90-3	ND	2.00		B9J0278	06-Nov-19	1.00 g	08-Nov-19 23:31	1
PFBS	375-73-5	ND	2.00		B9J0278	06-Nov-19	1.00 g	08-Nov-19 23:31	1
4:2 FTS	757124-72-4	ND	2.00		B9J0278	06-Nov-19	1.00 g	08-Nov-19 23:31	1
PFHxA	307-24-4	ND	2.00		B9J0278	06-Nov-19	1.00 g	08-Nov-19 23:31	1
PFPeS	2706-91-4	ND	2.00		B9J0278	06-Nov-19	1.00 g	08-Nov-19 23:31	1
PFHpA	375-85-9	ND	2.00		B9J0278	06-Nov-19	1.00 g	08-Nov-19 23:31	1
PFHxS	355-46-4	ND	2.00		B9J0278	06-Nov-19	1.00 g	08-Nov-19 23:31	1
6:2 FTS	27619-97-2	ND	2.00		B9J0278	06-Nov-19	1.00 g	08-Nov-19 23:31	1
PFOA	335-67-1	ND	2.00		B9J0278	06-Nov-19	1.00 g	08-Nov-19 23:31	1
PFHpS	375-92-8	ND	2.00		B9J0278	06-Nov-19	1.00 g	08-Nov-19 23:31	1
PFNA	375-95-1	ND	2.00		B9J0278	06-Nov-19	1.00 g	08-Nov-19 23:31	1
PFOSA	754-91-6	ND	2.00		B9J0278	06-Nov-19	1.00 g	08-Nov-19 23:31	1
PFOS	1763-23-1	ND	2.00		B9J0278	06-Nov-19	1.00 g	08-Nov-19 23:31	1
PFDA	335-76-2	ND	2.00		B9J0278	06-Nov-19	1.00 g	08-Nov-19 23:31	1
8:2 FTS	39108-34-4	ND	2.00		B9J0278	06-Nov-19	1.00 g	08-Nov-19 23:31	1
MeFOSAA	2355-31-9	ND	2.00		B9J0278	06-Nov-19	1.00 g	08-Nov-19 23:31	1
EtFOSAA	2991-50-6	ND	2.00		B9J0278	06-Nov-19	1.00 g	08-Nov-19 23:31	1
PFUnA	2058-94-8	ND	2.00		B9J0278	06-Nov-19	1.00 g	08-Nov-19 23:31	1
PFDS	335-77-3	ND	2.00		B9J0278	06-Nov-19	1.00 g	08-Nov-19 23:31	1
PFDoA	307-55-1	ND	2.00		B9J0278	06-Nov-19	1.00 g	08-Nov-19 23:31	1
PFTrDA	72629-94-8	ND	2.00		B9J0278	06-Nov-19	1.00 g	08-Nov-19 23:31	1
PFTeDA	376-06-7	ND	2.00		B9J0278	06-Nov-19	1.00 g	08-Nov-19 23:31	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	94.7	50 - 150		B9J0278	06-Nov-19	1.00 g	08-Nov-19 23:31	1
13C3-PFPeA	IS	71.9	50 - 150		B9J0278	06-Nov-19	1.00 g	08-Nov-19 23:31	1
13C3-PFBS	IS	79.4	50 - 150		B9J0278	06-Nov-19	1.00 g	08-Nov-19 23:31	1
13C2-4:2 FTS	IS	75.0	50 - 150		B9J0278	06-Nov-19	1.00 g	08-Nov-19 23:31	1
13C2-PFHxA	IS	73.6	50 - 150		B9J0278	06-Nov-19	1.00 g	08-Nov-19 23:31	1
13C4-PFHpA	IS	67.4	50 - 150		B9J0278	06-Nov-19	1.00 g	08-Nov-19 23:31	1
13C3-PFHxS	IS	73.8	50 - 150		B9J0278	06-Nov-19	1.00 g	08-Nov-19 23:31	1
13C2-6:2 FTS	IS	68.9	50 - 150		B9J0278	06-Nov-19	1.00 g	08-Nov-19 23:31	1
13C5-PFNA	IS	63.6	50 - 150		B9J0278	06-Nov-19	1.00 g	08-Nov-19 23:31	1
13C8-PFOSA	IS	44.3	50 - 150	H	B9J0278	06-Nov-19	1.00 g	08-Nov-19 23:31	1
13C2-PFOA	IS	79.2	50 - 150		B9J0278	06-Nov-19	1.00 g	08-Nov-19 23:31	1
13C8-PFOS	IS	66.8	50 - 150		B9J0278	06-Nov-19	1.00 g	08-Nov-19 23:31	1
13C2-PFDA	IS	61.5	50 - 150		B9J0278	06-Nov-19	1.00 g	08-Nov-19 23:31	1
13C2-8:2 FTS	IS	75.8	50 - 150		B9J0278	06-Nov-19	1.00 g	08-Nov-19 23:31	1

Sample ID: Method Blank

PFAS Isotope Dilution Method

Client Data

Name:	Woodard & Curran	Matrix:	Solid
Project:	SJC PFAS Investigation		

Laboratory Data

Lab Sample:	B9J0278-BLK1	Column:	BEH C18

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
d3-MeFOSAA	IS	51.4	50 - 150		B9J0278	06-Nov-19	1.00 g	08-Nov-19 23:31	1
13C2-PFUnA	IS	53.7	50 - 150		B9J0278	06-Nov-19	1.00 g	08-Nov-19 23:31	1
d5-EtFOSAA	IS	62.5	50 - 150		B9J0278	06-Nov-19	1.00 g	08-Nov-19 23:31	1
13C2-PFDoA	IS	52.8	50 - 150		B9J0278	06-Nov-19	1.00 g	08-Nov-19 23:31	1
13C2-PFTeDA	IS	55.4	50 - 150		B9J0278	06-Nov-19	1.00 g	08-Nov-19 23:31	1

RL - Reporting limit

The results are reported in dry weight.
The sample size is reported in wet weight.
Results reported to RL.

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

Sample ID: OPR **PFAS Isotope Dilution Method**

Client Data				**Laboratory Data**			
Name:	Woodard & Curran	Matrix:	Solid	Lab Sample:	B9J0278-BS1	Column:	BEH C18
Project:	SJC PFAS Investigation						

Analyte	CAS Number	Amt Found (ng/g)	Spike Amt	% Rec	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	9.62	10.0	96.2	71 - 135		B9J0278	06-Nov-19	1.00 g	08-Nov-19 23:41	1
PFPeA	2706-90-3	9.52	10.0	95.2	69 - 132		B9J0278	06-Nov-19	1.00 g	08-Nov-19 23:41	1
PFBS	375-73-5	9.43	10.0	94.3	72 - 128		B9J0278	06-Nov-19	1.00 g	08-Nov-19 23:41	1
4:2 FTS	757124-72-4	9.64	10.0	96.4	62 - 145		B9J0278	06-Nov-19	1.00 g	08-Nov-19 23:41	1
PFHxA	307-24-4	9.49	10.0	94.9	70 - 132		B9J0278	06-Nov-19	1.00 g	08-Nov-19 23:41	1
PFPeS	2706-91-4	8.74	10.0	87.4	73 - 123		B9J0278	06-Nov-19	1.00 g	08-Nov-19 23:41	1
PFHpA	375-85-9	10.8	10.0	108	71 - 131		B9J0278	06-Nov-19	1.00 g	08-Nov-19 23:41	1
PFHxS	355-46-4	9.58	10.0	95.8	67 - 130		B9J0278	06-Nov-19	1.00 g	08-Nov-19 23:41	1
6:2 FTS	27619-97-2	10.6	10.0	106	64 - 140		B9J0278	06-Nov-19	1.00 g	08-Nov-19 23:41	1
PFOA	335-67-1	9.61	10.0	96.1	69 - 133		B9J0278	06-Nov-19	1.00 g	08-Nov-19 23:41	1
PFHpS	375-92-8	10.2	10.0	102	70 - 132		B9J0278	06-Nov-19	1.00 g	08-Nov-19 23:41	1
PFNA	375-95-1	9.82	10.0	98.2	72 - 129		B9J0278	06-Nov-19	1.00 g	08-Nov-19 23:41	1
PFOSA	754-91-6	10.5	10.0	105	67 - 137		B9J0278	06-Nov-19	1.00 g	08-Nov-19 23:41	1
PFOS	1763-23-1	9.62	10.0	96.0	68 - 136		B9J0278	06-Nov-19	1.00 g	08-Nov-19 23:41	1
PFDA	335-76-2	9.93	10.0	99.3	69 - 133		B9J0278	06-Nov-19	1.00 g	08-Nov-19 23:41	1
8:2 FTS	39108-34-4	10.5	10.0	105	65 - 137		B9J0278	06-Nov-19	1.00 g	08-Nov-19 23:41	1
MeFOSAA	2355-31-9	9.18	10.0	91.8	63 - 144		B9J0278	06-Nov-19	1.00 g	08-Nov-19 23:41	1
EtFOSAA	2991-50-6	8.79	10.0	87.9	61 - 139		B9J0278	06-Nov-19	1.00 g	08-Nov-19 23:41	1
PFUnA	2058-94-8	10.0	10.0	100	64 - 136		B9J0278	06-Nov-19	1.00 g	08-Nov-19 23:41	1
PFDS	335-77-3	8.40	10.0	83.8	59 - 134		B9J0278	06-Nov-19	1.00 g	08-Nov-19 23:41	1
PFDoA	307-55-1	10.3	10.0	103	69 - 135		B9J0278	06-Nov-19	1.00 g	08-Nov-19 23:41	1
PFTrDA	72629-94-8	10.9	10.0	109	66 - 139		B9J0278	06-Nov-19	1.00 g	08-Nov-19 23:41	1
PFTeDA	376-06-7	10.0	10.0	100	69 - 133		B9J0278	06-Nov-19	1.00 g	08-Nov-19 23:41	1

Labeled Standards	Type	% Rec	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	95.6	50- 150		B9J0278	06-Nov-19	1.00 g	08-Nov-19 23:41	1
13C3-PFPeA	IS	77.7	50- 150		B9J0278	06-Nov-19	1.00 g	08-Nov-19 23:41	1
13C3-PFBS	IS	80.9	50- 150		B9J0278	06-Nov-19	1.00 g	08-Nov-19 23:41	1
13C2-4:2 FTS	IS	75.7	50- 150		B9J0278	06-Nov-19	1.00 g	08-Nov-19 23:41	1
13C2-PFHxA	IS	73.2	50- 150		B9J0278	06-Nov-19	1.00 g	08-Nov-19 23:41	1
13C4-PFHpA	IS	71.7	50- 150		B9J0278	06-Nov-19	1.00 g	08-Nov-19 23:41	1
13C3-PFHxS	IS	77.8	50- 150		B9J0278	06-Nov-19	1.00 g	08-Nov-19 23:41	1
13C2-6:2 FTS	IS	73.2	50- 150		B9J0278	06-Nov-19	1.00 g	08-Nov-19 23:41	1
13C5-PFNA	IS	68.8	50- 150		B9J0278	06-Nov-19	1.00 g	08-Nov-19 23:41	1
13C8-PFOSA	IS	35.8	50- 150	H	B9J0278	06-Nov-19	1.00 g	08-Nov-19 23:41	1
13C2-PFOA	IS	78.5	50- 150		B9J0278	06-Nov-19	1.00 g	08-Nov-19 23:41	1

Sample ID: OPR

PFAS Isotope Dilution Method

Client Data				**Laboratory Data**			
Name:	Woodard & Curran	Matrix:	Solid	Lab Sample:	B9J0278-BS1	Column:	BEH C18
Project:	SJC PFAS Investigation						

Labeled Standards	Type	% Rec	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C8-PFOS	IS	71.0	50- 150		B9J0278	06-Nov-19	1.00 g	08-Nov-19 23:41	1
13C2-PFDA	IS	63.1	50- 150		B9J0278	06-Nov-19	1.00 g	08-Nov-19 23:41	1
13C2-8:2 FTS	IS	75.8	50- 150		B9J0278	06-Nov-19	1.00 g	08-Nov-19 23:41	1
d3-MeFOSAA	IS	56.0	50- 150		B9J0278	06-Nov-19	1.00 g	08-Nov-19 23:41	1
13C2-PFUnA	IS	55.8	50- 150		B9J0278	06-Nov-19	1.00 g	08-Nov-19 23:41	1
d5-EtFOSAA	IS	66.1	50- 150		B9J0278	06-Nov-19	1.00 g	08-Nov-19 23:41	1
13C2-PFDoA	IS	54.5	50- 150		B9J0278	06-Nov-19	1.00 g	08-Nov-19 23:41	1
13C2-PFTeDA	IS	56.2	50- 150		B9J0278	06-Nov-19	1.00 g	08-Nov-19 23:41	1

Sample ID: L10-2-1 **PFAS Isotope Dilution Method**

Client Data				**Laboratory Data**			
Name:	Woodard & Curran	Matrix:	Soil	Lab Sample:	1903734-01	Column:	BEH C18
Project:	SJC PFAS Investigation	Date Collected:	17-Oct-19 22:01	Date Received:	19-Oct-19 09:58		
Location:	Location 10			% Solids:	86.9		

Analyte	CAS Number	Conc. (ng/g)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	8.59	1.95		B9J0278	06-Nov-19	1.18 g	09-Nov-19 00:13	1
PFPeA	2706-90-3	50.4	1.95		B9J0278	06-Nov-19	1.18 g	09-Nov-19 00:13	1
PFBS	375-73-5	7.43	1.95		B9J0278	06-Nov-19	1.18 g	09-Nov-19 00:13	1
4:2 FTS	757124-72-4	ND	1.95		B9J0278	06-Nov-19	1.18 g	09-Nov-19 00:13	1
PFHxA	307-24-4	61.4	1.95		B9J0278	06-Nov-19	1.18 g	09-Nov-19 00:13	1
PFPeS	2706-91-4	5.21	1.95		B9J0278	06-Nov-19	1.18 g	09-Nov-19 00:13	1
PFHpA	375-85-9	6.13	1.95		B9J0278	06-Nov-19	1.18 g	09-Nov-19 00:13	1
PFHxS	355-46-4	45.8	1.95		B9J0278	06-Nov-19	1.18 g	09-Nov-19 00:13	1
6:2 FTS	27619-97-2	762	9.75	D	B9J0278	06-Nov-19	1.18 g	12-Nov-19 18:16	5
PFOA	335-67-1	9.96	1.95		B9J0278	06-Nov-19	1.18 g	09-Nov-19 00:13	1
PFHpS	375-92-8	ND	1.95		B9J0278	06-Nov-19	1.18 g	09-Nov-19 00:13	1
PFNA	375-95-1	ND	1.95		B9J0278	06-Nov-19	1.18 g	09-Nov-19 00:13	1
PFOSA	754-91-6	ND	1.95		B9J0278	06-Nov-19	1.18 g	09-Nov-19 00:13	1
PFOS	1763-23-1	2.97	1.95	Q	B9J0278	06-Nov-19	1.18 g	09-Nov-19 00:13	1
PFDA	335-76-2	ND	1.95		B9J0278	06-Nov-19	1.18 g	09-Nov-19 00:13	1
8:2 FTS	39108-34-4	ND	1.95		B9J0278	06-Nov-19	1.18 g	09-Nov-19 00:13	1
MeFOSAA	2355-31-9	ND	1.95		B9J0278	06-Nov-19	1.18 g	09-Nov-19 00:13	1
EtFOSAA	2991-50-6	ND	1.95		B9J0278	06-Nov-19	1.18 g	09-Nov-19 00:13	1
PFUnA	2058-94-8	ND	1.95		B9J0278	06-Nov-19	1.18 g	09-Nov-19 00:13	1
PFDS	335-77-3	ND	1.95		B9J0278	06-Nov-19	1.18 g	09-Nov-19 00:13	1
PFDoA	307-55-1	ND	1.95		B9J0278	06-Nov-19	1.18 g	09-Nov-19 00:13	1
PFTrDA	72629-94-8	ND	1.95		B9J0278	06-Nov-19	1.18 g	09-Nov-19 00:13	1
PFTeDA	376-06-7	ND	1.95		B9J0278	06-Nov-19	1.18 g	09-Nov-19 00:13	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	95.5	50 - 150		B9J0278	06-Nov-19	1.18 g	09-Nov-19 00:13	1
13C3-PFPeA	IS	74.5	50 - 150		B9J0278	06-Nov-19	1.18 g	09-Nov-19 00:13	1
13C3-PFBS	IS	82.1	50 - 150		B9J0278	06-Nov-19	1.18 g	09-Nov-19 00:13	1
13C2-4:2 FTS	IS	78.2	50 - 150		B9J0278	06-Nov-19	1.18 g	09-Nov-19 00:13	1
13C2-PFHxA	IS	72.3	50 - 150		B9J0278	06-Nov-19	1.18 g	09-Nov-19 00:13	1
13C4-PFHpA	IS	73.2	50 - 150		B9J0278	06-Nov-19	1.18 g	09-Nov-19 00:13	1
13C3-PFHxS	IS	79.9	50 - 150		B9J0278	06-Nov-19	1.18 g	09-Nov-19 00:13	1
13C2-6:2 FTS	IS	155	50 - 150	D, H	B9J0278	06-Nov-19	1.18 g	12-Nov-19 18:16	5
13C5-PFNA	IS	68.0	50 - 150		B9J0278	06-Nov-19	1.18 g	09-Nov-19 00:13	1
13C8-PFOSA	IS	57.4	50 - 150		B9J0278	06-Nov-19	1.18 g	09-Nov-19 00:13	1
13C2-PFOA	IS	80.9	50 - 150		B9J0278	06-Nov-19	1.18 g	09-Nov-19 00:13	1
13C8-PFOS	IS	75.5	50 - 150		B9J0278	06-Nov-19	1.18 g	09-Nov-19 00:13	1
13C2-PFDA	IS	66.1	50 - 150		B9J0278	06-Nov-19	1.18 g	09-Nov-19 00:13	1
13C2-8:2 FTS	IS	79.6	50 - 150		B9J0278	06-Nov-19	1.18 g	09-Nov-19 00:13	1

Sample ID: L10-2-1

PFAS Isotope Dilution Method

Client Data				**Laboratory Data**			
Name:	Woodard & Curran	Matrix:	Soil	Lab Sample:	1903734-01	Column:	BEH C18
Project:	SJC PFAS Investigation	Date Collected:	17-Oct-19 22:01	Date Received:	19-Oct-19 09:58		
Location:	Location 10			% Solids:	86.9		

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
d3-MeFOSAA	IS	63.5	50 - 150		B9J0278	06-Nov-19	1.18 g	09-Nov-19 00:13	1
13C2-PFUnA	IS	58.7	50 - 150		B9J0278	06-Nov-19	1.18 g	09-Nov-19 00:13	1
d5-EtFOSAA	IS	67.6	50 - 150		B9J0278	06-Nov-19	1.18 g	09-Nov-19 00:13	1
13C2-PFDoA	IS	60.6	50 - 150		B9J0278	06-Nov-19	1.18 g	09-Nov-19 00:13	1
13C2-PFTeDA	IS	41.2	50 - 150	H	B9J0278	06-Nov-19	1.18 g	09-Nov-19 00:13	1

RL - Reporting limit

The results are reported in dry weight.
The sample size is reported in wet weight.
Results reported to RL.

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

Sample ID: L10-2-1

PFAS Isotope Dilution Method

Name: Woodard & Curran
Project: SJC PFAS Investigation
Matrix: Solid

Lab Sample: B9J0278-MS1/B9J0278-MSD1
QC Batch: B9J0278
Samp Size: 1.15/1.15 g

Source Lab Sample: 1903734-01
Date Extracted: 06-Nov-19
Column: BEH C18

Analyte	CAS Number	Sample (ng/g)	MS (ng/g)	MS Spike	MS % Rec	MS Quals	MSD (ng/g)	MSD Spike	MSD % Rec	RPD	MSD Quals	%Rec Limits	RPD Limits	MS Analyzed	MS Dil	MSD Analyzed	MSD Dil
PFBA	375-22-4	8.59	16.0	10.0	74.5		18.9	10.0	103	32.1	H	71-135	30	08-Nov-19 23:52	1	09-Nov-19 00:03	1
PFPeA	2706-90-3	50.4	43.4	10.0	-69.5	H	60.1	10.0	97.0	1210	H	69-132	30	08-Nov-19 23:52	1	09-Nov-19 00:03	1
PFBS	375-73-5	7.43	15.7	10.0	82.5		18.1	10.0	107	25.9		72-128	30	08-Nov-19 23:52	1	09-Nov-19 00:03	1
4:2 FTS	757124-72-4	ND	10.4	10.0	103		10.4	10.0	103	0		62-145	30	08-Nov-19 23:52	1	09-Nov-19 00:03	1
PFHxA	307-24-4	61.4	58.8	10.0	-26.1	H	73.3	10.0	119	312	H	70-132	30	08-Nov-19 23:52	1	09-Nov-19 00:03	1
PFPeS	2706-91-4	5.21	12.8	10.0	76.0		15.4	10.0	102	29.2		73-123	30	08-Nov-19 23:52	1	09-Nov-19 00:03	1
PFHpA	375-85-9	6.13	15.9	10.0	97.5		16.8	10.0	106	8.35		71-131	30	08-Nov-19 23:52	1	09-Nov-19 00:03	1
PFHxS	355-46-4	45.8	44.6	10.0	-12.5	H	56.7	10.0	108	252	H	67-130	30	08-Nov-19 23:52	1	09-Nov-19 00:03	1
6:2 FTS	27619-97-2	762	600	10.0	-1620	D, H	844	10.0	818	608	D, H	64-140	30	12-Nov-19 17:55	5	12-Nov-19 18:05	5
PFOA	335-67-1	9.96	18.4	10.0	84.1		19.6	10.0	96.2	13.4		69-133	30	08-Nov-19 23:52	1	09-Nov-19 00:03	1
PFHpS	375-92-8	ND	11.4	10.0	105		13.5	10.0	126	18.2		70-132	30	08-Nov-19 23:52	1	09-Nov-19 00:03	1
PFNA	375-95-1	ND	10.3	10.0	101		10.4	10.0	103	1.96		72-129	30	08-Nov-19 23:52	1	09-Nov-19 00:03	1
PFOSA	754-91-6	ND	11.0	10.0	110		10.8	10.0	108	1.83		67-137	30	08-Nov-19 23:52	1	09-Nov-19 00:03	1
PFOS	1763-23-1	2.97	13.4	10.0	104		14.1	10.0	111	6.51		68-136	30	08-Nov-19 23:52	1	09-Nov-19 00:03	1
PFDA	335-76-2	ND	10.3	10.0	103		11.1	10.0	111	7.48		69-133	30	08-Nov-19 23:52	1	09-Nov-19 00:03	1
8:2 FTS	39108-34-4	ND	10.9	10.0	109		10.5	10.0	105	3.74		65-137	30	08-Nov-19 23:52	1	09-Nov-19 00:03	1
MeFOSAA	2355-31-9	ND	10.3	10.0	103		11.2	10.0	112	8.37		63-144	30	08-Nov-19 23:52	1	09-Nov-19 00:03	1
EtFOSAA	2991-50-6	ND	11.0	10.0	110		11.0	10.0	110	0		61-139	30	08-Nov-19 23:52	1	09-Nov-19 00:03	1
PFUnA	2058-94-8	ND	10.9	10.0	109		11.1	10.0	111	1.82		64-136	30	08-Nov-19 23:52	1	09-Nov-19 00:03	1
PFDS	335-77-3	ND	9.82	10.0	98.2		10.4	10.0	104	5.74		59-134	30	08-Nov-19 23:52	1	09-Nov-19 00:03	1
PFDoA	307-55-1	ND	11.0	10.0	110		10.5	10.0	105	4.65		69-135	30	08-Nov-19 23:52	1	09-Nov-19 00:03	1
PFTrDA	72629-94-8	ND	10.6	10.0	106		10.4	10.0	104	1.90		66-139	30	08-Nov-19 23:52	1	09-Nov-19 00:03	1
PFTeDA	376-06-7	ND	10.1	10.0	101		10.8	10.0	108	6.70		69-133	30	08-Nov-19 23:52	1	09-Nov-19 00:03	1

Labeled Standards	Type	MS % Rec	MS Quals	MSD % Rec	MSD Quals	Limits	MS Analyzed	MS Dil	MSD Analyzed	MSD Dil
13C3-PFBA	IS	99.3		94.3		50-150	08-Nov-19 23:52	1	09-Nov-19 00:03	1
13C3-PFPeA	IS	78.0		73.6		50-150	08-Nov-19 23:52	1	09-Nov-19 00:03	1
13C3-PFBS	IS	85.9		77.8		50-150	08-Nov-19 23:52	1	09-Nov-19 00:03	1
13C2-4:2 FTS	IS	72.0		70.4		50-150	08-Nov-19 23:52	1	09-Nov-19 00:03	1
13C2-PFHxA	IS	76.5		70.3		50-150	08-Nov-19 23:52	1	09-Nov-19 00:03	1
13C4-PFHpA	IS	76.9		74.5		50-150	08-Nov-19 23:52	1	09-Nov-19 00:03	1
13C3-PFHxS	IS	81.5		76.9		50-150	08-Nov-19 23:52	1	09-Nov-19 00:03	1
13C2-6:2 FTS	IS	170	D, H	139	D	50-150	12-Nov-19 17:55	5	12-Nov-19 18:05	5

Sample ID: L10-2-1 **PFAS Isotope Dilution Method**

Name:	Woodard & Curran	Lab Sample:	B9J0278-MS1/B9J0278-MSD1	Source Lab Sample:	1903734-01
Project:	SJC PFAS Investigation	QC Batch:	B9J0278	Date Extracted:	06-Nov-19
Matrix:	Solid	Samp Size:	1.15/1.15 g	Column:	BEH C18

Labeled Standards	Type	MS % Rec	MS Quals	MSD % Rec	MSD Quals	Limits	MS Analyzed	MS Dil	MSD Analyzed	MSD Dil
13C5-PFNA	IS	72.0		67.0		50-150	08-Nov-19 23:52	1	09-Nov-19 00:03	1
13C8-PFOSA	IS	53.4		53.9		50-150	08-Nov-19 23:52	1	09-Nov-19 00:03	1
13C2-PFOA	IS	81.2		75.7		50-150	08-Nov-19 23:52	1	09-Nov-19 00:03	1
13C8-PFOS	IS	72.8		63.5		50-150	08-Nov-19 23:52	1	09-Nov-19 00:03	1
13C2-PFDA	IS	65.5		62.0		50-150	08-Nov-19 23:52	1	09-Nov-19 00:03	1
13C2-8:2 FTS	IS	81.4		78.2		50-150	08-Nov-19 23:52	1	09-Nov-19 00:03	1
d3-MeFOSAA	IS	61.1		56.9		50-150	08-Nov-19 23:52	1	09-Nov-19 00:03	1
13C2-PFUnA	IS	63.6		59.9		50-150	08-Nov-19 23:52	1	09-Nov-19 00:03	1
d5-EtFOSAA	IS	68.1		64.4		50-150	08-Nov-19 23:52	1	09-Nov-19 00:03	1
13C2-PFDoA	IS	62.1		59.1		50-150	08-Nov-19 23:52	1	09-Nov-19 00:03	1
13C2-PFTeDA	IS	63.9		49.6	H	50-150	08-Nov-19 23:52	1	09-Nov-19 00:03	1

Sample ID: L10-2-5 **PFAS Isotope Dilution Method**

Client Data				Laboratory Data			
Name:	Woodard & Curran	Matrix:	Soil	Lab Sample:	1903734-02	Column:	BEH C18
Project:	SJC PFAS Investigation	Date Collected:	17-Oct-19 22:03	Date Received:	19-Oct-19 09:58		
Location:	Location 10			% Solids:	76.3		

Analyte	CAS Number	Conc. (ng/g)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	10.4	2.00		B9J0278	06-Nov-19	1.31 g	21-Nov-19 05:16	1
PFPeA	2706-90-3	59.2	2.00		B9J0278	06-Nov-19	1.31 g	21-Nov-19 05:16	1
PFBS	375-73-5	4.24	2.00		B9J0278	06-Nov-19	1.31 g	21-Nov-19 05:16	1
4:2 FTS	757124-72-4	ND	2.00		B9J0278	06-Nov-19	1.31 g	21-Nov-19 05:16	1
PFHxA	307-24-4	76.8	2.00	Q	B9J0278	06-Nov-19	1.31 g	21-Nov-19 05:16	1
PFPeS	2706-91-4	ND	2.00		B9J0278	06-Nov-19	1.31 g	21-Nov-19 05:16	1
PFHpA	375-85-9	4.60	2.00	Q	B9J0278	06-Nov-19	1.31 g	21-Nov-19 05:16	1
PFHxS	355-46-4	ND	2.00		B9J0278	06-Nov-19	1.31 g	21-Nov-19 05:16	1
6:2 FTS	27619-97-2	7.73	2.00		B9J0278	06-Nov-19	1.31 g	21-Nov-19 05:16	1
PFOA	335-67-1	ND	2.00		B9J0278	06-Nov-19	1.31 g	21-Nov-19 05:16	1
PFHpS	375-92-8	ND	2.00		B9J0278	06-Nov-19	1.31 g	21-Nov-19 05:16	1
PFNA	375-95-1	ND	2.00		B9J0278	06-Nov-19	1.31 g	21-Nov-19 05:16	1
PFOSA	754-91-6	ND	2.00		B9J0278	06-Nov-19	1.31 g	21-Nov-19 05:16	1
PFOS	1763-23-1	ND	2.00		B9J0278	06-Nov-19	1.31 g	21-Nov-19 05:16	1
PFDA	335-76-2	ND	2.00		B9J0278	06-Nov-19	1.31 g	21-Nov-19 05:16	1
8:2 FTS	39108-34-4	ND	2.00		B9J0278	06-Nov-19	1.31 g	21-Nov-19 05:16	1
MeFOSAA	2355-31-9	ND	2.00		B9J0278	06-Nov-19	1.31 g	21-Nov-19 05:16	1
EtFOSAA	2991-50-6	ND	2.00		B9J0278	06-Nov-19	1.31 g	21-Nov-19 05:16	1
PFUnA	2058-94-8	ND	2.00		B9J0278	06-Nov-19	1.31 g	21-Nov-19 05:16	1
PFDS	335-77-3	ND	2.00		B9J0278	06-Nov-19	1.31 g	21-Nov-19 05:16	1
PFDoA	307-55-1	ND	2.00		B9J0278	06-Nov-19	1.31 g	21-Nov-19 05:16	1
PFTrDA	72629-94-8	ND	2.00		B9J0278	06-Nov-19	1.31 g	21-Nov-19 05:16	1
PFTeDA	376-06-7	ND	2.00		B9J0278	06-Nov-19	1.31 g	21-Nov-19 05:16	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	157	50 - 150	H	B9J0278	06-Nov-19	1.31 g	21-Nov-19 05:16	1
13C3-PFPeA	IS	81.4	50 - 150		B9J0278	06-Nov-19	1.31 g	21-Nov-19 05:16	1
13C3-PFBS	IS	87.7	50 - 150		B9J0278	06-Nov-19	1.31 g	21-Nov-19 05:16	1
13C2-4:2 FTS	IS	87.1	50 - 150		B9J0278	06-Nov-19	1.31 g	21-Nov-19 05:16	1
13C2-PFHxA	IS	73.9	50 - 150		B9J0278	06-Nov-19	1.31 g	21-Nov-19 05:16	1
13C4-PFHpA	IS	77.9	50 - 150		B9J0278	06-Nov-19	1.31 g	21-Nov-19 05:16	1
13C3-PFHxS	IS	75.6	50 - 150		B9J0278	06-Nov-19	1.31 g	21-Nov-19 05:16	1
13C2-6:2 FTS	IS	77.6	50 - 150		B9J0278	06-Nov-19	1.31 g	21-Nov-19 05:16	1
13C5-PFNA	IS	67.0	50 - 150		B9J0278	06-Nov-19	1.31 g	21-Nov-19 05:16	1
13C8-PFOSA	IS	28.1	50 - 150	H	B9J0278	06-Nov-19	1.31 g	21-Nov-19 05:16	1
13C2-PFOA	IS	75.3	50 - 150		B9J0278	06-Nov-19	1.31 g	21-Nov-19 05:16	1
13C8-PFOS	IS	70.4	50 - 150		B9J0278	06-Nov-19	1.31 g	21-Nov-19 05:16	1
13C2-PFDA	IS	52.0	50 - 150		B9J0278	06-Nov-19	1.31 g	21-Nov-19 05:16	1
13C2-8:2 FTS	IS	80.6	50 - 150		B9J0278	06-Nov-19	1.31 g	21-Nov-19 05:16	1

Sample ID: L10-2-5 **PFAS Isotope Dilution Method**

Client Data				**Laboratory Data**			
Name:	Woodard & Curran	Matrix:	Soil	Lab Sample:	1903734-02	Column:	BEH C18
Project:	SJC PFAS Investigation	Date Collected:	17-Oct-19 22:03	Date Received:	19-Oct-19 09:58		
Location:	Location 10			% Solids:	76.3		

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
d3-MeFOSAA	IS	64.6	50 - 150		B9J0278	06-Nov-19	1.31 g	21-Nov-19 05:16	1
13C2-PFUnA	IS	53.5	50 - 150		B9J0278	06-Nov-19	1.31 g	21-Nov-19 05:16	1
d5-EtFOSAA	IS	64.2	50 - 150		B9J0278	06-Nov-19	1.31 g	21-Nov-19 05:16	1
13C2-PFDoA	IS	52.2	50 - 150		B9J0278	06-Nov-19	1.31 g	21-Nov-19 05:16	1
13C2-PFTeDA	IS	57.6	50 - 150		B9J0278	06-Nov-19	1.31 g	21-Nov-19 05:16	1

RL - Reporting limit

The results are reported in dry weight.
The sample size is reported in wet weight.
Results reported to RL.

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

Sample ID: L10-2-10 **PFAS Isotope Dilution Method**

Client Data				**Laboratory Data**			
Name:	Woodard & Curran	Matrix:	Soil	Lab Sample:	1903734-03	Column:	BEH C18
Project:	SJC PFAS Investigation	Date Collected:	17-Oct-19 22:07	Date Received:	19-Oct-19 09:58		
Location:	Location 10			% Solids:	86.8		

Analyte	CAS Number	Conc. (ng/g)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	3.59	2.00		B9J0278	06-Nov-19	1.15 g	09-Nov-19 00:34	1
PFPeA	2706-90-3	17.4	2.00		B9J0278	06-Nov-19	1.15 g	09-Nov-19 00:34	1
PFBS	375-73-5	ND	2.00		B9J0278	06-Nov-19	1.15 g	09-Nov-19 00:34	1
4:2 FTS	757124-72-4	ND	2.00		B9J0278	06-Nov-19	1.15 g	09-Nov-19 00:34	1
PFHxA	307-24-4	19.6	2.00		B9J0278	06-Nov-19	1.15 g	09-Nov-19 00:34	1
PFPeS	2706-91-4	ND	2.00		B9J0278	06-Nov-19	1.15 g	09-Nov-19 00:34	1
PFHpA	375-85-9	ND	2.00		B9J0278	06-Nov-19	1.15 g	09-Nov-19 00:34	1
PFHxS	355-46-4	2.36	2.00		B9J0278	06-Nov-19	1.15 g	09-Nov-19 00:34	1
6:2 FTS	27619-97-2	62.9	2.00		B9J0278	06-Nov-19	1.15 g	09-Nov-19 00:34	1
PFOA	335-67-1	ND	2.00		B9J0278	06-Nov-19	1.15 g	09-Nov-19 00:34	1
PFHpS	375-92-8	ND	2.00		B9J0278	06-Nov-19	1.15 g	09-Nov-19 00:34	1
PFNA	375-95-1	ND	2.00		B9J0278	06-Nov-19	1.15 g	09-Nov-19 00:34	1
PFOSA	754-91-6	ND	2.00		B9J0278	06-Nov-19	1.15 g	09-Nov-19 00:34	1
PFOS	1763-23-1	ND	2.00		B9J0278	06-Nov-19	1.15 g	09-Nov-19 00:34	1
PFDA	335-76-2	ND	2.00		B9J0278	06-Nov-19	1.15 g	09-Nov-19 00:34	1
8:2 FTS	39108-34-4	ND	2.00		B9J0278	06-Nov-19	1.15 g	09-Nov-19 00:34	1
MeFOSAA	2355-31-9	ND	2.00		B9J0278	06-Nov-19	1.15 g	09-Nov-19 00:34	1
EtFOSAA	2991-50-6	ND	2.00		B9J0278	06-Nov-19	1.15 g	09-Nov-19 00:34	1
PFUnA	2058-94-8	ND	2.00		B9J0278	06-Nov-19	1.15 g	09-Nov-19 00:34	1
PFDS	335-77-3	ND	2.00		B9J0278	06-Nov-19	1.15 g	09-Nov-19 00:34	1
PFDoA	307-55-1	ND	2.00		B9J0278	06-Nov-19	1.15 g	09-Nov-19 00:34	1
PFTrDA	72629-94-8	ND	2.00		B9J0278	06-Nov-19	1.15 g	09-Nov-19 00:34	1
PFTeDA	376-06-7	ND	2.00		B9J0278	06-Nov-19	1.15 g	09-Nov-19 00:34	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	109	50 - 150		B9J0278	06-Nov-19	1.15 g	09-Nov-19 00:34	1
13C3-PFPeA	IS	86.9	50 - 150		B9J0278	06-Nov-19	1.15 g	09-Nov-19 00:34	1
13C3-PFBS	IS	89.5	50 - 150		B9J0278	06-Nov-19	1.15 g	09-Nov-19 00:34	1
13C2-4:2 FTS	IS	80.4	50 - 150		B9J0278	06-Nov-19	1.15 g	09-Nov-19 00:34	1
13C2-PFHxA	IS	80.4	50 - 150		B9J0278	06-Nov-19	1.15 g	09-Nov-19 00:34	1
13C4-PFHpA	IS	81.8	50 - 150		B9J0278	06-Nov-19	1.15 g	09-Nov-19 00:34	1
13C3-PFHxS	IS	85.4	50 - 150		B9J0278	06-Nov-19	1.15 g	09-Nov-19 00:34	1
13C2-6:2 FTS	IS	71.7	50 - 150		B9J0278	06-Nov-19	1.15 g	09-Nov-19 00:34	1
13C5-PFNA	IS	76.2	50 - 150		B9J0278	06-Nov-19	1.15 g	09-Nov-19 00:34	1
13C8-PFOSA	IS	50.0	50 - 150		B9J0278	06-Nov-19	1.15 g	09-Nov-19 00:34	1
13C2-PFOA	IS	90.4	50 - 150		B9J0278	06-Nov-19	1.15 g	09-Nov-19 00:34	1
13C8-PFOS	IS	71.6	50 - 150		B9J0278	06-Nov-19	1.15 g	09-Nov-19 00:34	1
13C2-PFDA	IS	62.1	50 - 150		B9J0278	06-Nov-19	1.15 g	09-Nov-19 00:34	1
13C2-8:2 FTS	IS	84.7	50 - 150		B9J0278	06-Nov-19	1.15 g	09-Nov-19 00:34	1

Sample ID: L10-2-10 **PFAS Isotope Dilution Method**

Client Data

Name:	Woodard & Curran	Matrix:	Soil
Project:	SJC PFAS Investigation	Date Collected:	17-Oct-19 22:07
Location:	Location 10		

Laboratory Data

Lab Sample:	1903734-03	Column:	BEH C18
Date Received:	19-Oct-19 09:58		
% Solids:	86.8		

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
d3-MeFOSAA	IS	56.3	50 - 150		B9J0278	06-Nov-19	1.15 g	09-Nov-19 00:34	1
13C2-PFUnA	IS	60.7	50 - 150		B9J0278	06-Nov-19	1.15 g	09-Nov-19 00:34	1
d5-EtFOSAA	IS	68.6	50 - 150		B9J0278	06-Nov-19	1.15 g	09-Nov-19 00:34	1
13C2-PFDoA	IS	62.6	50 - 150		B9J0278	06-Nov-19	1.15 g	09-Nov-19 00:34	1
13C2-PFTeDA	IS	48.3	50 - 150	H	B9J0278	06-Nov-19	1.15 g	09-Nov-19 00:34	1

RL - Reporting limit

The results are reported in dry weight.
The sample size is reported in wet weight.
Results reported to RL.

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

Sample ID: L10-3-1 **PFAS Isotope Dilution Method**

Client Data				**Laboratory Data**			
Name:	Woodard & Curran	Matrix:	Soil	Lab Sample:	1903734-04	Column:	BEH C18
Project:	SJC PFAS Investigation	Date Collected:	17-Oct-19 21:43	Date Received:	19-Oct-19 09:58		
Location:	Location 10			% Solids:	86.3		

Analyte	CAS Number	Conc. (ng/g)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	ND	2.00		B9J0278	06-Nov-19	1.16 g	09-Nov-19 00:45	1
PFPeA	2706-90-3	5.27	2.00		B9J0278	06-Nov-19	1.16 g	09-Nov-19 00:45	1
PFBS	375-73-5	ND	2.00		B9J0278	06-Nov-19	1.16 g	09-Nov-19 00:45	1
4:2 FTS	757124-72-4	ND	2.00		B9J0278	06-Nov-19	1.16 g	09-Nov-19 00:45	1
PFHxA	307-24-4	4.36	2.00		B9J0278	06-Nov-19	1.16 g	09-Nov-19 00:45	1
PFPeS	2706-91-4	ND	2.00		B9J0278	06-Nov-19	1.16 g	09-Nov-19 00:45	1
PFHpA	375-85-9	ND	2.00		B9J0278	06-Nov-19	1.16 g	09-Nov-19 00:45	1
PFHxS	355-46-4	8.82	2.00		B9J0278	06-Nov-19	1.16 g	09-Nov-19 00:45	1
6:2 FTS	27619-97-2	122	2.00		B9J0278	06-Nov-19	1.16 g	09-Nov-19 00:45	1
PFOA	335-67-1	4.02	2.00		B9J0278	06-Nov-19	1.16 g	09-Nov-19 00:45	1
PFHpS	375-92-8	ND	2.00		B9J0278	06-Nov-19	1.16 g	09-Nov-19 00:45	1
PFNA	375-95-1	3.98	2.00		B9J0278	06-Nov-19	1.16 g	09-Nov-19 00:45	1
PFOSA	754-91-6	ND	2.00		B9J0278	06-Nov-19	1.16 g	09-Nov-19 00:45	1
PFOS	1763-23-1	369	2.00		B9J0278	06-Nov-19	1.16 g	09-Nov-19 00:45	1
PFDA	335-76-2	6.67	2.00		B9J0278	06-Nov-19	1.16 g	09-Nov-19 00:45	1
8:2 FTS	39108-34-4	157	2.00		B9J0278	06-Nov-19	1.16 g	09-Nov-19 00:45	1
MeFOSAA	2355-31-9	ND	2.00		B9J0278	06-Nov-19	1.16 g	09-Nov-19 00:45	1
EtFOSAA	2991-50-6	ND	2.00		B9J0278	06-Nov-19	1.16 g	09-Nov-19 00:45	1
PFUnA	2058-94-8	ND	2.00		B9J0278	06-Nov-19	1.16 g	09-Nov-19 00:45	1
PFDS	335-77-3	ND	2.00		B9J0278	06-Nov-19	1.16 g	09-Nov-19 00:45	1
PFDoA	307-55-1	ND	2.00		B9J0278	06-Nov-19	1.16 g	09-Nov-19 00:45	1
PFTrDA	72629-94-8	ND	2.00		B9J0278	06-Nov-19	1.16 g	09-Nov-19 00:45	1
PFTeDA	376-06-7	ND	2.00		B9J0278	06-Nov-19	1.16 g	09-Nov-19 00:45	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	102	50 - 150		B9J0278	06-Nov-19	1.16 g	09-Nov-19 00:45	1
13C3-PFPeA	IS	80.1	50 - 150		B9J0278	06-Nov-19	1.16 g	09-Nov-19 00:45	1
13C3-PFBS	IS	95.5	50 - 150		B9J0278	06-Nov-19	1.16 g	09-Nov-19 00:45	1
13C2-4:2 FTS	IS	83.0	50 - 150		B9J0278	06-Nov-19	1.16 g	09-Nov-19 00:45	1
13C2-PFHxA	IS	76.1	50 - 150		B9J0278	06-Nov-19	1.16 g	09-Nov-19 00:45	1
13C4-PFHpA	IS	80.7	50 - 150		B9J0278	06-Nov-19	1.16 g	09-Nov-19 00:45	1
13C3-PFHxS	IS	92.8	50 - 150		B9J0278	06-Nov-19	1.16 g	09-Nov-19 00:45	1
13C2-6:2 FTS	IS	76.5	50 - 150		B9J0278	06-Nov-19	1.16 g	09-Nov-19 00:45	1
13C5-PFNA	IS	74.4	50 - 150		B9J0278	06-Nov-19	1.16 g	09-Nov-19 00:45	1
13C8-PFOSA	IS	39.7	50 - 150	H	B9J0278	06-Nov-19	1.16 g	09-Nov-19 00:45	1
13C2-PFOA	IS	86.2	50 - 150		B9J0278	06-Nov-19	1.16 g	09-Nov-19 00:45	1
13C8-PFOS	IS	64.8	50 - 150		B9J0278	06-Nov-19	1.16 g	09-Nov-19 00:45	1
13C2-PFDA	IS	71.9	50 - 150		B9J0278	06-Nov-19	1.16 g	09-Nov-19 00:45	1
13C2-8:2 FTS	IS	79.9	50 - 150		B9J0278	06-Nov-19	1.16 g	09-Nov-19 00:45	1

Sample ID: L10-3-1

PFAS Isotope Dilution Method

Client Data				**Laboratory Data**			
Name:	Woodard & Curran	Matrix:	Soil	Lab Sample:	1903734-04	Column:	BEH C18
Project:	SJC PFAS Investigation	Date Collected:	17-Oct-19 21:43	Date Received:	19-Oct-19 09:58		
Location:	Location 10			% Solids:	86.3		

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
d3-MeFOSAA	IS	71.4	50 - 150		B9J0278	06-Nov-19	1.16 g	09-Nov-19 00:45	1
13C2-PFUnA	IS	64.2	50 - 150		B9J0278	06-Nov-19	1.16 g	09-Nov-19 00:45	1
d5-EtFOSAA	IS	68.6	50 - 150		B9J0278	06-Nov-19	1.16 g	09-Nov-19 00:45	1
13C2-PFDoA	IS	67.3	50 - 150		B9J0278	06-Nov-19	1.16 g	09-Nov-19 00:45	1
13C2-PFTeDA	IS	71.1	50 - 150		B9J0278	06-Nov-19	1.16 g	09-Nov-19 00:45	1

RL - Reporting limit

The results are reported in dry weight.
The sample size is reported in wet weight.
Results reported to RL.

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

Sample ID: L10-3-5 **PFAS Isotope Dilution Method**

Client Data				**Laboratory Data**			
Name:	Woodard & Curran	Matrix:	Soil	Lab Sample:	1903734-05	Column:	BEH C18
Project:	SJC PFAS Investigation	Date Collected:	17-Oct-19 21:46	Date Received:	19-Oct-19 09:58		
Location:	Location 10			% Solids:	89.2		

Analyte	CAS Number	Conc. (ng/g)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	ND	2.00		B9J0278	06-Nov-19	1.12 g	09-Nov-19 00:56	1
PFPeA	2706-90-3	6.79	2.00		B9J0278	06-Nov-19	1.12 g	09-Nov-19 00:56	1
PFBS	375-73-5	ND	2.00		B9J0278	06-Nov-19	1.12 g	09-Nov-19 00:56	1
4:2 FTS	757124-72-4	ND	2.00		B9J0278	06-Nov-19	1.12 g	09-Nov-19 00:56	1
PFHxA	307-24-4	5.31	2.00		B9J0278	06-Nov-19	1.12 g	09-Nov-19 00:56	1
PFPeS	2706-91-4	ND	2.00		B9J0278	06-Nov-19	1.12 g	09-Nov-19 00:56	1
PFHpA	375-85-9	ND	2.00		B9J0278	06-Nov-19	1.12 g	09-Nov-19 00:56	1
PFHxS	355-46-4	23.9	2.00		B9J0278	06-Nov-19	1.12 g	09-Nov-19 00:56	1
6:2 FTS	27619-97-2	205	2.00		B9J0278	06-Nov-19	1.12 g	09-Nov-19 00:56	1
PFOA	335-67-1	6.29	2.00		B9J0278	06-Nov-19	1.12 g	09-Nov-19 00:56	1
PFHpS	375-92-8	2.02	2.00		B9J0278	06-Nov-19	1.12 g	09-Nov-19 00:56	1
PFNA	375-95-1	ND	2.00		B9J0278	06-Nov-19	1.12 g	09-Nov-19 00:56	1
PFOSA	754-91-6	ND	2.00		B9J0278	06-Nov-19	1.12 g	09-Nov-19 00:56	1
PFOS	1763-23-1	62.1	2.00		B9J0278	06-Nov-19	1.12 g	09-Nov-19 00:56	1
PFDA	335-76-2	ND	2.00		B9J0278	06-Nov-19	1.12 g	09-Nov-19 00:56	1
8:2 FTS	39108-34-4	13.5	2.00		B9J0278	06-Nov-19	1.12 g	09-Nov-19 00:56	1
MeFOSAA	2355-31-9	ND	2.00		B9J0278	06-Nov-19	1.12 g	09-Nov-19 00:56	1
EtFOSAA	2991-50-6	ND	2.00		B9J0278	06-Nov-19	1.12 g	09-Nov-19 00:56	1
PFUnA	2058-94-8	ND	2.00		B9J0278	06-Nov-19	1.12 g	09-Nov-19 00:56	1
PFDS	335-77-3	ND	2.00		B9J0278	06-Nov-19	1.12 g	09-Nov-19 00:56	1
PFDoA	307-55-1	ND	2.00		B9J0278	06-Nov-19	1.12 g	09-Nov-19 00:56	1
PFTrDA	72629-94-8	ND	2.00		B9J0278	06-Nov-19	1.12 g	09-Nov-19 00:56	1
PFTeDA	376-06-7	ND	2.00		B9J0278	06-Nov-19	1.12 g	09-Nov-19 00:56	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	98.2	50 - 150		B9J0278	06-Nov-19	1.12 g	09-Nov-19 00:56	1
13C3-PFPeA	IS	80.7	50 - 150		B9J0278	06-Nov-19	1.12 g	09-Nov-19 00:56	1
13C3-PFBS	IS	83.9	50 - 150		B9J0278	06-Nov-19	1.12 g	09-Nov-19 00:56	1
13C2-4:2 FTS	IS	78.2	50 - 150		B9J0278	06-Nov-19	1.12 g	09-Nov-19 00:56	1
13C2-PFHxA	IS	72.1	50 - 150		B9J0278	06-Nov-19	1.12 g	09-Nov-19 00:56	1
13C4-PFHpA	IS	73.2	50 - 150		B9J0278	06-Nov-19	1.12 g	09-Nov-19 00:56	1
13C3-PFHxS	IS	76.9	50 - 150		B9J0278	06-Nov-19	1.12 g	09-Nov-19 00:56	1
13C2-6:2 FTS	IS	66.2	50 - 150		B9J0278	06-Nov-19	1.12 g	09-Nov-19 00:56	1
13C5-PFNA	IS	64.2	50 - 150		B9J0278	06-Nov-19	1.12 g	09-Nov-19 00:56	1
13C8-PFOSA	IS	25.0	50 - 150	H	B9J0278	06-Nov-19	1.12 g	09-Nov-19 00:56	1
13C2-PFOA	IS	75.5	50 - 150		B9J0278	06-Nov-19	1.12 g	09-Nov-19 00:56	1
13C8-PFOS	IS	68.0	50 - 150		B9J0278	06-Nov-19	1.12 g	09-Nov-19 00:56	1
13C2-PFDA	IS	59.6	50 - 150		B9J0278	06-Nov-19	1.12 g	09-Nov-19 00:56	1
13C2-8:2 FTS	IS	74.6	50 - 150		B9J0278	06-Nov-19	1.12 g	09-Nov-19 00:56	1

Sample ID: L10-3-5 **PFAS Isotope Dilution Method**

Client Data				**Laboratory Data**			
Name:	Woodard & Curran	Matrix:	Soil	Lab Sample:	1903734-05	Column:	BEH C18
Project:	SJC PFAS Investigation	Date Collected:	17-Oct-19 21:46	Date Received:	19-Oct-19 09:58		
Location:	Location 10			% Solids:	89.2		

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
d3-MeFOSAA	IS	52.8	50 - 150		B9J0278	06-Nov-19	1.12 g	09-Nov-19 00:56	1
13C2-PFUnA	IS	56.2	50 - 150		B9J0278	06-Nov-19	1.12 g	09-Nov-19 00:56	1
d5-EtFOSAA	IS	58.8	50 - 150		B9J0278	06-Nov-19	1.12 g	09-Nov-19 00:56	1
13C2-PFDoA	IS	56.5	50 - 150		B9J0278	06-Nov-19	1.12 g	09-Nov-19 00:56	1
13C2-PFTeDA	IS	45.9	50 - 150	H	B9J0278	06-Nov-19	1.12 g	09-Nov-19 00:56	1

RL - Reporting limit

The results are reported in dry weight.
The sample size is reported in wet weight.
Results reported to RL.

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

Sample ID: L10-3-10 **PFAS Isotope Dilution Method**

Client Data			
Name:	Woodard & Curran	Matrix:	Soil
Project:	SJC PFAS Investigation	Date Collected:	17-Oct-19 21:50
Location:	Location 10		

Laboratory Data			
Lab Sample:	1903734-06	Column:	BEH C18
Date Received:	19-Oct-19 09:58		
% Solids:	80.9		

Analyte	CAS Number	Conc. (ng/g)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	ND	1.96		B9J0278	06-Nov-19	1.26 g	09-Nov-19 01:27	1
PFPeA	2706-90-3	3.60	1.96		B9J0278	06-Nov-19	1.26 g	09-Nov-19 01:27	1
PFBS	375-73-5	ND	1.96		B9J0278	06-Nov-19	1.26 g	09-Nov-19 01:27	1
4:2 FTS	757124-72-4	ND	1.96		B9J0278	06-Nov-19	1.26 g	09-Nov-19 01:27	1
PFHxA	307-24-4	2.76	1.96		B9J0278	06-Nov-19	1.26 g	09-Nov-19 01:27	1
PFPeS	2706-91-4	ND	1.96		B9J0278	06-Nov-19	1.26 g	09-Nov-19 01:27	1
PFHpA	375-85-9	ND	1.96		B9J0278	06-Nov-19	1.26 g	09-Nov-19 01:27	1
PFHxS	355-46-4	ND	1.96		B9J0278	06-Nov-19	1.26 g	09-Nov-19 01:27	1
6:2 FTS	27619-97-2	29.8	1.96		B9J0278	06-Nov-19	1.26 g	09-Nov-19 01:27	1
PFOA	335-67-1	ND	1.96		B9J0278	06-Nov-19	1.26 g	09-Nov-19 01:27	1
PFHpS	375-92-8	ND	1.96		B9J0278	06-Nov-19	1.26 g	09-Nov-19 01:27	1
PFNA	375-95-1	ND	1.96		B9J0278	06-Nov-19	1.26 g	09-Nov-19 01:27	1
PFOSA	754-91-6	ND	1.96		B9J0278	06-Nov-19	1.26 g	09-Nov-19 01:27	1
PFOS	1763-23-1	9.72	1.96		B9J0278	06-Nov-19	1.26 g	09-Nov-19 01:27	1
PFDA	335-76-2	ND	1.96		B9J0278	06-Nov-19	1.26 g	09-Nov-19 01:27	1
8:2 FTS	39108-34-4	53.6	1.96		B9J0278	06-Nov-19	1.26 g	09-Nov-19 01:27	1
MeFOSAA	2355-31-9	ND	1.96		B9J0278	06-Nov-19	1.26 g	09-Nov-19 01:27	1
EtFOSAA	2991-50-6	ND	1.96		B9J0278	06-Nov-19	1.26 g	09-Nov-19 01:27	1
PFUnA	2058-94-8	ND	1.96		B9J0278	06-Nov-19	1.26 g	09-Nov-19 01:27	1
PFDS	335-77-3	ND	1.96		B9J0278	06-Nov-19	1.26 g	09-Nov-19 01:27	1
PFDoA	307-55-1	ND	1.96		B9J0278	06-Nov-19	1.26 g	09-Nov-19 01:27	1
PFTrDA	72629-94-8	ND	1.96		B9J0278	06-Nov-19	1.26 g	09-Nov-19 01:27	1
PFTeDA	376-06-7	ND	1.96		B9J0278	06-Nov-19	1.26 g	09-Nov-19 01:27	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	97.2	50 - 150		B9J0278	06-Nov-19	1.26 g	09-Nov-19 01:27	1
13C3-PFPeA	IS	75.6	50 - 150		B9J0278	06-Nov-19	1.26 g	09-Nov-19 01:27	1
13C3-PFBS	IS	78.0	50 - 150		B9J0278	06-Nov-19	1.26 g	09-Nov-19 01:27	1
13C2-4:2 FTS	IS	74.1	50 - 150		B9J0278	06-Nov-19	1.26 g	09-Nov-19 01:27	1
13C2-PFHxA	IS	72.5	50 - 150		B9J0278	06-Nov-19	1.26 g	09-Nov-19 01:27	1
13C4-PFHpA	IS	68.0	50 - 150		B9J0278	06-Nov-19	1.26 g	09-Nov-19 01:27	1
13C3-PFHxS	IS	78.8	50 - 150		B9J0278	06-Nov-19	1.26 g	09-Nov-19 01:27	1
13C2-6:2 FTS	IS	70.7	50 - 150		B9J0278	06-Nov-19	1.26 g	09-Nov-19 01:27	1
13C5-PFNA	IS	63.5	50 - 150		B9J0278	06-Nov-19	1.26 g	09-Nov-19 01:27	1
13C8-PFOSA	IS	28.0	50 - 150	H	B9J0278	06-Nov-19	1.26 g	09-Nov-19 01:27	1
13C2-PFOA	IS	73.2	50 - 150		B9J0278	06-Nov-19	1.26 g	09-Nov-19 01:27	1
13C8-PFOS	IS	66.5	50 - 150		B9J0278	06-Nov-19	1.26 g	09-Nov-19 01:27	1
13C2-PFDA	IS	61.1	50 - 150		B9J0278	06-Nov-19	1.26 g	09-Nov-19 01:27	1
13C2-8:2 FTS	IS	72.2	50 - 150		B9J0278	06-Nov-19	1.26 g	09-Nov-19 01:27	1

Sample ID: L10-3-10 **PFAS Isotope Dilution Method**

Client Data				**Laboratory Data**			
Name:	Woodard & Curran	Matrix:	Soil	Lab Sample:	1903734-06	Column:	BEH C18
Project:	SJC PFAS Investigation	Date Collected:	17-Oct-19 21:50	Date Received:	19-Oct-19 09:58		
Location:	Location 10			% Solids:	80.9		

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
d3-MeFOSAA	IS	58.4	50 - 150		B9J0278	06-Nov-19	1.26 g	09-Nov-19 01:27	1
13C2-PFUnA	IS	57.1	50 - 150		B9J0278	06-Nov-19	1.26 g	09-Nov-19 01:27	1
d5-EtFOSAA	IS	61.3	50 - 150		B9J0278	06-Nov-19	1.26 g	09-Nov-19 01:27	1
13C2-PFDoA	IS	56.0	50 - 150		B9J0278	06-Nov-19	1.26 g	09-Nov-19 01:27	1
13C2-PFTeDA	IS	45.6	50 - 150	H	B9J0278	06-Nov-19	1.26 g	09-Nov-19 01:27	1

RL - Reporting limit

The results are reported in dry weight.
The sample size is reported in wet weight.
Results reported to RL.

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

Sample ID: L12-1-1 **PFAS Isotope Dilution Method**

Client Data

Name: Woodard & Curran
Project: SJC PFAS Investigation
Location: Location 10
Matrix: Soil
Date Collected: 17-Oct-19 23:12

Laboratory Data

Lab Sample: 1903734-07
Date Received: 19-Oct-19 09:58
% Solids: 83.4
Column: BEH C18

Analyte	CAS Number	Conc. (ng/g)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	ND	1.95		B9J0278	06-Nov-19	1.23 g	09-Nov-19 01:38	1
PFPeA	2706-90-3	ND	1.95		B9J0278	06-Nov-19	1.23 g	09-Nov-19 01:38	1
PFBS	375-73-5	ND	1.95		B9J0278	06-Nov-19	1.23 g	09-Nov-19 01:38	1
4:2 FTS	757124-72-4	ND	1.95		B9J0278	06-Nov-19	1.23 g	09-Nov-19 01:38	1
PFHxA	307-24-4	ND	1.95		B9J0278	06-Nov-19	1.23 g	09-Nov-19 01:38	1
PFPeS	2706-91-4	ND	1.95		B9J0278	06-Nov-19	1.23 g	09-Nov-19 01:38	1
PFHpA	375-85-9	2.02	1.95		B9J0278	06-Nov-19	1.23 g	09-Nov-19 01:38	1
PFHxS	355-46-4	ND	1.95		B9J0278	06-Nov-19	1.23 g	09-Nov-19 01:38	1
6:2 FTS	27619-97-2	ND	1.95		B9J0278	06-Nov-19	1.23 g	09-Nov-19 01:38	1
PFOA	335-67-1	2.32	1.95		B9J0278	06-Nov-19	1.23 g	09-Nov-19 01:38	1
PFHpS	375-92-8	ND	1.95		B9J0278	06-Nov-19	1.23 g	09-Nov-19 01:38	1
PFNA	375-95-1	2.25	1.95		B9J0278	06-Nov-19	1.23 g	09-Nov-19 01:38	1
PFOSA	754-91-6	ND	1.95		B9J0278	06-Nov-19	1.23 g	09-Nov-19 01:38	1
PFOS	1763-23-1	2.49	1.95		B9J0278	06-Nov-19	1.23 g	09-Nov-19 01:38	1
PFDA	335-76-2	6.24	1.95		B9J0278	06-Nov-19	1.23 g	09-Nov-19 01:38	1
8:2 FTS	39108-34-4	ND	1.95		B9J0278	06-Nov-19	1.23 g	09-Nov-19 01:38	1
MeFOSAA	2355-31-9	ND	1.95		B9J0278	06-Nov-19	1.23 g	09-Nov-19 01:38	1
EtFOSAA	2991-50-6	ND	1.95		B9J0278	06-Nov-19	1.23 g	09-Nov-19 01:38	1
PFUnA	2058-94-8	ND	1.95		B9J0278	06-Nov-19	1.23 g	09-Nov-19 01:38	1
PFDS	335-77-3	ND	1.95		B9J0278	06-Nov-19	1.23 g	09-Nov-19 01:38	1
PFDoA	307-55-1	ND	1.95		B9J0278	06-Nov-19	1.23 g	09-Nov-19 01:38	1
PFTrDA	72629-94-8	ND	1.95		B9J0278	06-Nov-19	1.23 g	09-Nov-19 01:38	1
PFTeDA	376-06-7	ND	1.95		B9J0278	06-Nov-19	1.23 g	09-Nov-19 01:38	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	96.4	50 - 150		B9J0278	06-Nov-19	1.23 g	09-Nov-19 01:38	1
13C3-PFPeA	IS	76.2	50 - 150		B9J0278	06-Nov-19	1.23 g	09-Nov-19 01:38	1
13C3-PFBS	IS	79.5	50 - 150		B9J0278	06-Nov-19	1.23 g	09-Nov-19 01:38	1
13C2-4:2 FTS	IS	73.5	50 - 150		B9J0278	06-Nov-19	1.23 g	09-Nov-19 01:38	1
13C2-PFHxA	IS	68.5	50 - 150		B9J0278	06-Nov-19	1.23 g	09-Nov-19 01:38	1
13C4-PFHpA	IS	71.3	50 - 150		B9J0278	06-Nov-19	1.23 g	09-Nov-19 01:38	1
13C3-PFHxS	IS	75.7	50 - 150		B9J0278	06-Nov-19	1.23 g	09-Nov-19 01:38	1
13C2-6:2 FTS	IS	75.5	50 - 150		B9J0278	06-Nov-19	1.23 g	09-Nov-19 01:38	1
13C5-PFNA	IS	63.6	50 - 150		B9J0278	06-Nov-19	1.23 g	09-Nov-19 01:38	1
13C8-PFOSA	IS	46.9	50 - 150	H	B9J0278	06-Nov-19	1.23 g	09-Nov-19 01:38	1
13C2-PFOA	IS	75.5	50 - 150		B9J0278	06-Nov-19	1.23 g	09-Nov-19 01:38	1
13C8-PFOS	IS	57.8	50 - 150		B9J0278	06-Nov-19	1.23 g	09-Nov-19 01:38	1
13C2-PFDA	IS	55.1	50 - 150		B9J0278	06-Nov-19	1.23 g	09-Nov-19 01:38	1
13C2-8:2 FTS	IS	74.1	50 - 150		B9J0278	06-Nov-19	1.23 g	09-Nov-19 01:38	1

Sample ID: L12-1-1 **PFAS Isotope Dilution Method**

Client Data				**Laboratory Data**			
Name:	Woodard & Curran	Matrix:	Soil	Lab Sample:	1903734-07	Column:	BEH C18
Project:	SJC PFAS Investigation	Date Collected:	17-Oct-19 23:12	Date Received:	19-Oct-19 09:58		
Location:	Location 10			% Solids:	83.4		

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
d3-MeFOSAA	IS	56.0	50 - 150		B9J0278	06-Nov-19	1.23 g	09-Nov-19 01:38	1
13C2-PFUnA	IS	41.4	50 - 150	H	B9J0278	06-Nov-19	1.23 g	09-Nov-19 01:38	1
d5-EtFOSAA	IS	61.0	50 - 150		B9J0278	06-Nov-19	1.23 g	09-Nov-19 01:38	1
13C2-PFDoA	IS	35.7	50 - 150	H	B9J0278	06-Nov-19	1.23 g	09-Nov-19 01:38	1
13C2-PFTeDA	IS	29.9	50 - 150	H	B9J0278	06-Nov-19	1.23 g	09-Nov-19 01:38	1

RL - Reporting limit

The results are reported in dry weight.
The sample size is reported in wet weight.
Results reported to RL.

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

Sample ID: L12-1-5 **PFAS Isotope Dilution Method**

Client Data			
Name:	Woodard & Curran	Matrix:	Soil
Project:	SJC PFAS Investigation	Date Collected:	17-Oct-19 23:16
Location:	Location 10		

Laboratory Data			
Lab Sample:	1903734-08	Column:	BEH C18
Date Received:	19-Oct-19 09:58		
% Solids:	78.9		

Analyte	CAS Number	Conc. (ng/g)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	ND	1.94		B9J0278	06-Nov-19	1.31 g	09-Nov-19 01:49	1
PFPeA	2706-90-3	ND	1.94		B9J0278	06-Nov-19	1.31 g	09-Nov-19 01:49	1
PFBS	375-73-5	ND	1.94		B9J0278	06-Nov-19	1.31 g	09-Nov-19 01:49	1
4:2 FTS	757124-72-4	ND	1.94		B9J0278	06-Nov-19	1.31 g	09-Nov-19 01:49	1
PFHxA	307-24-4	ND	1.94		B9J0278	06-Nov-19	1.31 g	09-Nov-19 01:49	1
PFPeS	2706-91-4	ND	1.94		B9J0278	06-Nov-19	1.31 g	09-Nov-19 01:49	1
PFHpA	375-85-9	ND	1.94		B9J0278	06-Nov-19	1.31 g	09-Nov-19 01:49	1
PFHxS	355-46-4	ND	1.94		B9J0278	06-Nov-19	1.31 g	09-Nov-19 01:49	1
6:2 FTS	27619-97-2	ND	1.94		B9J0278	06-Nov-19	1.31 g	09-Nov-19 01:49	1
PFOA	335-67-1	ND	1.94		B9J0278	06-Nov-19	1.31 g	09-Nov-19 01:49	1
PFHpS	375-92-8	ND	1.94		B9J0278	06-Nov-19	1.31 g	09-Nov-19 01:49	1
PFNA	375-95-1	ND	1.94		B9J0278	06-Nov-19	1.31 g	09-Nov-19 01:49	1
PFOSA	754-91-6	ND	1.94		B9J0278	06-Nov-19	1.31 g	09-Nov-19 01:49	1
PFOS	1763-23-1	ND	1.94		B9J0278	06-Nov-19	1.31 g	09-Nov-19 01:49	1
PFDA	335-76-2	ND	1.94		B9J0278	06-Nov-19	1.31 g	09-Nov-19 01:49	1
8:2 FTS	39108-34-4	ND	1.94		B9J0278	06-Nov-19	1.31 g	09-Nov-19 01:49	1
MeFOSAA	2355-31-9	ND	1.94		B9J0278	06-Nov-19	1.31 g	09-Nov-19 01:49	1
EtFOSAA	2991-50-6	ND	1.94		B9J0278	06-Nov-19	1.31 g	09-Nov-19 01:49	1
PFUnA	2058-94-8	ND	1.94		B9J0278	06-Nov-19	1.31 g	09-Nov-19 01:49	1
PFDS	335-77-3	ND	1.94		B9J0278	06-Nov-19	1.31 g	09-Nov-19 01:49	1
PFDoA	307-55-1	ND	1.94		B9J0278	06-Nov-19	1.31 g	09-Nov-19 01:49	1
PFTrDA	72629-94-8	ND	1.94		B9J0278	06-Nov-19	1.31 g	09-Nov-19 01:49	1
PFTeDA	376-06-7	ND	1.94		B9J0278	06-Nov-19	1.31 g	09-Nov-19 01:49	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	82.4	50 - 150		B9J0278	06-Nov-19	1.31 g	09-Nov-19 01:49	1
13C3-PFPeA	IS	63.9	50 - 150		B9J0278	06-Nov-19	1.31 g	09-Nov-19 01:49	1
13C3-PFBS	IS	69.5	50 - 150		B9J0278	06-Nov-19	1.31 g	09-Nov-19 01:49	1
13C2-4:2 FTS	IS	59.6	50 - 150		B9J0278	06-Nov-19	1.31 g	09-Nov-19 01:49	1
13C2-PFHxA	IS	59.8	50 - 150		B9J0278	06-Nov-19	1.31 g	09-Nov-19 01:49	1
13C4-PFHpA	IS	57.9	50 - 150		B9J0278	06-Nov-19	1.31 g	09-Nov-19 01:49	1
13C3-PFHxS	IS	65.9	50 - 150		B9J0278	06-Nov-19	1.31 g	09-Nov-19 01:49	1
13C2-6:2 FTS	IS	68.5	50 - 150		B9J0278	06-Nov-19	1.31 g	09-Nov-19 01:49	1
13C5-PFNA	IS	57.4	50 - 150		B9J0278	06-Nov-19	1.31 g	09-Nov-19 01:49	1
13C8-PFOSA	IS	43.1	50 - 150	H	B9J0278	06-Nov-19	1.31 g	09-Nov-19 01:49	1
13C2-PFOA	IS	65.3	50 - 150		B9J0278	06-Nov-19	1.31 g	09-Nov-19 01:49	1
13C8-PFOS	IS	59.2	50 - 150		B9J0278	06-Nov-19	1.31 g	09-Nov-19 01:49	1
13C2-PFDA	IS	50.6	50 - 150		B9J0278	06-Nov-19	1.31 g	09-Nov-19 01:49	1
13C2-8:2 FTS	IS	66.2	50 - 150		B9J0278	06-Nov-19	1.31 g	09-Nov-19 01:49	1

Sample ID: L12-1-5

PFAS Isotope Dilution Method

Client Data				Laboratory Data			
Name:	Woodard & Curran	Matrix:	Soil	Lab Sample:	1903734-08	Column:	BEH C18
Project:	SJC PFAS Investigation	Date Collected:	17-Oct-19 23:16	Date Received:	19-Oct-19 09:58		
Location:	Location 10			% Solids:	78.9		

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
d3-MeFOSAA	IS	44.3	50 - 150	H	B9J0278	06-Nov-19	1.31 g	09-Nov-19 01:49	1
13C2-PFUnA	IS	46.7	50 - 150	H	B9J0278	06-Nov-19	1.31 g	09-Nov-19 01:49	1
d5-EtFOSAA	IS	54.5	50 - 150		B9J0278	06-Nov-19	1.31 g	09-Nov-19 01:49	1
13C2-PFDoA	IS	45.4	50 - 150	H	B9J0278	06-Nov-19	1.31 g	09-Nov-19 01:49	1
13C2-PFTeDA	IS	29.2	50 - 150	H	B9J0278	06-Nov-19	1.31 g	09-Nov-19 01:49	1

RL - Reporting limit

The results are reported in dry weight.
The sample size is reported in wet weight.
Results reported to RL.

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

Sample ID: L12-1-10

PFAS Isotope Dilution Method

Client Data				**Laboratory Data**			
Name:	Woodard & Curran	Matrix:	Soil	Lab Sample:	1903734-09	Column:	BEH C18
Project:	SJC PFAS Investigation	Date Collected:	17-Oct-19 23:19	Date Received:	19-Oct-19 09:58		
Location:	Location 10			% Solids:	81.4		

Analyte	CAS Number	Conc. (ng/g)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	ND	2.00		B9J0278	06-Nov-19	1.23 g	09-Nov-19 01:59	1
PFPeA	2706-90-3	ND	2.00		B9J0278	06-Nov-19	1.23 g	09-Nov-19 01:59	1
PFBS	375-73-5	ND	2.00		B9J0278	06-Nov-19	1.23 g	09-Nov-19 01:59	1
4:2 FTS	757124-72-4	ND	2.00		B9J0278	06-Nov-19	1.23 g	09-Nov-19 01:59	1
PFHxA	307-24-4	ND	2.00		B9J0278	06-Nov-19	1.23 g	09-Nov-19 01:59	1
PFPeS	2706-91-4	ND	2.00		B9J0278	06-Nov-19	1.23 g	09-Nov-19 01:59	1
PFHpA	375-85-9	ND	2.00		B9J0278	06-Nov-19	1.23 g	09-Nov-19 01:59	1
PFHxS	355-46-4	ND	2.00		B9J0278	06-Nov-19	1.23 g	09-Nov-19 01:59	1
6:2 FTS	27619-97-2	ND	2.00		B9J0278	06-Nov-19	1.23 g	09-Nov-19 01:59	1
PFOA	335-67-1	ND	2.00		B9J0278	06-Nov-19	1.23 g	09-Nov-19 01:59	1
PFHpS	375-92-8	ND	2.00		B9J0278	06-Nov-19	1.23 g	09-Nov-19 01:59	1
PFNA	375-95-1	ND	2.00		B9J0278	06-Nov-19	1.23 g	09-Nov-19 01:59	1
PFOSA	754-91-6	ND	2.00		B9J0278	06-Nov-19	1.23 g	09-Nov-19 01:59	1
PFOS	1763-23-1	ND	2.00		B9J0278	06-Nov-19	1.23 g	09-Nov-19 01:59	1
PFDA	335-76-2	ND	2.00		B9J0278	06-Nov-19	1.23 g	09-Nov-19 01:59	1
8:2 FTS	39108-34-4	ND	2.00		B9J0278	06-Nov-19	1.23 g	09-Nov-19 01:59	1
MeFOSAA	2355-31-9	ND	2.00		B9J0278	06-Nov-19	1.23 g	09-Nov-19 01:59	1
EtFOSAA	2991-50-6	ND	2.00		B9J0278	06-Nov-19	1.23 g	09-Nov-19 01:59	1
PFUnA	2058-94-8	ND	2.00		B9J0278	06-Nov-19	1.23 g	09-Nov-19 01:59	1
PFDS	335-77-3	ND	2.00		B9J0278	06-Nov-19	1.23 g	09-Nov-19 01:59	1
PFDoA	307-55-1	ND	2.00		B9J0278	06-Nov-19	1.23 g	09-Nov-19 01:59	1
PFTrDA	72629-94-8	ND	2.00		B9J0278	06-Nov-19	1.23 g	09-Nov-19 01:59	1
PFTeDA	376-06-7	ND	2.00		B9J0278	06-Nov-19	1.23 g	09-Nov-19 01:59	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	87.2	50 - 150		B9J0278	06-Nov-19	1.23 g	09-Nov-19 01:59	1
13C3-PFPeA	IS	71.3	50 - 150		B9J0278	06-Nov-19	1.23 g	09-Nov-19 01:59	1
13C3-PFBS	IS	71.4	50 - 150		B9J0278	06-Nov-19	1.23 g	09-Nov-19 01:59	1
13C2-4:2 FTS	IS	70.8	50 - 150		B9J0278	06-Nov-19	1.23 g	09-Nov-19 01:59	1
13C2-PFHxA	IS	68.6	50 - 150		B9J0278	06-Nov-19	1.23 g	09-Nov-19 01:59	1
13C4-PFHpA	IS	66.6	50 - 150		B9J0278	06-Nov-19	1.23 g	09-Nov-19 01:59	1
13C3-PFHxS	IS	74.3	50 - 150		B9J0278	06-Nov-19	1.23 g	09-Nov-19 01:59	1
13C2-6:2 FTS	IS	73.1	50 - 150		B9J0278	06-Nov-19	1.23 g	09-Nov-19 01:59	1
13C5-PFNA	IS	63.1	50 - 150		B9J0278	06-Nov-19	1.23 g	09-Nov-19 01:59	1
13C8-PFOSA	IS	42.8	50 - 150	H	B9J0278	06-Nov-19	1.23 g	09-Nov-19 01:59	1
13C2-PFOA	IS	71.8	50 - 150		B9J0278	06-Nov-19	1.23 g	09-Nov-19 01:59	1
13C8-PFOS	IS	68.0	50 - 150		B9J0278	06-Nov-19	1.23 g	09-Nov-19 01:59	1
13C2-PFDA	IS	56.3	50 - 150		B9J0278	06-Nov-19	1.23 g	09-Nov-19 01:59	1
13C2-8:2 FTS	IS	69.1	50 - 150		B9J0278	06-Nov-19	1.23 g	09-Nov-19 01:59	1

Sample ID: L12-1-10

PFAS Isotope Dilution Method

Client Data			
Name:	Woodard & Curran	Matrix:	Soil
Project:	SJC PFAS Investigation	Date Collected:	17-Oct-19 23:19
Location:	Location 10		

Laboratory Data			
Lab Sample:	1903734-09	Column:	BEH C18
Date Received:	19-Oct-19 09:58		
% Solids:	81.4		

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
d3-MeFOSAA	IS	51.6	50 - 150		B9J0278	06-Nov-19	1.23 g	09-Nov-19 01:59	1
13C2-PFUnA	IS	49.2	50 - 150	H	B9J0278	06-Nov-19	1.23 g	09-Nov-19 01:59	1
d5-EtFOSAA	IS	58.9	50 - 150		B9J0278	06-Nov-19	1.23 g	09-Nov-19 01:59	1
13C2-PFDoA	IS	50.2	50 - 150		B9J0278	06-Nov-19	1.23 g	09-Nov-19 01:59	1
13C2-PFTeDA	IS	49.0	50 - 150	H	B9J0278	06-Nov-19	1.23 g	09-Nov-19 01:59	1

RL - Reporting limit

The results are reported in dry weight.
The sample size is reported in wet weight.
Results reported to RL.

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

Sample ID: Method Blank **PFAS Isotope Dilution Method**

Client Data
Name: Woodard & Curran
Project: SJC PFAS Investigation
Matrix: Aqueous

Laboratory Data
Lab Sample: B9J0240-BLK1
Column: BEH C18

Analyte	CAS Number	Conc. (ng/L)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	ND	2.00		B9J0240	30-Oct-19	0.250 L	06-Nov-19 21:02	1
PFPeA	2706-90-3	ND	2.00		B9J0240	30-Oct-19	0.250 L	06-Nov-19 21:02	1
PFBS	375-73-5	ND	2.00		B9J0240	30-Oct-19	0.250 L	06-Nov-19 21:02	1
4:2 FTS	757124-72-4	ND	2.00		B9J0240	30-Oct-19	0.250 L	06-Nov-19 21:02	1
PFHxA	307-24-4	ND	2.00		B9J0240	30-Oct-19	0.250 L	06-Nov-19 21:02	1
PFPeS	2706-91-4	ND	2.00		B9J0240	30-Oct-19	0.250 L	06-Nov-19 21:02	1
PFHpA	375-85-9	ND	2.00		B9J0240	30-Oct-19	0.250 L	06-Nov-19 21:02	1
PFHxS	355-46-4	ND	2.00		B9J0240	30-Oct-19	0.250 L	06-Nov-19 21:02	1
6:2 FTS	27619-97-2	ND	2.00		B9J0240	30-Oct-19	0.250 L	06-Nov-19 21:02	1
PFOA	335-67-1	ND	2.00		B9J0240	30-Oct-19	0.250 L	06-Nov-19 21:02	1
PFHpS	375-92-8	ND	2.00		B9J0240	30-Oct-19	0.250 L	06-Nov-19 21:02	1
PFNA	375-95-1	ND	2.00		B9J0240	30-Oct-19	0.250 L	06-Nov-19 21:02	1
PFOSA	754-91-6	ND	2.00		B9J0240	30-Oct-19	0.250 L	06-Nov-19 21:02	1
PFOS	1763-23-1	ND	2.00		B9J0240	30-Oct-19	0.250 L	06-Nov-19 21:02	1
PFDA	335-76-2	ND	2.00		B9J0240	30-Oct-19	0.250 L	06-Nov-19 21:02	1
8:2 FTS	39108-34-4	ND	2.00		B9J0240	30-Oct-19	0.250 L	06-Nov-19 21:02	1
MeFOSAA	2355-31-9	ND	2.00		B9J0240	30-Oct-19	0.250 L	06-Nov-19 21:02	1
EtFOSAA	2991-50-6	ND	2.00		B9J0240	30-Oct-19	0.250 L	06-Nov-19 21:02	1
PFUnA	2058-94-8	ND	2.00		B9J0240	30-Oct-19	0.250 L	06-Nov-19 21:02	1
PFDS	335-77-3	ND	2.00		B9J0240	30-Oct-19	0.250 L	06-Nov-19 21:02	1
PFDoA	307-55-1	ND	2.00		B9J0240	30-Oct-19	0.250 L	06-Nov-19 21:02	1
PFTrDA	72629-94-8	ND	2.00		B9J0240	30-Oct-19	0.250 L	06-Nov-19 21:02	1
PFTeDA	376-06-7	ND	2.00		B9J0240	30-Oct-19	0.250 L	06-Nov-19 21:02	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	113	50 - 150		B9J0240	30-Oct-19	0.250 L	06-Nov-19 21:02	1
13C3-PFPeA	IS	110	50 - 150		B9J0240	30-Oct-19	0.250 L	06-Nov-19 21:02	1
13C3-PFBS	IS	127	50 - 150		B9J0240	30-Oct-19	0.250 L	06-Nov-19 21:02	1
13C2-4:2 FTS	IS	123	50 - 150		B9J0240	30-Oct-19	0.250 L	06-Nov-19 21:02	1
13C2-PFHxA	IS	106	50 - 150		B9J0240	30-Oct-19	0.250 L	06-Nov-19 21:02	1
13C4-PFHpA	IS	101	50 - 150		B9J0240	30-Oct-19	0.250 L	06-Nov-19 21:02	1
13C3-PFHxS	IS	112	50 - 150		B9J0240	30-Oct-19	0.250 L	06-Nov-19 21:02	1
13C2-6:2 FTS	IS	108	50 - 150		B9J0240	30-Oct-19	0.250 L	06-Nov-19 21:02	1
13C5-PFNA	IS	115	50 - 150		B9J0240	30-Oct-19	0.250 L	06-Nov-19 21:02	1
13C8-PFOSA	IS	31.2	50 - 150	H	B9J0240	30-Oct-19	0.250 L	06-Nov-19 21:02	1
13C2-PFOA	IS	122	50 - 150		B9J0240	30-Oct-19	0.250 L	06-Nov-19 21:02	1
13C8-PFOS	IS	110	50 - 150		B9J0240	30-Oct-19	0.250 L	06-Nov-19 21:02	1
13C2-PFDA	IS	106	50 - 150		B9J0240	30-Oct-19	0.250 L	06-Nov-19 21:02	1
13C2-8:2 FTS	IS	109	50 - 150		B9J0240	30-Oct-19	0.250 L	06-Nov-19 21:02	1

Sample ID: Method Blank

PFAS Isotope Dilution Method

Client Data				**Laboratory Data**			
Name:	Woodard & Curran	Matrix:	Aqueous	Lab Sample:	B9J0240-BLK1	Column:	BEH C18
Project:	SJC PFAS Investigation						

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
d3-MeFOSAA	IS	97.2	50 - 150		B9J0240	30-Oct-19	0.250 L	06-Nov-19 21:02	1
13C2-PFUnA	IS	93.8	50 - 150		B9J0240	30-Oct-19	0.250 L	06-Nov-19 21:02	1
d5-EtFOSAA	IS	98.7	50 - 150		B9J0240	30-Oct-19	0.250 L	06-Nov-19 21:02	1
13C2-PFDoA	IS	89.0	50 - 150		B9J0240	30-Oct-19	0.250 L	06-Nov-19 21:02	1
13C2-PFTeDA	IS	89.2	50 - 150		B9J0240	30-Oct-19	0.250 L	06-Nov-19 21:02	1

RL - Reporting limit

Results reported to RL.

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

Sample ID: LCSD

PFAS Isotope Dilution Method

Name:	Woodard & Curran	Lab Sample:	B9J0240-BS1/B9J0240-BSD1		
Project:	SJC PFAS Investigation	QC Batch:	B9J0240	Date Extracted:	30-Oct-19
Matrix:	Aqueous	Samp Size:	0.250/0.250 L	Column:	BEH C18

Analyte	CAS Number	LCS (ng/L)	LCS Spike	LCS % Rec	LCS Quals	LCSD (ng/L)	LCSD Spike	LCSD % Rec	RPD	LCSD Quals	%Rec Limits	RPD Limits	LCS Analyzed	LCS Dil	LCSD Analyzed	LCSD Dil
PFBA	375-22-4	42.2	40.0	106		41.1	40.0	103	2.57		73-129	30	06-Nov-19 21:12	1	06-Nov-19 21:23	1
PFPeA	2706-90-3	41.6	40.0	104		43.1	40.0	108	3.75		72-129	30	06-Nov-19 21:12	1	06-Nov-19 21:23	1
PFBS	375-73-5	42.4	40.0	106		40.4	40.0	101	5.04		72-130	30	06-Nov-19 21:12	1	06-Nov-19 21:23	1
4:2 FTS	757124-72-4	36.6	40.0	91.5		36.1	40.0	90.2	1.47		63-143	30	06-Nov-19 21:12	1	06-Nov-19 21:23	1
PFHxA	307-24-4	45.8	40.0	114		45.4	40.0	113	0.867		72-129	30	06-Nov-19 21:12	1	06-Nov-19 21:23	1
PFPeS	2706-91-4	45.4	40.0	113		41.8	40.0	105	8.23		71-127	30	06-Nov-19 21:12	1	06-Nov-19 21:23	1
PFHpA	375-85-9	46.4	40.0	116		43.6	40.0	109	6.22		72-130	30	06-Nov-19 21:12	1	06-Nov-19 21:23	1
PFHxS	355-46-4	39.3	40.0	98.1		38.4	40.0	95.9	2.27		68-131	30	06-Nov-19 21:12	1	06-Nov-19 21:23	1
6:2 FTS	27619-97-2	36.9	40.0	92.2		39.6	40.0	99.0	7.11		64-140	30	06-Nov-19 21:12	1	06-Nov-19 21:23	1
PFOA	335-67-1	46.2	40.0	115		42.4	40.0	106	8.41		71-133	30	06-Nov-19 21:12	1	06-Nov-19 21:23	1
PFHpS	375-92-8	44.6	40.0	111		45.3	40.0	113	1.51		69-134	30	06-Nov-19 21:12	1	06-Nov-19 21:23	1
PFNA	375-95-1	39.6	40.0	98.9		39.9	40.0	99.7	0.766		69-130	30	06-Nov-19 21:12	1	06-Nov-19 21:23	1
PFOSA	754-91-6	48.7	40.0	122		47.2	40.0	118	3.14		67-137	30	06-Nov-19 21:12	1	06-Nov-19 21:23	1
PFOS	1763-23-1	40.4	40.0	101		41.0	40.0	103	1.61		65-140	30	06-Nov-19 21:12	1	06-Nov-19 21:23	1
PFDA	335-76-2	43.9	40.0	110		43.1	40.0	108	1.84		71-129	30	06-Nov-19 21:12	1	06-Nov-19 21:23	1
8:2 FTS	39108-34-4	43.9	40.0	110		41.4	40.0	103	6.00		67-138	30	06-Nov-19 21:12	1	06-Nov-19 21:23	1
MeFOSAA	2355-31-9	33.6	40.0	83.9		33.4	40.0	83.5	0.550		65-136	30	06-Nov-19 21:12	1	06-Nov-19 21:23	1
EtFOSAA	2991-50-6	42.4	40.0	106		40.8	40.0	102	3.91		61-135	30	06-Nov-19 21:12	1	06-Nov-19 21:23	1
PFUnA	2058-94-8	40.5	40.0	101		42.0	40.0	105	3.62		69-133	30	06-Nov-19 21:12	1	06-Nov-19 21:23	1
PFDS	335-77-3	34.2	40.0	85.4		36.7	40.0	91.7	7.10		53-142	30	06-Nov-19 21:12	1	06-Nov-19 21:23	1
PFDoA	307-55-1	43.6	40.0	109		44.0	40.0	110	0.879		72-134	30	06-Nov-19 21:12	1	06-Nov-19 21:23	1
PFTrDA	72629-94-8	37.5	40.0	93.8		37.5	40.0	93.8	0.00135		65-144	30	06-Nov-19 21:12	1	06-Nov-19 21:23	1
PFTeDA	376-06-7	42.4	40.0	106		42.8	40.0	107	0.985		71-132	30	06-Nov-19 21:12	1	06-Nov-19 21:23	1

Labeled Standards	Type	LCS % Rec	LCS Quals	LCSD % Rec	LCSD Quals	Limits	LCS Analyzed	LCS Dil	LCSD Analyzed	LCSD Dil
13C3-PFBA	IS	115		122		50-150	06-Nov-19 21:12	1	06-Nov-19 21:23	1
13C3-PFPeA	IS	117		117		50-150	06-Nov-19 21:12	1	06-Nov-19 21:23	1
13C3-PFBS	IS	123		135		50-150	06-Nov-19 21:12	1	06-Nov-19 21:23	1
13C2-4:2 FTS	IS	116		120		50-150	06-Nov-19 21:12	1	06-Nov-19 21:23	1
13C2-PFHxA	IS	117		121		50-150	06-Nov-19 21:12	1	06-Nov-19 21:23	1
13C4-PFHpA	IS	106		115		50-150	06-Nov-19 21:12	1	06-Nov-19 21:23	1
13C3-PFHxS	IS	120		122		50-150	06-Nov-19 21:12	1	06-Nov-19 21:23	1
13C2-6:2 FTS	IS	119		111		50-150	06-Nov-19 21:12	1	06-Nov-19 21:23	1

Sample ID: LCSD **PFAS Isotope Dilution Method**

Name:	Woodard & Curran	Lab Sample:	B9J0240-BS1/B9J0240-BSD1	Date Extracted:	30-Oct-19
Project:	SJC PFAS Investigation	QC Batch:	B9J0240	Column:	BEH C18
Matrix:	Aqueous	Samp Size:	0.250/0.250 L		

Labeled Standards	Type	LCS % Rec	LCS Quals	LCSD % Rec	LCSD Quals	Limits	LCS Analyzed	LCS Dil	LCSD Analyzed	LCSD Dil
13C5-PFNA	IS	118		121		50-150	06-Nov-19 21:12	1	06-Nov-19 21:23	1
13C8-PFOSA	IS	41.2	H	41.5	H	50-150	06-Nov-19 21:12	1	06-Nov-19 21:23	1
13C2-PFOA	IS	113		122		50-150	06-Nov-19 21:12	1	06-Nov-19 21:23	1
13C8-PFOS	IS	113		114		50-150	06-Nov-19 21:12	1	06-Nov-19 21:23	1
13C2-PFDA	IS	108		117		50-150	06-Nov-19 21:12	1	06-Nov-19 21:23	1
13C2-8:2 FTS	IS	103		115		50-150	06-Nov-19 21:12	1	06-Nov-19 21:23	1
d3-MeFOSAA	IS	104		112		50-150	06-Nov-19 21:12	1	06-Nov-19 21:23	1
13C2-PFUnA	IS	92.0		100		50-150	06-Nov-19 21:12	1	06-Nov-19 21:23	1
d5-EtFOSAA	IS	95.4		107		50-150	06-Nov-19 21:12	1	06-Nov-19 21:23	1
13C2-PFDoA	IS	94.4		98.6		50-150	06-Nov-19 21:12	1	06-Nov-19 21:23	1
13C2-PFTeDA	IS	88.9		91.2		50-150	06-Nov-19 21:12	1	06-Nov-19 21:23	1

Sample ID: FB-2 **PFAS Isotope Dilution Method**

Client Data				**Laboratory Data**			
Name:	Woodard & Curran	Matrix:	Aqueous	Lab Sample:	1903734-10	Column:	BEH C18
Project:	SJC PFAS Investigation	Date Collected:	18-Oct-19 00:35	Date Received:	19-Oct-19 09:58		
Location:	Location 12						

Analyte	CAS Number	Conc. (ng/L)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	ND	2.08		B9J0240	30-Oct-19	0.240 L	06-Nov-19 22:26	1
PFPeA	2706-90-3	ND	2.08		B9J0240	30-Oct-19	0.240 L	06-Nov-19 22:26	1
PFBS	375-73-5	ND	2.08		B9J0240	30-Oct-19	0.240 L	06-Nov-19 22:26	1
4:2 FTS	757124-72-4	ND	2.08		B9J0240	30-Oct-19	0.240 L	06-Nov-19 22:26	1
PFHxA	307-24-4	ND	2.08		B9J0240	30-Oct-19	0.240 L	06-Nov-19 22:26	1
PFPeS	2706-91-4	ND	2.08		B9J0240	30-Oct-19	0.240 L	06-Nov-19 22:26	1
PFHpA	375-85-9	ND	2.08		B9J0240	30-Oct-19	0.240 L	06-Nov-19 22:26	1
PFHxS	355-46-4	ND	2.08		B9J0240	30-Oct-19	0.240 L	06-Nov-19 22:26	1
6:2 FTS	27619-97-2	ND	2.08		B9J0240	30-Oct-19	0.240 L	06-Nov-19 22:26	1
PFOA	335-67-1	ND	2.08		B9J0240	30-Oct-19	0.240 L	06-Nov-19 22:26	1
PFHpS	375-92-8	ND	2.08		B9J0240	30-Oct-19	0.240 L	06-Nov-19 22:26	1
PFNA	375-95-1	ND	2.08		B9J0240	30-Oct-19	0.240 L	06-Nov-19 22:26	1
PFOSA	754-91-6	ND	2.08		B9J0240	30-Oct-19	0.240 L	06-Nov-19 22:26	1
PFOS	1763-23-1	ND	2.08		B9J0240	30-Oct-19	0.240 L	06-Nov-19 22:26	1
PFDA	335-76-2	ND	2.08		B9J0240	30-Oct-19	0.240 L	06-Nov-19 22:26	1
8:2 FTS	39108-34-4	ND	2.08		B9J0240	30-Oct-19	0.240 L	06-Nov-19 22:26	1
MeFOSAA	2355-31-9	ND	2.08		B9J0240	30-Oct-19	0.240 L	06-Nov-19 22:26	1
EtFOSAA	2991-50-6	ND	2.08		B9J0240	30-Oct-19	0.240 L	06-Nov-19 22:26	1
PFUnA	2058-94-8	ND	2.08		B9J0240	30-Oct-19	0.240 L	06-Nov-19 22:26	1
PFDS	335-77-3	ND	2.08		B9J0240	30-Oct-19	0.240 L	06-Nov-19 22:26	1
PFDoA	307-55-1	ND	2.08		B9J0240	30-Oct-19	0.240 L	06-Nov-19 22:26	1
PFTrDA	72629-94-8	ND	2.08		B9J0240	30-Oct-19	0.240 L	06-Nov-19 22:26	1
PFTeDA	376-06-7	ND	2.08		B9J0240	30-Oct-19	0.240 L	06-Nov-19 22:26	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	128	50 - 150		B9J0240	30-Oct-19	0.240 L	06-Nov-19 22:26	1
13C3-PFPeA	IS	121	50 - 150		B9J0240	30-Oct-19	0.240 L	06-Nov-19 22:26	1
13C3-PFBS	IS	125	50 - 150		B9J0240	30-Oct-19	0.240 L	06-Nov-19 22:26	1
13C2-4:2 FTS	IS	123	50 - 150		B9J0240	30-Oct-19	0.240 L	06-Nov-19 22:26	1
13C2-PFHxA	IS	114	50 - 150		B9J0240	30-Oct-19	0.240 L	06-Nov-19 22:26	1
13C4-PFHpA	IS	112	50 - 150		B9J0240	30-Oct-19	0.240 L	06-Nov-19 22:26	1
13C3-PFHxS	IS	114	50 - 150		B9J0240	30-Oct-19	0.240 L	06-Nov-19 22:26	1
13C2-6:2 FTS	IS	109	50 - 150		B9J0240	30-Oct-19	0.240 L	06-Nov-19 22:26	1
13C5-PFNA	IS	128	50 - 150		B9J0240	30-Oct-19	0.240 L	06-Nov-19 22:26	1
13C8-PFOSA	IS	54.7	50 - 150		B9J0240	30-Oct-19	0.240 L	06-Nov-19 22:26	1
13C2-PFOA	IS	128	50 - 150		B9J0240	30-Oct-19	0.240 L	06-Nov-19 22:26	1
13C8-PFOS	IS	126	50 - 150		B9J0240	30-Oct-19	0.240 L	06-Nov-19 22:26	1
13C2-PFDA	IS	121	50 - 150		B9J0240	30-Oct-19	0.240 L	06-Nov-19 22:26	1
13C2-8:2 FTS	IS	115	50 - 150		B9J0240	30-Oct-19	0.240 L	06-Nov-19 22:26	1

Sample ID: FB-2 **PFAS Isotope Dilution Method**

Client Data				**Laboratory Data**			
Name:	Woodard & Curran	Matrix:	Aqueous	Lab Sample:	1903734-10	Column:	BEH C18
Project:	SJC PFAS Investigation	Date Collected:	18-Oct-19 00:35	Date Received:	19-Oct-19 09:58		
Location:	Location 12						

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
d3-MeFOSAA	IS	119	50 - 150		B9J0240	30-Oct-19	0.240 L	06-Nov-19 22:26	1
13C2-PFUnA	IS	108	50 - 150		B9J0240	30-Oct-19	0.240 L	06-Nov-19 22:26	1
d5-EtFOSAA	IS	111	50 - 150		B9J0240	30-Oct-19	0.240 L	06-Nov-19 22:26	1
13C2-PFDoA	IS	111	50 - 150		B9J0240	30-Oct-19	0.240 L	06-Nov-19 22:26	1
13C2-PFTeDA	IS	93.1	50 - 150		B9J0240	30-Oct-19	0.240 L	06-Nov-19 22:26	1

RL - Reporting limit

Results reported to RL.

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

DATA QUALIFIERS & ABBREVIATIONS

B	This compound was also detected in the method blank
Conc.	Concentration
CRS	Cleanup Recovery Standard
D	Dilution
DL	Detection limit
E	The associated compound concentration exceeded the calibration range of the instrument
H	Recovery and/or RPD was outside laboratory acceptance limits
I	Chemical Interference
IS	Internal Standard
J	The amount detected is below the Reporting Limit/LOQ
LOD	Limit of Detection
LOQ	Limit of Quantitation
M	Estimated Maximum Possible Concentration (CA Region 2 projects only)
NA	Not applicable
ND	Not Detected
OPR	Ongoing Precision and Recovery sample
P	The reported concentration may include contribution from chlorinated diphenyl ether(s).
Q	The ion transition ratio is outside of the acceptance criteria.
RL	Reporting Limit
TEQ	Toxic Equivalency
U	Not Detected (specific projects only)
*	See Cover Letter

Unless otherwise noted, solid sample results are reported in dry weight. Tissue samples are reported in wet weight.

Vista Analytical Laboratory Certifications

Accrediting Authority	Certificate Number
Alaska Department of Environmental Conservation	17-013
Arkansas Department of Environmental Quality	19-013-0
California Department of Health – ELAP	2892
DoD ELAP - A2LA Accredited - ISO/IEC 17025:2005	3091.01
Florida Department of Health	E87777-23
Hawaii Department of Health	N/A
Louisiana Department of Environmental Quality	01977
Maine Department of Health	2018017
Massachusetts Department of Environmental Protection	N/A
Michigan Department of Environmental Quality	9932
Minnesota Department of Health	1521520
New Hampshire Environmental Accreditation Program	207718-B
New Jersey Department of Environmental Protection	190001
New York Department of Health	11411
Oregon Laboratory Accreditation Program	4042-010
Pennsylvania Department of Environmental Protection	016
Texas Commission on Environmental Quality	T104704189-19-10
Vermont Department of Health	VT-4042
Virginia Department of General Services	10272
Washington Department of Ecology	C584-19
Wisconsin Department of Natural Resources	998036160

Current certificates and lists of licensed parameters are located in the Quality Assurance office and are available upon request.

NELAP Accredited Test Methods

MATRIX: Air	
Description of Test	**Method**
Determination of Polychlorinated p-Dioxins & Polychlorinated Dibenzofurans	EPA 23
Determination of Polychlorinated p-Dioxins & Polychlorinated Dibenzofurans	EPA TO-9A

MATRIX: Biological Tissue	
Description of Test	**Method**
Tetra- through Octa-Chlorinated Dioxins and Furans by Isotope Dilution GC/HRMS	EPA 1613B
Brominated Diphenyl Ethers by HRGC/HRMS	EPA 1614A
Chlorinated Biphenyl Congeners in Water, Soil, Sediment, and Tissue by GC/HRMS	EPA 1668A/C
Pesticides in Water, Soil, Sediment, Biosolids, and Tissue by HRGC/HRMS	EPA 1699
Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/MS/MS	EPA 537
Polychlorinated Dibenzo-p-Dioxins and Polychlorinated Dibenzofurans by GC/HRMS	EPA 8280A/B
Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by GC/HRMS	EPA 8290/8290A

MATRIX: Drinking Water	
Description of Test	**Method**
2,3,7,8-Tetrachlorodibenzo- p-dioxin (2,3,7,8-TCDD) GC/HRMS	EPA 1613/1613B
1,4-Dioxane (1,4-Diethyleneoxide) analysis by GC/HRMS	EPA 522
Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/MS/MS	EPA 537
Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/MS/MS	ISO 25101 2009

MATRIX: Non-Potable Water	
Description of Test	**Method**
Tetra- through Octa-Chlorinated Dioxins and Furans by Isotope Dilution GC/HRMS	EPA 1613B
Brominated Diphenyl Ethers by HRGC/HRMS	EPA 1614A
Chlorinated Biphenyl Congeners in Water, Soil, Sediment, and Tissue by GC/HRMS	EPA 1668A/C
Pesticides in Water, Soil, Sediment, Biosolids, and Tissue by HRGC/HRMS	EPA 1699
Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/MS/MS	EPA 537
Dioxin by GC/HRMS	EPA 613
Polychlorinated Dibenzo-p-Dioxins and Polychlorinated Dibenzofurans by GC/HRMS	EPA 8280A/B
Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by GC/HRMS	EPA 8290/8290A

MATRIX: Solids	
Description of Test	**Method**
Tetra-Octa Chlorinated Dioxins and Furans by Isotope Dilution GC/HRMS	EPA 1613
Tetra- through Octa-Chlorinated Dioxins and Furans by Isotope Dilution GC/HRMS	EPA 1613B
Brominated Diphenyl Ethers by HRGC/HRMS	EPA 1614A
Chlorinated Biphenyl Congeners in Water, Soil, Sediment, and Tissue by GC/HRMS	EPA 1668A/C
Pesticides in Water, Soil, Sediment, Biosolids, and Tissue by HRGC/HRMS	EPA 1699
Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/MS/MS	EPA 537
Polychlorinated Dibenzo-p-Dioxins and Polychlorinated Dibenzofurans by GC/HRMS	EPA 8280A/B
Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by GC/HRMS	EPA 8290/8290A

Rev. No.: 0
Rev. Date: 06/27/2017

ID: LR - 537COC

Vista
Analytical Laboratory

CHAIN OF CUSTODY

For Laboratory Use Only
Work Order #: 1903734 Temp: 0.8 °C
Storage ID: R-13, WR-2 Storage Secured: Yes ☑ No ☐

Project ID: SJC PFAS Investigation PO#: ______ Sampler: KA/GV (name)

TAT (check one): Standard: ☒ 21 days
Rush (surcharge may apply) ☐ 14 days ☐ 7 days Specify: ______

Invoice to: Name	Company	Address	City	State	Ph#	Fax#
Jim Strandberg	Woodard & Curran	2175 N. California Blvd, Ste 315	Walnut Creek	CA		(925) 627-4122

Relinquished by (printed name and signature)	Date	Time	Received by (printed name and signature)	Date	Time
Kevin Almestad	10/18/19	1345	Fedex Kevin Almestad	10/18/19	1345
FEDEX →			Kim Eric	10/19/19	0958

SHIP TO: Vista Analytical Laboratory
1104 Windfield Way
El Dorado Hills, CA 95762
(916) 673-1520 * Fax (916) 673-0106

ATTN: Jennifer Miller

Method of Shipment: Fedex
Tracking No.: ______

Add Analysis(es) Requested

				Container(s)			Mod. EPA Method 537					EPA Method 537(DW only)			
Sample ID	Date	Time	Location/Sample Description	Quantity	Type	Matrix	PFOA/PFOS	UCMR3 PFAS List:6	537 List: 14	Full List of 26	Other: Please List Below CA Airport List (23)	PFOA/PFOS	UCMR3 PFAS List:6	PFAS List: 14	Comments
L10-2-1	10/17/19	2201	Location 10	1	PJ	SO					X				
L10-2-5	↓	2203	↓	1	PJ	SO					↓				
L10-2-10	↓	2207	↓	1	PJ	SO					↓				
L10-3-1	↓	2143	↓	1	PJ	SO					↓				
L10-3-5	↓	2146	↓	1	PJ	SO					↓				
L10-3-10	↓	2150	↓	1	PJ	SO					↓				
L12-1-1	↓	2312	↓	1	PJ	SO					↓				
L12-1-5	↓	2316	↓	1	PJ	SO					↓				
L12-1-10	↓	2319	↓	1	PJ	SO					↓				
FB-2	10/18/19	0035	Location 12	2	P	AQ					↓				

Special Instructions/Comments: Geotracker EDF
Fedex wouldn't sign chain, signed for them

SEND DOCUMENTATION AND RESULTS TO:
Name: Jim Strandberg
Company: Woodard & Curran, Inc.
Address: 2175 N California Blvd, Ste 315
City: Walnut Creek State: CA Zip: 94597
Phone: (510) 310-3776 Fax: (925) - 627 - 4101
Email: Jstrandberg@woodardcurran.com

Container Types: P= HDPE, PJ= HDPE Jar
O = Other: ______

Bottle Preservation Type: T = Thiosulfate,
TZ = Trizma: ______

Matrix Types: AQ = Aqueous, DW = Drinking Water, EF = Effluent, PP = Pulp/Paper, SD = Sediment,
SL = Sludge, SO = Soil, WW = Wastewater, B = Blood/Serum, O = Other: ______

Page: 1 of 2

Vista
Analytical Laboratory

Sample Log-In Checklist

Page # 1 of 1

Vista Work Order #: 1903734 TAT std

Samples Arrival:	**Date/Time** 10/19/19 0958	**Initials:** KE	**Location:** WR-2 **Shelf/Rack:** NA

Delivered By:	[✓ FedEx]	UPS	On Trac	GSO	DHL	Hand Delivered	Other
Preservation:	[✓ Ice]	Blue Ice		Dry Ice			None

Temp °C: 0.8 **(uncorrected)**	**Probe used:** Y / [✓ N]	**Thermometer ID:** IR-4
Temp °C: 0.8 **(corrected)**		

						YES	NO	NA
Shipping Container(s) Intact?						✓		
Shipping Custody Seals Intact?								✓
Airbill SAT DELIVERY	Trk # 7803 6137 7680					✓		
Shipping Documentation Present?						✓		
Shipping Container	[✓ Vista]	Client	[✓ Retain]	Return	Dispose			
Chain of Custody / Sample Documentation Present?						✓		
Chain of Custody / Sample Documentation Complete?						✓		
Holding Time Acceptable?						✓		

Logged In:	**Date/Time** 10/21/19 1013	**Initials:** ajm	**Location:** R-13/ WR-2 **Shelf/Rack:** A-1 / E-2

COC Anomaly/Sample Acceptance Form completed?		✓	✓

Comments:

ID.: LR – SLC *Rev No.: 4* *Rev Date: 10/08/2019* *Page:* 1 of 1

CoC/Label Reconciliation Report WO# 1903734

LabNumber	CoC Sample ID	Label ID matches COCID	Label ID doesn't match COCID	SampleAlias	Sampled	Label Sampled matches	Sampled doesn't match	Container	Container Correct	BaseMatrix	Sample Comments
1903734-01 A	L10-2-1	☑		Location 10	17-Oct-19 22:01	☑		HDPE Jar, 6 oz	☑	Solid	
1903734-02 A	L10-2-5	☑		Location 10	17-Oct-19 22:03	☑		HDPE Jar, 6 oz	☑	Solid	
1903734-03 A	L10-2-10	☑		Location 10	17-Oct-19 22:07	☑		HDPE Jar, 6 oz	☑	Solid	
1903734-04 A	L10-3-1	☑		Location 10	17-Oct-19 21:43	☑		HDPE Jar, 6 oz	☑	Solid	
1903734-05 A	L10-3-5	☑		Location 10	17-Oct-19 21:46	☑		HDPE Jar, 6 oz	☑	Solid	
1903734-06 A	L10-3-10	☑		Location 10	17-Oct-19 21:50	☑		HDPE Jar, 6 oz	☑	Solid	
1903734-07 A	L12-1-1	☑		Location 10	17-Oct-19 23:12	☑		HDPE Jar, 6 oz	☑	Solid	
1903734-08 A	L12-1-5	☑		Location 10	17-Oct-19 23:16	☑		HDPE Jar, 6 oz	☑	Solid	
1903734-09 A	L12-1-10	☑		Location 10	17-Oct-19 23:19	☑		HDPE Jar, 6 oz	☑	Solid	
1903734-10 A	FB-2	☑		Location 12	18-Oct-19 00:35	☑		HDPE Bottle, 250 mL	☑	Aqueous	
1903734-10 B	FB-2	☑		Location 12	18-Oct-19 00:35	☑		HDPE Bottle, 250 mL	☑	Aqueous	

	Yes	No	NA
Sample Container Intact?	✓		
Sample Custody Seals Intact?			✓
Adequate Sample Volume?	✓		
Preservation Documented: Na2S2O3 Trizma [✓ None] Other			✓
If Chlorinated or Drinking Water Samples, Acceptable Preservation?			✓

Comments:

Verifed by/Date: SC 10/21/19

November 12, 2019

Vista Work Order No. 1903735

Mr. Jim Strandberg
Woodard & Curran
2175 North California Boulevard, Suite 315
Walnut Creek, CA 94596

Dear Mr. Strandberg,

Enclosed are the results for the sample set received at Vista Analytical Laboratory on October 19, 2019 under your Project Name 'SJC PFAS Investigation'.

Vista Analytical Laboratory is committed to serving you effectively. If you require additional information, please contact me at 916-673-1520 or by email at mmaier@vista-analytical.com.

Thank you for choosing Vista as part of your analytical support team.

Sincerely,

Martha Maier
Laboratory Director

Vista Work Order No. 1903735
Case Narrative

Sample Condition on Receipt:

Nine soil samples and two aqueous sample were received in good condition and within the method temperature requirements. The samples were received and stored securely in accordance with Vista standard operating procedures and EPA methodology.

Analytical Notes:

PFAS Isotope Dilution Method-Aqueous

Samples "L12-3-6W" and "L12-30-6W" contained particulate and were centrifuged prior to extraction.

The samples were extracted and analyzed for a selected list of PFAS using the PFAS Isotope Dilution Method. The results for PFHxS, PFOA, PFOS, MeFOSAA, and EtFOSAA include both linear and branched isomers. Results for all other analytes include the linear isomers only.

Holding Times

The samples were extracted and analyzed within the method hold times.

Quality Control

The Initial Calibration and Continuing Calibration Verifications met the acceptance criteria.

A Method Blank and Laboratory Control Sample (LCS)/Laboratory Control Sample Duplicate (LCSD) were extracted and analyzed with the preparation batch. No analytes were detected in the Method Blank above the Reporting Limit. The LCS/LCSD recoveries were within the method acceptance criteria.

The internal standard recoveries outside the acceptance criteria are flagged with an "H" qualifier.

PFAS Isotope Dilution Method-Solid

The samples were extracted and analyzed for a selected list of PFAS using the PFAS Isotope Dilution Method. The results for PFHxS, PFOA, PFOS, MeFOSAA, and EtFOSAA include both linear and branched isomers. Results for all other analytes include the linear isomers only.

Holding Times

The samples were extracted and analyzed within the method hold times.

Quality Control

The Initial Calibration and Continuing Calibration Verifications met the acceptance criteria.

A Method Blank and Ongoing Precision and Recovery (OPR) sample were extracted and analyzed with the preparation batch. No analytes were detected in the Method Blank above the Reporting Limit. The OPR recoveries were within the method acceptance criteria.

The internal standard recoveries outside the acceptance criteria are flagged with an "H" qualifier.

TABLE OF CONTENTS

Sample Inventory Report

Vista Sample ID	Client Sample ID	Sampled	Received	Components/Containers
1903735-01	L12-2-1	17-Oct-19 23:37	19-Oct-19 09:58	HDPE Jar, 6 oz
1903735-02	L12-2-5	17-Oct-19 23:41	19-Oct-19 09:58	HDPE Jar, 6 oz
1903735-03	L12-2-10	17-Oct-19 23:44	19-Oct-19 09:58	HDPE Jar, 6 oz
1903735-04	L12-4-1	17-Oct-19 23:50	19-Oct-19 09:58	HDPE Jar, 6 oz
1903735-05	L12-4-5	17-Oct-19 23:55	19-Oct-19 09:58	HDPE Jar, 6 oz
1903735-06	L12-4-10	17-Oct-19 23:59	19-Oct-19 09:58	HDPE Jar, 6 oz
1903735-07	L12-3-1	18-Oct-19 00:02	19-Oct-19 09:58	HDPE Jar, 6 oz
1903735-08	L12-3-5	18-Oct-19 00:07	19-Oct-19 09:58	HDPE Jar, 6 oz
1903735-09	L12-3-10	18-Oct-19 00:10	19-Oct-19 09:58	HDPE Jar, 6 oz
1903735-10	L12-3-6W	18-Oct-19 01:30	19-Oct-19 09:58	HDPE Bottle, 250 mL HDPE Bottle, 250 mL
1903735-11	L12-30-6W	18-Oct-19 01:30	19-Oct-19 09:58	HDPE Bottle, 250 mL HDPE Bottle, 250 mL

ANALYTICAL RESULTS

Sample ID: Method Blank **PFAS Isotope Dilution Method**

Client Data				**Laboratory Data**			
Name:	Woodard & Curran	Matrix:	Solid	Lab Sample:	B9J0278-BLK1	Column:	BEH C18
Project:	SJC PFAS Investigation						

Analyte	CAS Number	Conc. (ng/g)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	ND	2.00		B9J0278	06-Nov-19	1.00 g	08-Nov-19 23:31	1
PFPeA	2706-90-3	ND	2.00		B9J0278	06-Nov-19	1.00 g	08-Nov-19 23:31	1
PFBS	375-73-5	ND	2.00		B9J0278	06-Nov-19	1.00 g	08-Nov-19 23:31	1
4:2 FTS	757124-72-4	ND	2.00		B9J0278	06-Nov-19	1.00 g	08-Nov-19 23:31	1
PFHxA	307-24-4	ND	2.00		B9J0278	06-Nov-19	1.00 g	08-Nov-19 23:31	1
PFPeS	2706-91-4	ND	2.00		B9J0278	06-Nov-19	1.00 g	08-Nov-19 23:31	1
PFHpA	375-85-9	ND	2.00		B9J0278	06-Nov-19	1.00 g	08-Nov-19 23:31	1
PFHxS	355-46-4	ND	2.00		B9J0278	06-Nov-19	1.00 g	08-Nov-19 23:31	1
6:2 FTS	27619-97-2	ND	2.00		B9J0278	06-Nov-19	1.00 g	08-Nov-19 23:31	1
PFOA	335-67-1	ND	2.00		B9J0278	06-Nov-19	1.00 g	08-Nov-19 23:31	1
PFHpS	375-92-8	ND	2.00		B9J0278	06-Nov-19	1.00 g	08-Nov-19 23:31	1
PFNA	375-95-1	ND	2.00		B9J0278	06-Nov-19	1.00 g	08-Nov-19 23:31	1
PFOSA	754-91-6	ND	2.00		B9J0278	06-Nov-19	1.00 g	08-Nov-19 23:31	1
PFOS	1763-23-1	ND	2.00		B9J0278	06-Nov-19	1.00 g	08-Nov-19 23:31	1
PFDA	335-76-2	ND	2.00		B9J0278	06-Nov-19	1.00 g	08-Nov-19 23:31	1
8:2 FTS	39108-34-4	ND	2.00		B9J0278	06-Nov-19	1.00 g	08-Nov-19 23:31	1
MeFOSAA	2355-31-9	ND	2.00		B9J0278	06-Nov-19	1.00 g	08-Nov-19 23:31	1
EtFOSAA	2991-50-6	ND	2.00		B9J0278	06-Nov-19	1.00 g	08-Nov-19 23:31	1
PFUnA	2058-94-8	ND	2.00		B9J0278	06-Nov-19	1.00 g	08-Nov-19 23:31	1
PFDS	335-77-3	ND	2.00		B9J0278	06-Nov-19	1.00 g	08-Nov-19 23:31	1
PFDoA	307-55-1	ND	2.00		B9J0278	06-Nov-19	1.00 g	08-Nov-19 23:31	1
PFTrDA	72629-94-8	ND	2.00		B9J0278	06-Nov-19	1.00 g	08-Nov-19 23:31	1
PFTeDA	376-06-7	ND	2.00		B9J0278	06-Nov-19	1.00 g	08-Nov-19 23:31	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	94.7	50 - 150		B9J0278	06-Nov-19	1.00 g	08-Nov-19 23:31	1
13C3-PFPeA	IS	71.9	50 - 150		B9J0278	06-Nov-19	1.00 g	08-Nov-19 23:31	1
13C3-PFBS	IS	79.4	50 - 150		B9J0278	06-Nov-19	1.00 g	08-Nov-19 23:31	1
13C2-4:2 FTS	IS	75.0	50 - 150		B9J0278	06-Nov-19	1.00 g	08-Nov-19 23:31	1
13C2-PFHxA	IS	73.6	50 - 150		B9J0278	06-Nov-19	1.00 g	08-Nov-19 23:31	1
13C4-PFHpA	IS	67.4	50 - 150		B9J0278	06-Nov-19	1.00 g	08-Nov-19 23:31	1
13C3-PFHxS	IS	73.8	50 - 150		B9J0278	06-Nov-19	1.00 g	08-Nov-19 23:31	1
13C2-6:2 FTS	IS	68.9	50 - 150		B9J0278	06-Nov-19	1.00 g	08-Nov-19 23:31	1
13C5-PFNA	IS	63.6	50 - 150		B9J0278	06-Nov-19	1.00 g	08-Nov-19 23:31	1
13C8-PFOSA	IS	44.3	50 - 150	H	B9J0278	06-Nov-19	1.00 g	08-Nov-19 23:31	1
13C2-PFOA	IS	79.2	50 - 150		B9J0278	06-Nov-19	1.00 g	08-Nov-19 23:31	1
13C8-PFOS	IS	66.8	50 - 150		B9J0278	06-Nov-19	1.00 g	08-Nov-19 23:31	1
13C2-PFDA	IS	61.5	50 - 150		B9J0278	06-Nov-19	1.00 g	08-Nov-19 23:31	1
13C2-8:2 FTS	IS	75.8	50 - 150		B9J0278	06-Nov-19	1.00 g	08-Nov-19 23:31	1

Sample ID: Method Blank

PFAS Isotope Dilution Method

Client Data				**Laboratory Data**			
Name:	Woodard & Curran	Matrix:	Solid	Lab Sample:	B9J0278-BLK1	Column:	BEH C18
Project:	SJC PFAS Investigation						

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
d3-MeFOSAA	IS	51.4	50 - 150		B9J0278	06-Nov-19	1.00 g	08-Nov-19 23:31	1
13C2-PFUnA	IS	53.7	50 - 150		B9J0278	06-Nov-19	1.00 g	08-Nov-19 23:31	1
d5-EtFOSAA	IS	62.5	50 - 150		B9J0278	06-Nov-19	1.00 g	08-Nov-19 23:31	1
13C2-PFDoA	IS	52.8	50 - 150		B9J0278	06-Nov-19	1.00 g	08-Nov-19 23:31	1
13C2-PFTeDA	IS	55.4	50 - 150		B9J0278	06-Nov-19	1.00 g	08-Nov-19 23:31	1

RL - Reporting limit

The results are reported in dry weight.
The sample size is reported in wet weight.
Results reported to RL.

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

Sample ID: OPR **PFAS Isotope Dilution Method**

Client Data

Name: Woodard & Curran
Project: SJC PFAS Investigation
Matrix: Solid

Laboratory Data

Lab Sample: B9J0278-BS1
Column: BEH C18

Analyte	CAS Number	Amt Found (ng/g)	Spike Amt	% Rec	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	9.62	10.0	96.2	71 - 135		B9J0278	06-Nov-19	1.00 g	08-Nov-19 23:41	1
PFPeA	2706-90-3	9.52	10.0	95.2	69 - 132		B9J0278	06-Nov-19	1.00 g	08-Nov-19 23:41	1
PFBS	375-73-5	9.43	10.0	94.3	72 - 128		B9J0278	06-Nov-19	1.00 g	08-Nov-19 23:41	1
4:2 FTS	757124-72-4	9.64	10.0	96.4	62 - 145		B9J0278	06-Nov-19	1.00 g	08-Nov-19 23:41	1
PFHxA	307-24-4	9.49	10.0	94.9	70 - 132		B9J0278	06-Nov-19	1.00 g	08-Nov-19 23:41	1
PFPeS	2706-91-4	8.74	10.0	87.4	73 - 123		B9J0278	06-Nov-19	1.00 g	08-Nov-19 23:41	1
PFHpA	375-85-9	10.8	10.0	108	71 - 131		B9J0278	06-Nov-19	1.00 g	08-Nov-19 23:41	1
PFHxS	355-46-4	9.58	10.0	95.8	67 - 130		B9J0278	06-Nov-19	1.00 g	08-Nov-19 23:41	1
6:2 FTS	27619-97-2	10.6	10.0	106	64 - 140		B9J0278	06-Nov-19	1.00 g	08-Nov-19 23:41	1
PFOA	335-67-1	9.61	10.0	96.1	69 - 133		B9J0278	06-Nov-19	1.00 g	08-Nov-19 23:41	1
PFHpS	375-92-8	10.2	10.0	102	70 - 132		B9J0278	06-Nov-19	1.00 g	08-Nov-19 23:41	1
PFNA	375-95-1	9.82	10.0	98.2	72 - 129		B9J0278	06-Nov-19	1.00 g	08-Nov-19 23:41	1
PFOSA	754-91-6	10.5	10.0	105	67 - 137		B9J0278	06-Nov-19	1.00 g	08-Nov-19 23:41	1
PFOS	1763-23-1	9.62	10.0	96.0	68 - 136		B9J0278	06-Nov-19	1.00 g	08-Nov-19 23:41	1
PFDA	335-76-2	9.93	10.0	99.3	69 - 133		B9J0278	06-Nov-19	1.00 g	08-Nov-19 23:41	1
8:2 FTS	39108-34-4	10.5	10.0	105	65 - 137		B9J0278	06-Nov-19	1.00 g	08-Nov-19 23:41	1
MeFOSAA	2355-31-9	9.18	10.0	91.8	63 - 144		B9J0278	06-Nov-19	1.00 g	08-Nov-19 23:41	1
EtFOSAA	2991-50-6	8.79	10.0	87.9	61 - 139		B9J0278	06-Nov-19	1.00 g	08-Nov-19 23:41	1
PFUnA	2058-94-8	10.0	10.0	100	64 - 136		B9J0278	06-Nov-19	1.00 g	08-Nov-19 23:41	1
PFDS	335-77-3	8.40	10.0	83.8	59 - 134		B9J0278	06-Nov-19	1.00 g	08-Nov-19 23:41	1
PFDoA	307-55-1	10.3	10.0	103	69 - 135		B9J0278	06-Nov-19	1.00 g	08-Nov-19 23:41	1
PFTrDA	72629-94-8	10.9	10.0	109	66 - 139		B9J0278	06-Nov-19	1.00 g	08-Nov-19 23:41	1
PFTeDA	376-06-7	10.0	10.0	100	69 - 133		B9J0278	06-Nov-19	1.00 g	08-Nov-19 23:41	1

Labeled Standards	Type	% Rec	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	95.6	50- 150		B9J0278	06-Nov-19	1.00 g	08-Nov-19 23:41	1
13C3-PFPeA	IS	77.7	50- 150		B9J0278	06-Nov-19	1.00 g	08-Nov-19 23:41	1
13C3-PFBS	IS	80.9	50- 150		B9J0278	06-Nov-19	1.00 g	08-Nov-19 23:41	1
13C2-4:2 FTS	IS	75.7	50- 150		B9J0278	06-Nov-19	1.00 g	08-Nov-19 23:41	1
13C2-PFHxA	IS	73.2	50- 150		B9J0278	06-Nov-19	1.00 g	08-Nov-19 23:41	1
13C4-PFHpA	IS	71.7	50- 150		B9J0278	06-Nov-19	1.00 g	08-Nov-19 23:41	1
13C3-PFHxS	IS	77.8	50- 150		B9J0278	06-Nov-19	1.00 g	08-Nov-19 23:41	1
13C2-6:2 FTS	IS	73.2	50- 150		B9J0278	06-Nov-19	1.00 g	08-Nov-19 23:41	1
13C5-PFNA	IS	68.8	50- 150		B9J0278	06-Nov-19	1.00 g	08-Nov-19 23:41	1
13C8-PFOSA	IS	35.8	50- 150	H	B9J0278	06-Nov-19	1.00 g	08-Nov-19 23:41	1
13C2-PFOA	IS	78.5	50- 150		B9J0278	06-Nov-19	1.00 g	08-Nov-19 23:41	1

Sample ID: OPR **PFAS Isotope Dilution Method**

Client Data

Name: Woodard & Curran
Project: SJC PFAS Investigation
Matrix: Solid

Laboratory Data

Lab Sample: B9J0278-BS1
Column: BEH C18

Labeled Standards	Type	% Rec	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C8-PFOS	IS	71.0	50 - 150		B9J0278	06-Nov-19	1.00 g	08-Nov-19 23:41	1
13C2-PFDA	IS	63.1	50 - 150		B9J0278	06-Nov-19	1.00 g	08-Nov-19 23:41	1
13C2-8:2 FTS	IS	75.8	50 - 150		B9J0278	06-Nov-19	1.00 g	08-Nov-19 23:41	1
d3-MeFOSAA	IS	56.0	50 - 150		B9J0278	06-Nov-19	1.00 g	08-Nov-19 23:41	1
13C2-PFUnA	IS	55.8	50 - 150		B9J0278	06-Nov-19	1.00 g	08-Nov-19 23:41	1
d5-EtFOSAA	IS	66.1	50 - 150		B9J0278	06-Nov-19	1.00 g	08-Nov-19 23:41	1
13C2-PFDoA	IS	54.5	50 - 150		B9J0278	06-Nov-19	1.00 g	08-Nov-19 23:41	1
13C2-PFTeDA	IS	56.2	50 - 150		B9J0278	06-Nov-19	1.00 g	08-Nov-19 23:41	1

Sample ID: L12-2-1 **PFAS Isotope Dilution Method**

Client Data

Name: Woodard & Curran
Project: SJC PFAS Investigation
Location: Location 12
Matrix: Soil
Date Collected: 17-Oct-19 23:37

Laboratory Data

Lab Sample: 1903735-01
Date Received: 19-Oct-19 09:58
% Solids: 82.5
Column: BEH C18

Analyte	CAS Number	Conc. (ng/g)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	ND	1.96		B9J0278	06-Nov-19	1.24 g	09-Nov-19 02:10	1
PFPeA	2706-90-3	ND	1.96		B9J0278	06-Nov-19	1.24 g	09-Nov-19 02:10	1
PFBS	375-73-5	ND	1.96		B9J0278	06-Nov-19	1.24 g	09-Nov-19 02:10	1
4:2 FTS	757124-72-4	ND	1.96		B9J0278	06-Nov-19	1.24 g	09-Nov-19 02:10	1
PFHxA	307-24-4	ND	1.96		B9J0278	06-Nov-19	1.24 g	09-Nov-19 02:10	1
PFPeS	2706-91-4	ND	1.96		B9J0278	06-Nov-19	1.24 g	09-Nov-19 02:10	1
PFHpA	375-85-9	ND	1.96		B9J0278	06-Nov-19	1.24 g	09-Nov-19 02:10	1
PFHxS	355-46-4	ND	1.96		B9J0278	06-Nov-19	1.24 g	09-Nov-19 02:10	1
6:2 FTS	27619-97-2	ND	1.96		B9J0278	06-Nov-19	1.24 g	09-Nov-19 02:10	1
PFOA	335-67-1	ND	1.96		B9J0278	06-Nov-19	1.24 g	09-Nov-19 02:10	1
PFHpS	375-92-8	ND	1.96		B9J0278	06-Nov-19	1.24 g	09-Nov-19 02:10	1
PFNA	375-95-1	ND	1.96		B9J0278	06-Nov-19	1.24 g	09-Nov-19 02:10	1
PFOSA	754-91-6	ND	1.96		B9J0278	06-Nov-19	1.24 g	09-Nov-19 02:10	1
PFOS	1763-23-1	ND	1.96		B9J0278	06-Nov-19	1.24 g	09-Nov-19 02:10	1
PFDA	335-76-2	ND	1.96		B9J0278	06-Nov-19	1.24 g	09-Nov-19 02:10	1
8:2 FTS	39108-34-4	ND	1.96		B9J0278	06-Nov-19	1.24 g	09-Nov-19 02:10	1
MeFOSAA	2355-31-9	ND	1.96		B9J0278	06-Nov-19	1.24 g	09-Nov-19 02:10	1
EtFOSAA	2991-50-6	ND	1.96		B9J0278	06-Nov-19	1.24 g	09-Nov-19 02:10	1
PFUnA	2058-94-8	ND	1.96		B9J0278	06-Nov-19	1.24 g	09-Nov-19 02:10	1
PFDS	335-77-3	ND	1.96		B9J0278	06-Nov-19	1.24 g	09-Nov-19 02:10	1
PFDoA	307-55-1	ND	1.96		B9J0278	06-Nov-19	1.24 g	09-Nov-19 02:10	1
PFTrDA	72629-94-8	ND	1.96		B9J0278	06-Nov-19	1.24 g	09-Nov-19 02:10	1
PFTeDA	376-06-7	ND	1.96		B9J0278	06-Nov-19	1.24 g	09-Nov-19 02:10	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	96.2	50 - 150		B9J0278	06-Nov-19	1.24 g	09-Nov-19 02:10	1
13C3-PFPeA	IS	77.1	50 - 150		B9J0278	06-Nov-19	1.24 g	09-Nov-19 02:10	1
13C3-PFBS	IS	81.6	50 - 150		B9J0278	06-Nov-19	1.24 g	09-Nov-19 02:10	1
13C2-4:2 FTS	IS	70.0	50 - 150		B9J0278	06-Nov-19	1.24 g	09-Nov-19 02:10	1
13C2-PFHxA	IS	69.2	50 - 150		B9J0278	06-Nov-19	1.24 g	09-Nov-19 02:10	1
13C4-PFHpA	IS	72.6	50 - 150		B9J0278	06-Nov-19	1.24 g	09-Nov-19 02:10	1
13C3-PFHxS	IS	74.2	50 - 150		B9J0278	06-Nov-19	1.24 g	09-Nov-19 02:10	1
13C2-6:2 FTS	IS	75.3	50 - 150		B9J0278	06-Nov-19	1.24 g	09-Nov-19 02:10	1
13C5-PFNA	IS	61.4	50 - 150		B9J0278	06-Nov-19	1.24 g	09-Nov-19 02:10	1
13C8-PFOSA	IS	25.8	50 - 150	H	B9J0278	06-Nov-19	1.24 g	09-Nov-19 02:10	1
13C2-PFOA	IS	76.4	50 - 150		B9J0278	06-Nov-19	1.24 g	09-Nov-19 02:10	1
13C8-PFOS	IS	67.0	50 - 150		B9J0278	06-Nov-19	1.24 g	09-Nov-19 02:10	1
13C2-PFDA	IS	54.7	50 - 150		B9J0278	06-Nov-19	1.24 g	09-Nov-19 02:10	1
13C2-8:2 FTS	IS	73.5	50 - 150		B9J0278	06-Nov-19	1.24 g	09-Nov-19 02:10	1

Sample ID: L12-2-1 **PFAS Isotope Dilution Method**

Client Data			
Name:	Woodard & Curran	Matrix:	Soil
Project:	SJC PFAS Investigation	Date Collected:	17-Oct-19 23:37
Location:	Location 12		

Laboratory Data			
Lab Sample:	1903735-01	Column:	BEH C18
Date Received:	19-Oct-19 09:58		
% Solids:	82.5		

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
d3-MeFOSAA	IS	55.0	50 - 150		B9J0278	06-Nov-19	1.24 g	09-Nov-19 02:10	1
13C2-PFUnA	IS	49.3	50 - 150	H	B9J0278	06-Nov-19	1.24 g	09-Nov-19 02:10	1
d5-EtFOSAA	IS	65.7	50 - 150		B9J0278	06-Nov-19	1.24 g	09-Nov-19 02:10	1
13C2-PFDoA	IS	49.2	50 - 150	H	B9J0278	06-Nov-19	1.24 g	09-Nov-19 02:10	1
13C2-PFTeDA	IS	36.4	50 - 150	H	B9J0278	06-Nov-19	1.24 g	09-Nov-19 02:10	1

RL - Reporting limit

The results are reported in dry weight.
The sample size is reported in wet weight.
Results reported to RL.

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

Sample ID: L12-2-5 **PFAS Isotope Dilution Method**

Client Data				**Laboratory Data**			
Name:	Woodard & Curran	Matrix:	Soil	Lab Sample:	1903735-02	Column:	BEH C18
Project:	SJC PFAS Investigation	Date Collected:	17-Oct-19 23:41	Date Received:	19-Oct-19 09:58		
Location:	Location 12			% Solids:	81.4		

Analyte	CAS Number	Conc. (ng/g)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	ND	1.96		B9J0278	06-Nov-19	1.25 g	09-Nov-19 02:20	1
PFPeA	2706-90-3	ND	1.96		B9J0278	06-Nov-19	1.25 g	09-Nov-19 02:20	1
PFBS	375-73-5	ND	1.96		B9J0278	06-Nov-19	1.25 g	09-Nov-19 02:20	1
4:2 FTS	757124-72-4	ND	1.96		B9J0278	06-Nov-19	1.25 g	09-Nov-19 02:20	1
PFHxA	307-24-4	ND	1.96		B9J0278	06-Nov-19	1.25 g	09-Nov-19 02:20	1
PFPeS	2706-91-4	ND	1.96		B9J0278	06-Nov-19	1.25 g	09-Nov-19 02:20	1
PFHpA	375-85-9	ND	1.96		B9J0278	06-Nov-19	1.25 g	09-Nov-19 02:20	1
PFHxS	355-46-4	ND	1.96		B9J0278	06-Nov-19	1.25 g	09-Nov-19 02:20	1
6:2 FTS	27619-97-2	ND	1.96		B9J0278	06-Nov-19	1.25 g	09-Nov-19 02:20	1
PFOA	335-67-1	ND	1.96		B9J0278	06-Nov-19	1.25 g	09-Nov-19 02:20	1
PFHpS	375-92-8	ND	1.96		B9J0278	06-Nov-19	1.25 g	09-Nov-19 02:20	1
PFNA	375-95-1	ND	1.96		B9J0278	06-Nov-19	1.25 g	09-Nov-19 02:20	1
PFOSA	754-91-6	ND	1.96		B9J0278	06-Nov-19	1.25 g	09-Nov-19 02:20	1
PFOS	1763-23-1	ND	1.96		B9J0278	06-Nov-19	1.25 g	09-Nov-19 02:20	1
PFDA	335-76-2	ND	1.96		B9J0278	06-Nov-19	1.25 g	09-Nov-19 02:20	1
8:2 FTS	39108-34-4	ND	1.96		B9J0278	06-Nov-19	1.25 g	09-Nov-19 02:20	1
MeFOSAA	2355-31-9	ND	1.96		B9J0278	06-Nov-19	1.25 g	09-Nov-19 02:20	1
EtFOSAA	2991-50-6	ND	1.96		B9J0278	06-Nov-19	1.25 g	09-Nov-19 02:20	1
PFUnA	2058-94-8	ND	1.96		B9J0278	06-Nov-19	1.25 g	09-Nov-19 02:20	1
PFDS	335-77-3	ND	1.96		B9J0278	06-Nov-19	1.25 g	09-Nov-19 02:20	1
PFDoA	307-55-1	ND	1.96		B9J0278	06-Nov-19	1.25 g	09-Nov-19 02:20	1
PFTrDA	72629-94-8	ND	1.96		B9J0278	06-Nov-19	1.25 g	09-Nov-19 02:20	1
PFTeDA	376-06-7	ND	1.96		B9J0278	06-Nov-19	1.25 g	09-Nov-19 02:20	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	99.9	50 - 150		B9J0278	06-Nov-19	1.25 g	09-Nov-19 02:20	1
13C3-PFPeA	IS	79.7	50 - 150		B9J0278	06-Nov-19	1.25 g	09-Nov-19 02:20	1
13C3-PFBS	IS	84.3	50 - 150		B9J0278	06-Nov-19	1.25 g	09-Nov-19 02:20	1
13C2-4:2 FTS	IS	69.3	50 - 150		B9J0278	06-Nov-19	1.25 g	09-Nov-19 02:20	1
13C2-PFHxA	IS	72.1	50 - 150		B9J0278	06-Nov-19	1.25 g	09-Nov-19 02:20	1
13C4-PFHpA	IS	77.8	50 - 150		B9J0278	06-Nov-19	1.25 g	09-Nov-19 02:20	1
13C3-PFHxS	IS	78.1	50 - 150		B9J0278	06-Nov-19	1.25 g	09-Nov-19 02:20	1
13C2-6:2 FTS	IS	73.7	50 - 150		B9J0278	06-Nov-19	1.25 g	09-Nov-19 02:20	1
13C5-PFNA	IS	67.2	50 - 150		B9J0278	06-Nov-19	1.25 g	09-Nov-19 02:20	1
13C8-PFOSA	IS	52.6	50 - 150		B9J0278	06-Nov-19	1.25 g	09-Nov-19 02:20	1
13C2-PFOA	IS	79.4	50 - 150		B9J0278	06-Nov-19	1.25 g	09-Nov-19 02:20	1
13C8-PFOS	IS	70.8	50 - 150		B9J0278	06-Nov-19	1.25 g	09-Nov-19 02:20	1
13C2-PFDA	IS	63.8	50 - 150		B9J0278	06-Nov-19	1.25 g	09-Nov-19 02:20	1
13C2-8:2 FTS	IS	91.3	50 - 150		B9J0278	06-Nov-19	1.25 g	09-Nov-19 02:20	1

Sample ID: L12-2-5 **PFAS Isotope Dilution Method**

Client Data				**Laboratory Data**			
Name:	Woodard & Curran	Matrix:	Soil	Lab Sample:	1903735-02	Column:	BEH C18
Project:	SJC PFAS Investigation	Date Collected:	17-Oct-19 23:41	Date Received:	19-Oct-19 09:58		
Location:	Location 12			% Solids:	81.4		

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
d3-MeFOSAA	IS	55.9	50 - 150		B9J0278	06-Nov-19	1.25 g	09-Nov-19 02:20	1
13C2-PFUnA	IS	60.4	50 - 150		B9J0278	06-Nov-19	1.25 g	09-Nov-19 02:20	1
d5-EtFOSAA	IS	64.0	50 - 150		B9J0278	06-Nov-19	1.25 g	09-Nov-19 02:20	1
13C2-PFDoA	IS	55.6	50 - 150		B9J0278	06-Nov-19	1.25 g	09-Nov-19 02:20	1
13C2-PFTeDA	IS	59.6	50 - 150		B9J0278	06-Nov-19	1.25 g	09-Nov-19 02:20	1

RL - Reporting limit

The results are reported in dry weight.
The sample size is reported in wet weight.
Results reported to RL.

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

Sample ID: L12-2-10 **PFAS Isotope Dilution Method**

Client Data

Name:	Woodard & Curran	Matrix:	Soil
Project:	SJC PFAS Investigation	Date Collected:	17-Oct-19 23:44
Location:	Location 12		

Laboratory Data

Lab Sample:	1903735-03	Column:	BEH C18
Date Received:	19-Oct-19 09:58		
% Solids:	84.7		

Analyte	CAS Number	Conc. (ng/g)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	ND	1.95		B9J0278	06-Nov-19	1.21 g	09-Nov-19 02:31	1
PFPeA	2706-90-3	ND	1.95		B9J0278	06-Nov-19	1.21 g	09-Nov-19 02:31	1
PFBS	375-73-5	ND	1.95		B9J0278	06-Nov-19	1.21 g	09-Nov-19 02:31	1
4:2 FTS	757124-72-4	ND	1.95		B9J0278	06-Nov-19	1.21 g	09-Nov-19 02:31	1
PFHxA	307-24-4	ND	1.95		B9J0278	06-Nov-19	1.21 g	09-Nov-19 02:31	1
PFPeS	2706-91-4	ND	1.95		B9J0278	06-Nov-19	1.21 g	09-Nov-19 02:31	1
PFHpA	375-85-9	ND	1.95		B9J0278	06-Nov-19	1.21 g	09-Nov-19 02:31	1
PFHxS	355-46-4	ND	1.95		B9J0278	06-Nov-19	1.21 g	09-Nov-19 02:31	1
6:2 FTS	27619-97-2	ND	1.95		B9J0278	06-Nov-19	1.21 g	09-Nov-19 02:31	1
PFOA	335-67-1	ND	1.95		B9J0278	06-Nov-19	1.21 g	09-Nov-19 02:31	1
PFHpS	375-92-8	ND	1.95		B9J0278	06-Nov-19	1.21 g	09-Nov-19 02:31	1
PFNA	375-95-1	ND	1.95		B9J0278	06-Nov-19	1.21 g	09-Nov-19 02:31	1
PFOSA	754-91-6	ND	1.95		B9J0278	06-Nov-19	1.21 g	09-Nov-19 02:31	1
PFOS	1763-23-1	ND	1.95		B9J0278	06-Nov-19	1.21 g	09-Nov-19 02:31	1
PFDA	335-76-2	ND	1.95		B9J0278	06-Nov-19	1.21 g	09-Nov-19 02:31	1
8:2 FTS	39108-34-4	ND	1.95		B9J0278	06-Nov-19	1.21 g	09-Nov-19 02:31	1
MeFOSAA	2355-31-9	ND	1.95		B9J0278	06-Nov-19	1.21 g	09-Nov-19 02:31	1
EtFOSAA	2991-50-6	ND	1.95		B9J0278	06-Nov-19	1.21 g	09-Nov-19 02:31	1
PFUnA	2058-94-8	ND	1.95		B9J0278	06-Nov-19	1.21 g	09-Nov-19 02:31	1
PFDS	335-77-3	ND	1.95		B9J0278	06-Nov-19	1.21 g	09-Nov-19 02:31	1
PFDoA	307-55-1	ND	1.95		B9J0278	06-Nov-19	1.21 g	09-Nov-19 02:31	1
PFTrDA	72629-94-8	ND	1.95		B9J0278	06-Nov-19	1.21 g	09-Nov-19 02:31	1
PFTeDA	376-06-7	ND	1.95		B9J0278	06-Nov-19	1.21 g	09-Nov-19 02:31	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	87.1	50 - 150		B9J0278	06-Nov-19	1.21 g	09-Nov-19 02:31	1
13C3-PFPeA	IS	69.7	50 - 150		B9J0278	06-Nov-19	1.21 g	09-Nov-19 02:31	1
13C3-PFBS	IS	73.9	50 - 150		B9J0278	06-Nov-19	1.21 g	09-Nov-19 02:31	1
13C2-4:2 FTS	IS	71.7	50 - 150		B9J0278	06-Nov-19	1.21 g	09-Nov-19 02:31	1
13C2-PFHxA	IS	65.5	50 - 150		B9J0278	06-Nov-19	1.21 g	09-Nov-19 02:31	1
13C4-PFHpA	IS	66.4	50 - 150		B9J0278	06-Nov-19	1.21 g	09-Nov-19 02:31	1
13C3-PFHxS	IS	72.6	50 - 150		B9J0278	06-Nov-19	1.21 g	09-Nov-19 02:31	1
13C2-6:2 FTS	IS	74.9	50 - 150		B9J0278	06-Nov-19	1.21 g	09-Nov-19 02:31	1
13C5-PFNA	IS	59.7	50 - 150		B9J0278	06-Nov-19	1.21 g	09-Nov-19 02:31	1
13C8-PFOSA	IS	36.0	50 - 150	H	B9J0278	06-Nov-19	1.21 g	09-Nov-19 02:31	1
13C2-PFOA	IS	72.4	50 - 150		B9J0278	06-Nov-19	1.21 g	09-Nov-19 02:31	1
13C8-PFOS	IS	66.2	50 - 150		B9J0278	06-Nov-19	1.21 g	09-Nov-19 02:31	1
13C2-PFDA	IS	47.9	50 - 150	H	B9J0278	06-Nov-19	1.21 g	09-Nov-19 02:31	1
13C2-8:2 FTS	IS	65.8	50 - 150		B9J0278	06-Nov-19	1.21 g	09-Nov-19 02:31	1

Sample ID: L12-2-10 **PFAS Isotope Dilution Method**

Client Data				**Laboratory Data**			
Name:	Woodard & Curran	Matrix:	Soil	Lab Sample:	1903735-03	Column:	BEH C18
Project:	SJC PFAS Investigation	Date Collected:	17-Oct-19 23:44	Date Received:	19-Oct-19 09:58		
Location:	Location 12			% Solids:	84.7		

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
d3-MeFOSAA	IS	47.4	50 - 150	H	B9J0278	06-Nov-19	1.21 g	09-Nov-19 02:31	1
13C2-PFUnA	IS	48.3	50 - 150	H	B9J0278	06-Nov-19	1.21 g	09-Nov-19 02:31	1
d5-EtFOSAA	IS	56.8	50 - 150		B9J0278	06-Nov-19	1.21 g	09-Nov-19 02:31	1
13C2-PFDoA	IS	49.9	50 - 150	H	B9J0278	06-Nov-19	1.21 g	09-Nov-19 02:31	1
13C2-PFTeDA	IS	55.0	50 - 150		B9J0278	06-Nov-19	1.21 g	09-Nov-19 02:31	1

RL - Reporting limit

The results are reported in dry weight.
The sample size is reported in wet weight.
Results reported to RL.

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

Sample ID: L12-4-1

PFAS Isotope Dilution Method

Client Data				**Laboratory Data**			
Name:	Woodard & Curran	Matrix:	Soil	Lab Sample:	1903735-04	Column:	BEH C18
Project:	SJC PFAS Investigation	Date Collected:	17-Oct-19 23:50	Date Received:	19-Oct-19 09:58		
Location:	Location 12			% Solids:	79.2		

Analyte	CAS Number	Conc. (ng/g)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	ND	1.99		B9J0278	06-Nov-19	1.27 g	09-Nov-19 02:42	1
PFPeA	2706-90-3	ND	1.99		B9J0278	06-Nov-19	1.27 g	09-Nov-19 02:42	1
PFBS	375-73-5	ND	1.99		B9J0278	06-Nov-19	1.27 g	09-Nov-19 02:42	1
4:2 FTS	757124-72-4	ND	1.99		B9J0278	06-Nov-19	1.27 g	09-Nov-19 02:42	1
PFHxA	307-24-4	ND	1.99		B9J0278	06-Nov-19	1.27 g	09-Nov-19 02:42	1
PFPeS	2706-91-4	ND	1.99		B9J0278	06-Nov-19	1.27 g	09-Nov-19 02:42	1
PFHpA	375-85-9	ND	1.99		B9J0278	06-Nov-19	1.27 g	09-Nov-19 02:42	1
PFHxS	355-46-4	ND	1.99		B9J0278	06-Nov-19	1.27 g	09-Nov-19 02:42	1
6:2 FTS	27619-97-2	ND	1.99		B9J0278	06-Nov-19	1.27 g	09-Nov-19 02:42	1
PFOA	335-67-1	ND	1.99		B9J0278	06-Nov-19	1.27 g	09-Nov-19 02:42	1
PFHpS	375-92-8	ND	1.99		B9J0278	06-Nov-19	1.27 g	09-Nov-19 02:42	1
PFNA	375-95-1	ND	1.99		B9J0278	06-Nov-19	1.27 g	09-Nov-19 02:42	1
PFOSA	754-91-6	ND	1.99		B9J0278	06-Nov-19	1.27 g	09-Nov-19 02:42	1
PFOS	1763-23-1	ND	1.99		B9J0278	06-Nov-19	1.27 g	09-Nov-19 02:42	1
PFDA	335-76-2	ND	1.99		B9J0278	06-Nov-19	1.27 g	09-Nov-19 02:42	1
8:2 FTS	39108-34-4	ND	1.99		B9J0278	06-Nov-19	1.27 g	09-Nov-19 02:42	1
MeFOSAA	2355-31-9	ND	1.99		B9J0278	06-Nov-19	1.27 g	09-Nov-19 02:42	1
EtFOSAA	2991-50-6	ND	1.99		B9J0278	06-Nov-19	1.27 g	09-Nov-19 02:42	1
PFUnA	2058-94-8	ND	1.99		B9J0278	06-Nov-19	1.27 g	09-Nov-19 02:42	1
PFDS	335-77-3	ND	1.99		B9J0278	06-Nov-19	1.27 g	09-Nov-19 02:42	1
PFDoA	307-55-1	ND	1.99		B9J0278	06-Nov-19	1.27 g	09-Nov-19 02:42	1
PFTrDA	72629-94-8	ND	1.99		B9J0278	06-Nov-19	1.27 g	09-Nov-19 02:42	1
PFTeDA	376-06-7	ND	1.99		B9J0278	06-Nov-19	1.27 g	09-Nov-19 02:42	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	96.9	50 - 150		B9J0278	06-Nov-19	1.27 g	09-Nov-19 02:42	1
13C3-PFPeA	IS	78.2	50 - 150		B9J0278	06-Nov-19	1.27 g	09-Nov-19 02:42	1
13C3-PFBS	IS	85.5	50 - 150		B9J0278	06-Nov-19	1.27 g	09-Nov-19 02:42	1
13C2-4:2 FTS	IS	73.7	50 - 150		B9J0278	06-Nov-19	1.27 g	09-Nov-19 02:42	1
13C2-PFHxA	IS	71.8	50 - 150		B9J0278	06-Nov-19	1.27 g	09-Nov-19 02:42	1
13C4-PFHpA	IS	78.6	50 - 150		B9J0278	06-Nov-19	1.27 g	09-Nov-19 02:42	1
13C3-PFHxS	IS	77.1	50 - 150		B9J0278	06-Nov-19	1.27 g	09-Nov-19 02:42	1
13C2-6:2 FTS	IS	72.9	50 - 150		B9J0278	06-Nov-19	1.27 g	09-Nov-19 02:42	1
13C5-PFNA	IS	62.5	50 - 150		B9J0278	06-Nov-19	1.27 g	09-Nov-19 02:42	1
13C8-PFOSA	IS	50.5	50 - 150		B9J0278	06-Nov-19	1.27 g	09-Nov-19 02:42	1
13C2-PFOA	IS	71.4	50 - 150		B9J0278	06-Nov-19	1.27 g	09-Nov-19 02:42	1
13C8-PFOS	IS	68.9	50 - 150		B9J0278	06-Nov-19	1.27 g	09-Nov-19 02:42	1
13C2-PFDA	IS	62.2	50 - 150		B9J0278	06-Nov-19	1.27 g	09-Nov-19 02:42	1
13C2-8:2 FTS	IS	75.3	50 - 150		B9J0278	06-Nov-19	1.27 g	09-Nov-19 02:42	1

Sample ID: L12-4-1 **PFAS Isotope Dilution Method**

Client Data				**Laboratory Data**			
Name:	Woodard & Curran	Matrix:	Soil	Lab Sample:	1903735-04	Column:	BEH C18
Project:	SJC PFAS Investigation	Date Collected:	17-Oct-19 23:50	Date Received:	19-Oct-19 09:58		
Location:	Location 12			% Solids:	79.2		

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
d3-MeFOSAA	IS	63.2	50 - 150		B9J0278	06-Nov-19	1.27 g	09-Nov-19 02:42	1
13C2-PFUnA	IS	52.8	50 - 150		B9J0278	06-Nov-19	1.27 g	09-Nov-19 02:42	1
d5-EtFOSAA	IS	74.6	50 - 150		B9J0278	06-Nov-19	1.27 g	09-Nov-19 02:42	1
13C2-PFDoA	IS	37.9	50 - 150	H	B9J0278	06-Nov-19	1.27 g	09-Nov-19 02:42	1
13C2-PFTeDA	IS	18.6	50 - 150	H	B9J0278	06-Nov-19	1.27 g	09-Nov-19 02:42	1

RL - Reporting limit

The results are reported in dry weight.
The sample size is reported in wet weight.
Results reported to RL.

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

Sample ID: L12-4-5 **PFAS Isotope Dilution Method**

Client Data				**Laboratory Data**			
Name:	Woodard & Curran	Matrix:	Soil	Lab Sample:	1903735-05	Column:	BEH C18
Project:	SJC PFAS Investigation	Date Collected:	17-Oct-19 23:55	Date Received:	19-Oct-19 09:58		
Location:	Location 12			% Solids:	81.3		

Analyte	CAS Number	Conc. (ng/g)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	ND	2.00		B9J0278	06-Nov-19	1.23 g	09-Nov-19 02:52	1
PFPeA	2706-90-3	ND	2.00		B9J0278	06-Nov-19	1.23 g	09-Nov-19 02:52	1
PFBS	375-73-5	ND	2.00		B9J0278	06-Nov-19	1.23 g	09-Nov-19 02:52	1
4:2 FTS	757124-72-4	ND	2.00		B9J0278	06-Nov-19	1.23 g	09-Nov-19 02:52	1
PFHxA	307-24-4	ND	2.00		B9J0278	06-Nov-19	1.23 g	09-Nov-19 02:52	1
PFPeS	2706-91-4	ND	2.00		B9J0278	06-Nov-19	1.23 g	09-Nov-19 02:52	1
PFHpA	375-85-9	ND	2.00		B9J0278	06-Nov-19	1.23 g	09-Nov-19 02:52	1
PFHxS	355-46-4	ND	2.00		B9J0278	06-Nov-19	1.23 g	09-Nov-19 02:52	1
6:2 FTS	27619-97-2	ND	2.00		B9J0278	06-Nov-19	1.23 g	09-Nov-19 02:52	1
PFOA	335-67-1	ND	2.00		B9J0278	06-Nov-19	1.23 g	09-Nov-19 02:52	1
PFHpS	375-92-8	ND	2.00		B9J0278	06-Nov-19	1.23 g	09-Nov-19 02:52	1
PFNA	375-95-1	ND	2.00		B9J0278	06-Nov-19	1.23 g	09-Nov-19 02:52	1
PFOSA	754-91-6	ND	2.00		B9J0278	06-Nov-19	1.23 g	09-Nov-19 02:52	1
PFOS	1763-23-1	ND	2.00		B9J0278	06-Nov-19	1.23 g	09-Nov-19 02:52	1
PFDA	335-76-2	ND	2.00		B9J0278	06-Nov-19	1.23 g	09-Nov-19 02:52	1
8:2 FTS	39108-34-4	ND	2.00		B9J0278	06-Nov-19	1.23 g	09-Nov-19 02:52	1
MeFOSAA	2355-31-9	ND	2.00		B9J0278	06-Nov-19	1.23 g	09-Nov-19 02:52	1
EtFOSAA	2991-50-6	ND	2.00		B9J0278	06-Nov-19	1.23 g	09-Nov-19 02:52	1
PFUnA	2058-94-8	ND	2.00		B9J0278	06-Nov-19	1.23 g	09-Nov-19 02:52	1
PFDS	335-77-3	ND	2.00		B9J0278	06-Nov-19	1.23 g	09-Nov-19 02:52	1
PFDoA	307-55-1	ND	2.00		B9J0278	06-Nov-19	1.23 g	09-Nov-19 02:52	1
PFTrDA	72629-94-8	ND	2.00		B9J0278	06-Nov-19	1.23 g	09-Nov-19 02:52	1
PFTeDA	376-06-7	ND	2.00		B9J0278	06-Nov-19	1.23 g	09-Nov-19 02:52	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	93.6	50 - 150		B9J0278	06-Nov-19	1.23 g	09-Nov-19 02:52	1
13C3-PFPeA	IS	77.9	50 - 150		B9J0278	06-Nov-19	1.23 g	09-Nov-19 02:52	1
13C3-PFBS	IS	84.9	50 - 150		B9J0278	06-Nov-19	1.23 g	09-Nov-19 02:52	1
13C2-4:2 FTS	IS	73.5	50 - 150		B9J0278	06-Nov-19	1.23 g	09-Nov-19 02:52	1
13C2-PFHxA	IS	65.6	50 - 150		B9J0278	06-Nov-19	1.23 g	09-Nov-19 02:52	1
13C4-PFHpA	IS	69.2	50 - 150		B9J0278	06-Nov-19	1.23 g	09-Nov-19 02:52	1
13C3-PFHxS	IS	79.8	50 - 150		B9J0278	06-Nov-19	1.23 g	09-Nov-19 02:52	1
13C2-6:2 FTS	IS	76.5	50 - 150		B9J0278	06-Nov-19	1.23 g	09-Nov-19 02:52	1
13C5-PFNA	IS	53.2	50 - 150		B9J0278	06-Nov-19	1.23 g	09-Nov-19 02:52	1
13C8-PFOSA	IS	14.4	50 - 150	H	B9J0278	06-Nov-19	1.23 g	09-Nov-19 02:52	1
13C2-PFOA	IS	65.0	50 - 150		B9J0278	06-Nov-19	1.23 g	09-Nov-19 02:52	1
13C8-PFOS	IS	72.5	50 - 150		B9J0278	06-Nov-19	1.23 g	09-Nov-19 02:52	1
13C2-PFDA	IS	47.1	50 - 150	H	B9J0278	06-Nov-19	1.23 g	09-Nov-19 02:52	1
13C2-8:2 FTS	IS	80.0	50 - 150		B9J0278	06-Nov-19	1.23 g	09-Nov-19 02:52	1

Sample ID: L12-4-5 **PFAS Isotope Dilution Method**

Client Data				**Laboratory Data**			
Name:	Woodard & Curran	Matrix:	Soil	Lab Sample:	1903735-05	Column:	BEH C18
Project:	SJC PFAS Investigation	Date Collected:	17-Oct-19 23:55	Date Received:	19-Oct-19 09:58		
Location:	Location 12			% Solids:	81.3		

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
d3-MeFOSAA	IS	52.8	50 - 150		B9J0278	06-Nov-19	1.23 g	09-Nov-19 02:52	1
13C2-PFUnA	IS	43.8	50 - 150	H	B9J0278	06-Nov-19	1.23 g	09-Nov-19 02:52	1
d5-EtFOSAA	IS	59.9	50 - 150		B9J0278	06-Nov-19	1.23 g	09-Nov-19 02:52	1
13C2-PFDoA	IS	47.7	50 - 150	H	B9J0278	06-Nov-19	1.23 g	09-Nov-19 02:52	1
13C2-PFTeDA	IS	57.8	50 - 150		B9J0278	06-Nov-19	1.23 g	09-Nov-19 02:52	1

RL - Reporting limit

The results are reported in dry weight.
The sample size is reported in wet weight.
Results reported to RL.

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

Sample ID: L12-4-10 **PFAS Isotope Dilution Method**

Client Data				**Laboratory Data**			
Name:	Woodard & Curran	Matrix:	Soil	Lab Sample:	1903735-06	Column:	BEH C18
Project:	SJC PFAS Investigation	Date Collected:	17-Oct-19 23:59	Date Received:	19-Oct-19 09:58		
Location:	Location 12			% Solids:	85.3		

Analyte	CAS Number	Conc. (ng/g)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	ND	1.92		B9J0278	06-Nov-19	1.22 g	09-Nov-19 03:03	1
PFPeA	2706-90-3	ND	1.92		B9J0278	06-Nov-19	1.22 g	09-Nov-19 03:03	1
PFBS	375-73-5	ND	1.92		B9J0278	06-Nov-19	1.22 g	09-Nov-19 03:03	1
4:2 FTS	757124-72-4	ND	1.92		B9J0278	06-Nov-19	1.22 g	09-Nov-19 03:03	1
PFHxA	307-24-4	ND	1.92		B9J0278	06-Nov-19	1.22 g	09-Nov-19 03:03	1
PFPeS	2706-91-4	ND	1.92		B9J0278	06-Nov-19	1.22 g	09-Nov-19 03:03	1
PFHpA	375-85-9	ND	1.92		B9J0278	06-Nov-19	1.22 g	09-Nov-19 03:03	1
PFHxS	355-46-4	ND	1.92		B9J0278	06-Nov-19	1.22 g	09-Nov-19 03:03	1
6:2 FTS	27619-97-2	ND	1.92		B9J0278	06-Nov-19	1.22 g	09-Nov-19 03:03	1
PFOA	335-67-1	ND	1.92		B9J0278	06-Nov-19	1.22 g	09-Nov-19 03:03	1
PFHpS	375-92-8	ND	1.92		B9J0278	06-Nov-19	1.22 g	09-Nov-19 03:03	1
PFNA	375-95-1	ND	1.92		B9J0278	06-Nov-19	1.22 g	09-Nov-19 03:03	1
PFOSA	754-91-6	ND	1.92		B9J0278	06-Nov-19	1.22 g	09-Nov-19 03:03	1
PFOS	1763-23-1	ND	1.92		B9J0278	06-Nov-19	1.22 g	09-Nov-19 03:03	1
PFDA	335-76-2	ND	1.92		B9J0278	06-Nov-19	1.22 g	09-Nov-19 03:03	1
8:2 FTS	39108-34-4	ND	1.92		B9J0278	06-Nov-19	1.22 g	09-Nov-19 03:03	1
MeFOSAA	2355-31-9	ND	1.92		B9J0278	06-Nov-19	1.22 g	09-Nov-19 03:03	1
EtFOSAA	2991-50-6	ND	1.92		B9J0278	06-Nov-19	1.22 g	09-Nov-19 03:03	1
PFUnA	2058-94-8	ND	1.92		B9J0278	06-Nov-19	1.22 g	09-Nov-19 03:03	1
PFDS	335-77-3	ND	1.92		B9J0278	06-Nov-19	1.22 g	09-Nov-19 03:03	1
PFDoA	307-55-1	ND	1.92		B9J0278	06-Nov-19	1.22 g	09-Nov-19 03:03	1
PFTrDA	72629-94-8	ND	1.92		B9J0278	06-Nov-19	1.22 g	09-Nov-19 03:03	1
PFTeDA	376-06-7	ND	1.92		B9J0278	06-Nov-19	1.22 g	09-Nov-19 03:03	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	89.4	50 - 150		B9J0278	06-Nov-19	1.22 g	09-Nov-19 03:03	1
13C3-PFPeA	IS	77.9	50 - 150		B9J0278	06-Nov-19	1.22 g	09-Nov-19 03:03	1
13C3-PFBS	IS	81.4	50 - 150		B9J0278	06-Nov-19	1.22 g	09-Nov-19 03:03	1
13C2-4:2 FTS	IS	72.2	50 - 150		B9J0278	06-Nov-19	1.22 g	09-Nov-19 03:03	1
13C2-PFHxA	IS	68.8	50 - 150		B9J0278	06-Nov-19	1.22 g	09-Nov-19 03:03	1
13C4-PFHpA	IS	70.4	50 - 150		B9J0278	06-Nov-19	1.22 g	09-Nov-19 03:03	1
13C3-PFHxS	IS	77.6	50 - 150		B9J0278	06-Nov-19	1.22 g	09-Nov-19 03:03	1
13C2-6:2 FTS	IS	68.5	50 - 150		B9J0278	06-Nov-19	1.22 g	09-Nov-19 03:03	1
13C5-PFNA	IS	66.5	50 - 150		B9J0278	06-Nov-19	1.22 g	09-Nov-19 03:03	1
13C8-PFOSA	IS	29.8	50 - 150	H	B9J0278	06-Nov-19	1.22 g	09-Nov-19 03:03	1
13C2-PFOA	IS	74.2	50 - 150		B9J0278	06-Nov-19	1.22 g	09-Nov-19 03:03	1
13C8-PFOS	IS	70.2	50 - 150		B9J0278	06-Nov-19	1.22 g	09-Nov-19 03:03	1
13C2-PFDA	IS	58.1	50 - 150		B9J0278	06-Nov-19	1.22 g	09-Nov-19 03:03	1
13C2-8:2 FTS	IS	80.5	50 - 150		B9J0278	06-Nov-19	1.22 g	09-Nov-19 03:03	1

Sample ID: L12-4-10 **PFAS Isotope Dilution Method**

Client Data				**Laboratory Data**			
Name:	Woodard & Curran	Matrix:	Soil	Lab Sample:	1903735-06	Column:	BEH C18
Project:	SJC PFAS Investigation	Date Collected:	17-Oct-19 23:59	Date Received:	19-Oct-19 09:58		
Location:	Location 12			% Solids:	85.3		

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
d3-MeFOSAA	IS	55.3	50 - 150		B9J0278	06-Nov-19	1.22 g	09-Nov-19 03:03	1
13C2-PFUnA	IS	54.3	50 - 150		B9J0278	06-Nov-19	1.22 g	09-Nov-19 03:03	1
d5-EtFOSAA	IS	60.4	50 - 150		B9J0278	06-Nov-19	1.22 g	09-Nov-19 03:03	1
13C2-PFDoA	IS	56.7	50 - 150		B9J0278	06-Nov-19	1.22 g	09-Nov-19 03:03	1
13C2-PFTeDA	IS	58.7	50 - 150		B9J0278	06-Nov-19	1.22 g	09-Nov-19 03:03	1

RL - Reporting limit

The results are reported in dry weight.
The sample size is reported in wet weight.
Results reported to RL.

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

Sample ID: L12-3-1 **PFAS Isotope Dilution Method**

Client Data

Name:	Woodard & Curran	Matrix:	Soil
Project:	SJC PFAS Investigation	Date Collected:	18-Oct-19 00:02
Location:	Location 12		

Laboratory Data

Lab Sample:	1903735-07	Column:	BEH C18
Date Received:	19-Oct-19 09:58		
% Solids:	81.7		

Analyte	CAS Number	Conc. (ng/g)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	ND	1.97		B9J0278	06-Nov-19	1.24 g	09-Nov-19 03:35	1
PFPeA	2706-90-3	ND	1.97		B9J0278	06-Nov-19	1.24 g	09-Nov-19 03:35	1
PFBS	375-73-5	ND	1.97		B9J0278	06-Nov-19	1.24 g	09-Nov-19 03:35	1
4:2 FTS	757124-72-4	ND	1.97		B9J0278	06-Nov-19	1.24 g	09-Nov-19 03:35	1
PFHxA	307-24-4	ND	1.97		B9J0278	06-Nov-19	1.24 g	09-Nov-19 03:35	1
PFPeS	2706-91-4	ND	1.97		B9J0278	06-Nov-19	1.24 g	09-Nov-19 03:35	1
PFHpA	375-85-9	ND	1.97		B9J0278	06-Nov-19	1.24 g	09-Nov-19 03:35	1
PFHxS	355-46-4	ND	1.97		B9J0278	06-Nov-19	1.24 g	09-Nov-19 03:35	1
6:2 FTS	27619-97-2	ND	1.97		B9J0278	06-Nov-19	1.24 g	09-Nov-19 03:35	1
PFOA	335-67-1	ND	1.97		B9J0278	06-Nov-19	1.24 g	09-Nov-19 03:35	1
PFHpS	375-92-8	ND	1.97		B9J0278	06-Nov-19	1.24 g	09-Nov-19 03:35	1
PFNA	375-95-1	ND	1.97		B9J0278	06-Nov-19	1.24 g	09-Nov-19 03:35	1
PFOSA	754-91-6	ND	1.97		B9J0278	06-Nov-19	1.24 g	09-Nov-19 03:35	1
PFOS	1763-23-1	ND	1.97		B9J0278	06-Nov-19	1.24 g	09-Nov-19 03:35	1
PFDA	335-76-2	ND	1.97		B9J0278	06-Nov-19	1.24 g	09-Nov-19 03:35	1
8:2 FTS	39108-34-4	ND	1.97		B9J0278	06-Nov-19	1.24 g	09-Nov-19 03:35	1
MeFOSAA	2355-31-9	ND	1.97		B9J0278	06-Nov-19	1.24 g	09-Nov-19 03:35	1
EtFOSAA	2991-50-6	ND	1.97		B9J0278	06-Nov-19	1.24 g	09-Nov-19 03:35	1
PFUnA	2058-94-8	ND	1.97		B9J0278	06-Nov-19	1.24 g	09-Nov-19 03:35	1
PFDS	335-77-3	ND	1.97		B9J0278	06-Nov-19	1.24 g	09-Nov-19 03:35	1
PFDoA	307-55-1	ND	1.97		B9J0278	06-Nov-19	1.24 g	09-Nov-19 03:35	1
PFTrDA	72629-94-8	ND	1.97		B9J0278	06-Nov-19	1.24 g	09-Nov-19 03:35	1
PFTeDA	376-06-7	ND	1.97		B9J0278	06-Nov-19	1.24 g	09-Nov-19 03:35	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	92.8	50 - 150		B9J0278	06-Nov-19	1.24 g	09-Nov-19 03:35	1
13C3-PFPeA	IS	74.3	50 - 150		B9J0278	06-Nov-19	1.24 g	09-Nov-19 03:35	1
13C3-PFBS	IS	88.5	50 - 150		B9J0278	06-Nov-19	1.24 g	09-Nov-19 03:35	1
13C2-4:2 FTS	IS	75.6	50 - 150		B9J0278	06-Nov-19	1.24 g	09-Nov-19 03:35	1
13C2-PFHxA	IS	72.2	50 - 150		B9J0278	06-Nov-19	1.24 g	09-Nov-19 03:35	1
13C4-PFHpA	IS	72.0	50 - 150		B9J0278	06-Nov-19	1.24 g	09-Nov-19 03:35	1
13C3-PFHxS	IS	82.9	50 - 150		B9J0278	06-Nov-19	1.24 g	09-Nov-19 03:35	1
13C2-6:2 FTS	IS	72.9	50 - 150		B9J0278	06-Nov-19	1.24 g	09-Nov-19 03:35	1
13C5-PFNA	IS	66.5	50 - 150		B9J0278	06-Nov-19	1.24 g	09-Nov-19 03:35	1
13C8-PFOSA	IS	51.9	50 - 150		B9J0278	06-Nov-19	1.24 g	09-Nov-19 03:35	1
13C2-PFOA	IS	77.5	50 - 150		B9J0278	06-Nov-19	1.24 g	09-Nov-19 03:35	1
13C8-PFOS	IS	72.2	50 - 150		B9J0278	06-Nov-19	1.24 g	09-Nov-19 03:35	1
13C2-PFDA	IS	67.3	50 - 150		B9J0278	06-Nov-19	1.24 g	09-Nov-19 03:35	1
13C2-8:2 FTS	IS	83.1	50 - 150		B9J0278	06-Nov-19	1.24 g	09-Nov-19 03:35	1

Sample ID: L12-3-1

PFAS Isotope Dilution Method

Client Data				**Laboratory Data**			
Name:	Woodard & Curran	Matrix:	Soil	Lab Sample:	1903735-07	Column:	BEH C18
Project:	SJC PFAS Investigation	Date Collected:	18-Oct-19 00:02	Date Received:	19-Oct-19 09:58		
Location:	Location 12			% Solids:	81.7		

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
d3-MeFOSAA	IS	61.5	50 - 150		B9J0278	06-Nov-19	1.24 g	09-Nov-19 03:35	1
13C2-PFUnA	IS	63.2	50 - 150		B9J0278	06-Nov-19	1.24 g	09-Nov-19 03:35	1
d5-EtFOSAA	IS	71.7	50 - 150		B9J0278	06-Nov-19	1.24 g	09-Nov-19 03:35	1
13C2-PFDoA	IS	63.8	50 - 150		B9J0278	06-Nov-19	1.24 g	09-Nov-19 03:35	1
13C2-PFTeDA	IS	70.5	50 - 150		B9J0278	06-Nov-19	1.24 g	09-Nov-19 03:35	1

RL - Reporting limit

The results are reported in dry weight.
The sample size is reported in wet weight.
Results reported to RL.

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

Sample ID: L12-3-5 **PFAS Isotope Dilution Method**

Client Data				**Laboratory Data**			
Name:	Woodard & Curran	Matrix:	Soil	Lab Sample:	1903735-08	Column:	BEH C18
Project:	SJC PFAS Investigation	Date Collected:	18-Oct-19 00:07	Date Received:	19-Oct-19 09:58		
Location:	Location 12			% Solids:	82.3		

Analyte	CAS Number	Conc. (ng/g)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	ND	1.99		B9J0278	06-Nov-19	1.22 g	09-Nov-19 03:45	1
PFPeA	2706-90-3	ND	1.99		B9J0278	06-Nov-19	1.22 g	09-Nov-19 03:45	1
PFBS	375-73-5	ND	1.99		B9J0278	06-Nov-19	1.22 g	09-Nov-19 03:45	1
4:2 FTS	757124-72-4	ND	1.99		B9J0278	06-Nov-19	1.22 g	09-Nov-19 03:45	1
PFHxA	307-24-4	ND	1.99		B9J0278	06-Nov-19	1.22 g	09-Nov-19 03:45	1
PFPeS	2706-91-4	ND	1.99		B9J0278	06-Nov-19	1.22 g	09-Nov-19 03:45	1
PFHpA	375-85-9	ND	1.99		B9J0278	06-Nov-19	1.22 g	09-Nov-19 03:45	1
PFHxS	355-46-4	ND	1.99		B9J0278	06-Nov-19	1.22 g	09-Nov-19 03:45	1
6:2 FTS	27619-97-2	ND	1.99		B9J0278	06-Nov-19	1.22 g	09-Nov-19 03:45	1
PFOA	335-67-1	ND	1.99		B9J0278	06-Nov-19	1.22 g	09-Nov-19 03:45	1
PFHpS	375-92-8	ND	1.99		B9J0278	06-Nov-19	1.22 g	09-Nov-19 03:45	1
PFNA	375-95-1	ND	1.99		B9J0278	06-Nov-19	1.22 g	09-Nov-19 03:45	1
PFOSA	754-91-6	ND	1.99		B9J0278	06-Nov-19	1.22 g	09-Nov-19 03:45	1
PFOS	1763-23-1	ND	1.99		B9J0278	06-Nov-19	1.22 g	09-Nov-19 03:45	1
PFDA	335-76-2	ND	1.99		B9J0278	06-Nov-19	1.22 g	09-Nov-19 03:45	1
8:2 FTS	39108-34-4	ND	1.99		B9J0278	06-Nov-19	1.22 g	09-Nov-19 03:45	1
MeFOSAA	2355-31-9	ND	1.99		B9J0278	06-Nov-19	1.22 g	09-Nov-19 03:45	1
EtFOSAA	2991-50-6	ND	1.99		B9J0278	06-Nov-19	1.22 g	09-Nov-19 03:45	1
PFUnA	2058-94-8	ND	1.99		B9J0278	06-Nov-19	1.22 g	09-Nov-19 03:45	1
PFDS	335-77-3	ND	1.99		B9J0278	06-Nov-19	1.22 g	09-Nov-19 03:45	1
PFDoA	307-55-1	ND	1.99		B9J0278	06-Nov-19	1.22 g	09-Nov-19 03:45	1
PFTrDA	72629-94-8	ND	1.99		B9J0278	06-Nov-19	1.22 g	09-Nov-19 03:45	1
PFTeDA	376-06-7	ND	1.99		B9J0278	06-Nov-19	1.22 g	09-Nov-19 03:45	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	77.2	50 - 150		B9J0278	06-Nov-19	1.22 g	09-Nov-19 03:45	1
13C3-PFPeA	IS	60.2	50 - 150		B9J0278	06-Nov-19	1.22 g	09-Nov-19 03:45	1
13C3-PFBS	IS	78.5	50 - 150		B9J0278	06-Nov-19	1.22 g	09-Nov-19 03:45	1
13C2-4:2 FTS	IS	70.6	50 - 150		B9J0278	06-Nov-19	1.22 g	09-Nov-19 03:45	1
13C2-PFHxA	IS	62.2	50 - 150		B9J0278	06-Nov-19	1.22 g	09-Nov-19 03:45	1
13C4-PFHpA	IS	62.0	50 - 150		B9J0278	06-Nov-19	1.22 g	09-Nov-19 03:45	1
13C3-PFHxS	IS	77.8	50 - 150		B9J0278	06-Nov-19	1.22 g	09-Nov-19 03:45	1
13C2-6:2 FTS	IS	73.5	50 - 150		B9J0278	06-Nov-19	1.22 g	09-Nov-19 03:45	1
13C5-PFNA	IS	57.6	50 - 150		B9J0278	06-Nov-19	1.22 g	09-Nov-19 03:45	1
13C8-PFOSA	IS	39.3	50 - 150	H	B9J0278	06-Nov-19	1.22 g	09-Nov-19 03:45	1
13C2-PFOA	IS	64.4	50 - 150		B9J0278	06-Nov-19	1.22 g	09-Nov-19 03:45	1
13C8-PFOS	IS	70.3	50 - 150		B9J0278	06-Nov-19	1.22 g	09-Nov-19 03:45	1
13C2-PFDA	IS	54.5	50 - 150		B9J0278	06-Nov-19	1.22 g	09-Nov-19 03:45	1
13C2-8:2 FTS	IS	81.9	50 - 150		B9J0278	06-Nov-19	1.22 g	09-Nov-19 03:45	1

Sample ID: L12-3-5 **PFAS Isotope Dilution Method**

Client Data			
Name:	Woodard & Curran	Matrix:	Soil
Project:	SJC PFAS Investigation	Date Collected:	18-Oct-19 00:07
Location:	Location 12		

Laboratory Data			
Lab Sample:	1903735-08	Column:	BEH C18
Date Received:	19-Oct-19 09:58		
% Solids:	82.3		

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
d3-MeFOSAA	IS	47.9	50 - 150	H	B9J0278	06-Nov-19	1.22 g	09-Nov-19 03:45	1
13C2-PFUnA	IS	49.1	50 - 150	H	B9J0278	06-Nov-19	1.22 g	09-Nov-19 03:45	1
d5-EtFOSAA	IS	56.8	50 - 150		B9J0278	06-Nov-19	1.22 g	09-Nov-19 03:45	1
13C2-PFDoA	IS	51.2	50 - 150		B9J0278	06-Nov-19	1.22 g	09-Nov-19 03:45	1
13C2-PFTeDA	IS	50.8	50 - 150		B9J0278	06-Nov-19	1.22 g	09-Nov-19 03:45	1

RL - Reporting limit

The results are reported in dry weight.
The sample size is reported in wet weight.
Results reported to RL.

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

Sample ID: L12-3-10 **PFAS Isotope Dilution Method**

Client Data				**Laboratory Data**			
Name:	Woodard & Curran	Matrix:	Soil	Lab Sample:	1903735-09	Column:	BEH C18
Project:	SJC PFAS Investigation	Date Collected:	18-Oct-19 00:10	Date Received:	19-Oct-19 09:58		
Location:	Location 12			% Solids:	82.9		

Analyte	CAS Number	Conc. (ng/g)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	ND	2.00		B9J0278	06-Nov-19	1.21 g	09-Nov-19 03:56	1
PFPeA	2706-90-3	ND	2.00		B9J0278	06-Nov-19	1.21 g	09-Nov-19 03:56	1
PFBS	375-73-5	ND	2.00		B9J0278	06-Nov-19	1.21 g	09-Nov-19 03:56	1
4:2 FTS	757124-72-4	ND	2.00		B9J0278	06-Nov-19	1.21 g	09-Nov-19 03:56	1
PFHxA	307-24-4	ND	2.00		B9J0278	06-Nov-19	1.21 g	09-Nov-19 03:56	1
PFPeS	2706-91-4	ND	2.00		B9J0278	06-Nov-19	1.21 g	09-Nov-19 03:56	1
PFHpA	375-85-9	ND	2.00		B9J0278	06-Nov-19	1.21 g	09-Nov-19 03:56	1
PFHxS	355-46-4	ND	2.00		B9J0278	06-Nov-19	1.21 g	09-Nov-19 03:56	1
6:2 FTS	27619-97-2	ND	2.00		B9J0278	06-Nov-19	1.21 g	09-Nov-19 03:56	1
PFOA	335-67-1	ND	2.00		B9J0278	06-Nov-19	1.21 g	09-Nov-19 03:56	1
PFHpS	375-92-8	ND	2.00		B9J0278	06-Nov-19	1.21 g	09-Nov-19 03:56	1
PFNA	375-95-1	ND	2.00		B9J0278	06-Nov-19	1.21 g	09-Nov-19 03:56	1
PFOSA	754-91-6	ND	2.00		B9J0278	06-Nov-19	1.21 g	09-Nov-19 03:56	1
PFOS	1763-23-1	ND	2.00		B9J0278	06-Nov-19	1.21 g	09-Nov-19 03:56	1
PFDA	335-76-2	ND	2.00		B9J0278	06-Nov-19	1.21 g	09-Nov-19 03:56	1
8:2 FTS	39108-34-4	ND	2.00		B9J0278	06-Nov-19	1.21 g	09-Nov-19 03:56	1
MeFOSAA	2355-31-9	ND	2.00		B9J0278	06-Nov-19	1.21 g	09-Nov-19 03:56	1
EtFOSAA	2991-50-6	ND	2.00		B9J0278	06-Nov-19	1.21 g	09-Nov-19 03:56	1
PFUnA	2058-94-8	ND	2.00		B9J0278	06-Nov-19	1.21 g	09-Nov-19 03:56	1
PFDS	335-77-3	ND	2.00		B9J0278	06-Nov-19	1.21 g	09-Nov-19 03:56	1
PFDoA	307-55-1	ND	2.00		B9J0278	06-Nov-19	1.21 g	09-Nov-19 03:56	1
PFTrDA	72629-94-8	ND	2.00		B9J0278	06-Nov-19	1.21 g	09-Nov-19 03:56	1
PFTeDA	376-06-7	ND	2.00		B9J0278	06-Nov-19	1.21 g	09-Nov-19 03:56	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	87.3	50 - 150		B9J0278	06-Nov-19	1.21 g	09-Nov-19 03:56	1
13C3-PFPeA	IS	70.9	50 - 150		B9J0278	06-Nov-19	1.21 g	09-Nov-19 03:56	1
13C3-PFBS	IS	82.1	50 - 150		B9J0278	06-Nov-19	1.21 g	09-Nov-19 03:56	1
13C2-4:2 FTS	IS	73.9	50 - 150		B9J0278	06-Nov-19	1.21 g	09-Nov-19 03:56	1
13C2-PFHxA	IS	61.8	50 - 150		B9J0278	06-Nov-19	1.21 g	09-Nov-19 03:56	1
13C4-PFHpA	IS	66.6	50 - 150		B9J0278	06-Nov-19	1.21 g	09-Nov-19 03:56	1
13C3-PFHxS	IS	85.5	50 - 150		B9J0278	06-Nov-19	1.21 g	09-Nov-19 03:56	1
13C2-6:2 FTS	IS	70.9	50 - 150		B9J0278	06-Nov-19	1.21 g	09-Nov-19 03:56	1
13C5-PFNA	IS	61.0	50 - 150		B9J0278	06-Nov-19	1.21 g	09-Nov-19 03:56	1
13C8-PFOSA	IS	38.1	50 - 150	H	B9J0278	06-Nov-19	1.21 g	09-Nov-19 03:56	1
13C2-PFOA	IS	73.4	50 - 150		B9J0278	06-Nov-19	1.21 g	09-Nov-19 03:56	1
13C8-PFOS	IS	75.6	50 - 150		B9J0278	06-Nov-19	1.21 g	09-Nov-19 03:56	1
13C2-PFDA	IS	55.5	50 - 150		B9J0278	06-Nov-19	1.21 g	09-Nov-19 03:56	1
13C2-8:2 FTS	IS	73.9	50 - 150		B9J0278	06-Nov-19	1.21 g	09-Nov-19 03:56	1

Sample ID: L12-3-10 **PFAS Isotope Dilution Method**

Client Data				**Laboratory Data**			
Name:	Woodard & Curran	Matrix:	Soil	Lab Sample:	1903735-09	Column:	BEH C18
Project:	SJC PFAS Investigation	Date Collected:	18-Oct-19 00:10	Date Received:	19-Oct-19 09:58		
Location:	Location 12			% Solids:	82.9		

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
d3-MeFOSAA	IS	50.4	50 - 150		B9J0278	06-Nov-19	1.21 g	09-Nov-19 03:56	1
13C2-PFUnA	IS	49.3	50 - 150	H	B9J0278	06-Nov-19	1.21 g	09-Nov-19 03:56	1
d5-EtFOSAA	IS	57.3	50 - 150		B9J0278	06-Nov-19	1.21 g	09-Nov-19 03:56	1
13C2-PFDoA	IS	50.3	50 - 150		B9J0278	06-Nov-19	1.21 g	09-Nov-19 03:56	1
13C2-PFTeDA	IS	57.3	50 - 150		B9J0278	06-Nov-19	1.21 g	09-Nov-19 03:56	1

RL - Reporting limit

The results are reported in dry weight.
The sample size is reported in wet weight.
Results reported to RL.

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

Sample ID: Method Blank **PFAS Isotope Dilution Method**

Client Data				**Laboratory Data**			
Name:	Woodard & Curran	Matrix:	Aqueous	Lab Sample:	B9J0240-BLK1	Column:	BEH C18
Project:	SJC PFAS Investigation						

Analyte	CAS Number	Conc. (ng/L)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	ND	2.00		B9J0240	30-Oct-19	0.250 L	06-Nov-19 21:02	1
PFPeA	2706-90-3	ND	2.00		B9J0240	30-Oct-19	0.250 L	06-Nov-19 21:02	1
PFBS	375-73-5	ND	2.00		B9J0240	30-Oct-19	0.250 L	06-Nov-19 21:02	1
4:2 FTS	757124-72-4	ND	2.00		B9J0240	30-Oct-19	0.250 L	06-Nov-19 21:02	1
PFHxA	307-24-4	ND	2.00		B9J0240	30-Oct-19	0.250 L	06-Nov-19 21:02	1
PFPeS	2706-91-4	ND	2.00		B9J0240	30-Oct-19	0.250 L	06-Nov-19 21:02	1
PFHpA	375-85-9	ND	2.00		B9J0240	30-Oct-19	0.250 L	06-Nov-19 21:02	1
PFHxS	355-46-4	ND	2.00		B9J0240	30-Oct-19	0.250 L	06-Nov-19 21:02	1
6:2 FTS	27619-97-2	ND	2.00		B9J0240	30-Oct-19	0.250 L	06-Nov-19 21:02	1
PFOA	335-67-1	ND	2.00		B9J0240	30-Oct-19	0.250 L	06-Nov-19 21:02	1
PFHpS	375-92-8	ND	2.00		B9J0240	30-Oct-19	0.250 L	06-Nov-19 21:02	1
PFNA	375-95-1	ND	2.00		B9J0240	30-Oct-19	0.250 L	06-Nov-19 21:02	1
PFOSA	754-91-6	ND	2.00		B9J0240	30-Oct-19	0.250 L	06-Nov-19 21:02	1
PFOS	1763-23-1	ND	2.00		B9J0240	30-Oct-19	0.250 L	06-Nov-19 21:02	1
PFDA	335-76-2	ND	2.00		B9J0240	30-Oct-19	0.250 L	06-Nov-19 21:02	1
8:2 FTS	39108-34-4	ND	2.00		B9J0240	30-Oct-19	0.250 L	06-Nov-19 21:02	1
MeFOSAA	2355-31-9	ND	2.00		B9J0240	30-Oct-19	0.250 L	06-Nov-19 21:02	1
EtFOSAA	2991-50-6	ND	2.00		B9J0240	30-Oct-19	0.250 L	06-Nov-19 21:02	1
PFUnA	2058-94-8	ND	2.00		B9J0240	30-Oct-19	0.250 L	06-Nov-19 21:02	1
PFDS	335-77-3	ND	2.00		B9J0240	30-Oct-19	0.250 L	06-Nov-19 21:02	1
PFDoA	307-55-1	ND	2.00		B9J0240	30-Oct-19	0.250 L	06-Nov-19 21:02	1
PFTrDA	72629-94-8	ND	2.00		B9J0240	30-Oct-19	0.250 L	06-Nov-19 21:02	1
PFTeDA	376-06-7	ND	2.00		B9J0240	30-Oct-19	0.250 L	06-Nov-19 21:02	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	113	50 - 150		B9J0240	30-Oct-19	0.250 L	06-Nov-19 21:02	1
13C3-PFPeA	IS	110	50 - 150		B9J0240	30-Oct-19	0.250 L	06-Nov-19 21:02	1
13C3-PFBS	IS	127	50 - 150		B9J0240	30-Oct-19	0.250 L	06-Nov-19 21:02	1
13C2-4:2 FTS	IS	123	50 - 150		B9J0240	30-Oct-19	0.250 L	06-Nov-19 21:02	1
13C2-PFHxA	IS	106	50 - 150		B9J0240	30-Oct-19	0.250 L	06-Nov-19 21:02	1
13C4-PFHpA	IS	101	50 - 150		B9J0240	30-Oct-19	0.250 L	06-Nov-19 21:02	1
13C3-PFHxS	IS	112	50 - 150		B9J0240	30-Oct-19	0.250 L	06-Nov-19 21:02	1
13C2-6:2 FTS	IS	108	50 - 150		B9J0240	30-Oct-19	0.250 L	06-Nov-19 21:02	1
13C5-PFNA	IS	115	50 - 150		B9J0240	30-Oct-19	0.250 L	06-Nov-19 21:02	1
13C8-PFOSA	IS	31.2	50 - 150	H	B9J0240	30-Oct-19	0.250 L	06-Nov-19 21:02	1
13C2-PFOA	IS	122	50 - 150		B9J0240	30-Oct-19	0.250 L	06-Nov-19 21:02	1
13C8-PFOS	IS	110	50 - 150		B9J0240	30-Oct-19	0.250 L	06-Nov-19 21:02	1
13C2-PFDA	IS	106	50 - 150		B9J0240	30-Oct-19	0.250 L	06-Nov-19 21:02	1
13C2-8:2 FTS	IS	109	50 - 150		B9J0240	30-Oct-19	0.250 L	06-Nov-19 21:02	1

Sample ID: Method Blank

PFAS Isotope Dilution Method

Client Data				**Laboratory Data**			
Name:	Woodard & Curran	Matrix:	Aqueous	Lab Sample:	B9J0240-BLK1	Column:	BEH C18
Project:	SJC PFAS Investigation						

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
d3-MeFOSAA	IS	97.2	50 - 150		B9J0240	30-Oct-19	0.250 L	06-Nov-19 21:02	1
13C2-PFUnA	IS	93.8	50 - 150		B9J0240	30-Oct-19	0.250 L	06-Nov-19 21:02	1
d5-EtFOSAA	IS	98.7	50 - 150		B9J0240	30-Oct-19	0.250 L	06-Nov-19 21:02	1
13C2-PFDoA	IS	89.0	50 - 150		B9J0240	30-Oct-19	0.250 L	06-Nov-19 21:02	1
13C2-PFTeDA	IS	89.2	50 - 150		B9J0240	30-Oct-19	0.250 L	06-Nov-19 21:02	1

RL - Reporting limit

Results reported to RL.

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

Sample ID: LCSD **PFAS Isotope Dilution Method**

Name:	Woodard & Curran	Lab Sample:	B9J0240-BS1/B9J0240-BSD1	Date Extracted:	30-Oct-19
Project:	SJC PFAS Investigation	QC Batch:	B9J0240	Column:	BEH C18
Matrix:	Aqueous	Samp Size:	0.250/0.250 L		

Analyte	CAS Number	LCS (ng/L)	LCS Spike	LCS % Rec	LCS Quals	LCSD (ng/L)	LCSD Spike	LCSD % Rec	RPD	LCSD Quals	%Rec Limits	RPD Limits	LCS Analyzed	LCS Dil	LCSD Analyzed	LCSD Dil
PFBA	375-22-4	42.2	40.0	106		41.1	40.0	103	2.57		73-129	30	06-Nov-19 21:12	1	06-Nov-19 21:23	1
PFPeA	2706-90-3	41.6	40.0	104		43.1	40.0	108	3.75		72-129	30	06-Nov-19 21:12	1	06-Nov-19 21:23	1
PFBS	375-73-5	42.4	40.0	106		40.4	40.0	101	5.04		72-130	30	06-Nov-19 21:12	1	06-Nov-19 21:23	1
4:2 FTS	757124-72-4	36.6	40.0	91.5		36.1	40.0	90.2	1.47		63-143	30	06-Nov-19 21:12	1	06-Nov-19 21:23	1
PFHxA	307-24-4	45.8	40.0	114		45.4	40.0	113	0.867		72-129	30	06-Nov-19 21:12	1	06-Nov-19 21:23	1
PFPeS	2706-91-4	45.4	40.0	113		41.8	40.0	105	8.23		71-127	30	06-Nov-19 21:12	1	06-Nov-19 21:23	1
PFHpA	375-85-9	46.4	40.0	116		43.6	40.0	109	6.22		72-130	30	06-Nov-19 21:12	1	06-Nov-19 21:23	1
PFHxS	355-46-4	39.3	40.0	98.1		38.4	40.0	95.9	2.27		68-131	30	06-Nov-19 21:12	1	06-Nov-19 21:23	1
6:2 FTS	27619-97-2	36.9	40.0	92.2		39.6	40.0	99.0	7.11		64-140	30	06-Nov-19 21:12	1	06-Nov-19 21:23	1
PFOA	335-67-1	46.2	40.0	115		42.4	40.0	106	8.41		71-133	30	06-Nov-19 21:12	1	06-Nov-19 21:23	1
PFHpS	375-92-8	44.6	40.0	111		45.3	40.0	113	1.51		69-134	30	06-Nov-19 21:12	1	06-Nov-19 21:23	1
PFNA	375-95-1	39.6	40.0	98.9		39.9	40.0	99.7	0.766		69-130	30	06-Nov-19 21:12	1	06-Nov-19 21:23	1
PFOSA	754-91-6	48.7	40.0	122		47.2	40.0	118	3.14		67-137	30	06-Nov-19 21:12	1	06-Nov-19 21:23	1
PFOS	1763-23-1	40.4	40.0	101		41.0	40.0	103	1.61		65-140	30	06-Nov-19 21:12	1	06-Nov-19 21:23	1
PFDA	335-76-2	43.9	40.0	110		43.1	40.0	108	1.84		71-129	30	06-Nov-19 21:12	1	06-Nov-19 21:23	1
8:2 FTS	39108-34-4	43.9	40.0	110		41.4	40.0	103	6.00		67-138	30	06-Nov-19 21:12	1	06-Nov-19 21:23	1
MeFOSAA	2355-31-9	33.6	40.0	83.9		33.4	40.0	83.5	0.550		65-136	30	06-Nov-19 21:12	1	06-Nov-19 21:23	1
EtFOSAA	2991-50-6	42.4	40.0	106		40.8	40.0	102	3.91		61-135	30	06-Nov-19 21:12	1	06-Nov-19 21:23	1
PFUnA	2058-94-8	40.5	40.0	101		42.0	40.0	105	3.62		69-133	30	06-Nov-19 21:12	1	06-Nov-19 21:23	1
PFDS	335-77-3	34.2	40.0	85.4		36.7	40.0	91.7	7.10		53-142	30	06-Nov-19 21:12	1	06-Nov-19 21:23	1
PFDoA	307-55-1	43.6	40.0	109		44.0	40.0	110	0.879		72-134	30	06-Nov-19 21:12	1	06-Nov-19 21:23	1
PFTrDA	72629-94-8	37.5	40.0	93.8		37.5	40.0	93.8	0.00135		65-144	30	06-Nov-19 21:12	1	06-Nov-19 21:23	1
PFTeDA	376-06-7	42.4	40.0	106		42.8	40.0	107	0.985		71-132	30	06-Nov-19 21:12	1	06-Nov-19 21:23	1

Labeled Standards	Type	LCS % Rec	LCS Quals	LCSD % Rec	LCSD Quals	Limits	LCS Analyzed	LCS Dil	LCSD Analyzed	LCSD Dil
13C3-PFBA	IS	115		122		50-150	06-Nov-19 21:12	1	06-Nov-19 21:23	1
13C3-PFPeA	IS	117		117		50-150	06-Nov-19 21:12	1	06-Nov-19 21:23	1
13C3-PFBS	IS	123		135		50-150	06-Nov-19 21:12	1	06-Nov-19 21:23	1
13C2-4:2 FTS	IS	116		120		50-150	06-Nov-19 21:12	1	06-Nov-19 21:23	1
13C2-PFHxA	IS	117		121		50-150	06-Nov-19 21:12	1	06-Nov-19 21:23	1
13C4-PFHpA	IS	106		115		50-150	06-Nov-19 21:12	1	06-Nov-19 21:23	1
13C3-PFHxS	IS	120		122		50-150	06-Nov-19 21:12	1	06-Nov-19 21:23	1
13C2-6:2 FTS	IS	119		111		50-150	06-Nov-19 21:12	1	06-Nov-19 21:23	1

Sample ID: LCSD **PFAS Isotope Dilution Method**

Name:	Woodard & Curran	Lab Sample:	B9J0240-BS1/B9J0240-BSD1	Date Extracted:	30-Oct-19
Project:	SJC PFAS Investigation	QC Batch:	B9J0240	Column:	BEH C18
Matrix:	Aqueous	Samp Size:	0.250/0.250 L		

Labeled Standards	Type	LCS % Rec	LCS Quals	LCSD % Rec	LCSD Quals	Limits	LCS Analyzed	LCS Dil	LCSD Analyzed	LCSD Dil
13C5-PFNA	IS	118		121		50-150	06-Nov-19 21:12	1	06-Nov-19 21:23	1
13C8-PFOSA	IS	41.2	H	41.5	H	50-150	06-Nov-19 21:12	1	06-Nov-19 21:23	1
13C2-PFOA	IS	113		122		50-150	06-Nov-19 21:12	1	06-Nov-19 21:23	1
13C8-PFOS	IS	113		114		50-150	06-Nov-19 21:12	1	06-Nov-19 21:23	1
13C2-PFDA	IS	108		117		50-150	06-Nov-19 21:12	1	06-Nov-19 21:23	1
13C2-8:2 FTS	IS	103		115		50-150	06-Nov-19 21:12	1	06-Nov-19 21:23	1
d3-MeFOSAA	IS	104		112		50-150	06-Nov-19 21:12	1	06-Nov-19 21:23	1
13C2-PFUnA	IS	92.0		100		50-150	06-Nov-19 21:12	1	06-Nov-19 21:23	1
d5-EtFOSAA	IS	95.4		107		50-150	06-Nov-19 21:12	1	06-Nov-19 21:23	1
13C2-PFDoA	IS	94.4		98.6		50-150	06-Nov-19 21:12	1	06-Nov-19 21:23	1
13C2-PFTeDA	IS	88.9		91.2		50-150	06-Nov-19 21:12	1	06-Nov-19 21:23	1

Sample ID: L12-3-6W **PFAS Isotope Dilution Method**

Client Data				**Laboratory Data**			
Name:	Woodard & Curran	Matrix:	Aqueous	Lab Sample:	1903735-10	Column:	BEH C18
Project:	SJC PFAS Investigation	Date Collected:	18-Oct-19 01:30	Date Received:	19-Oct-19 09:58		
Location:	Location 12						

Analyte	CAS Number	Conc. (ng/L)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	11.0	2.14		B9J0240	30-Oct-19	0.234 L	06-Nov-19 22:37	1
PFPeA	2706-90-3	ND	2.14		B9J0240	30-Oct-19	0.234 L	06-Nov-19 22:37	1
PFBS	375-73-5	12.3	2.14		B9J0240	30-Oct-19	0.234 L	06-Nov-19 22:37	1
4:2 FTS	757124-72-4	ND	2.14		B9J0240	30-Oct-19	0.234 L	06-Nov-19 22:37	1
PFHxA	307-24-4	ND	2.14		B9J0240	30-Oct-19	0.234 L	06-Nov-19 22:37	1
PFPeS	2706-91-4	7.85	2.14		B9J0240	30-Oct-19	0.234 L	06-Nov-19 22:37	1
PFHpA	375-85-9	ND	2.14		B9J0240	30-Oct-19	0.234 L	06-Nov-19 22:37	1
PFHxS	355-46-4	41.7	2.14		B9J0240	30-Oct-19	0.234 L	06-Nov-19 22:37	1
6:2 FTS	27619-97-2	ND	2.14		B9J0240	30-Oct-19	0.234 L	06-Nov-19 22:37	1
PFOA	335-67-1	3.55	2.14		B9J0240	30-Oct-19	0.234 L	06-Nov-19 22:37	1
PFHpS	375-92-8	ND	2.14		B9J0240	30-Oct-19	0.234 L	06-Nov-19 22:37	1
PFNA	375-95-1	ND	2.14		B9J0240	30-Oct-19	0.234 L	06-Nov-19 22:37	1
PFOSA	754-91-6	ND	2.14		B9J0240	30-Oct-19	0.234 L	06-Nov-19 22:37	1
PFOS	1763-23-1	40.5	2.14		B9J0240	30-Oct-19	0.234 L	06-Nov-19 22:37	1
PFDA	335-76-2	ND	2.14		B9J0240	30-Oct-19	0.234 L	06-Nov-19 22:37	1
8:2 FTS	39108-34-4	ND	2.14		B9J0240	30-Oct-19	0.234 L	06-Nov-19 22:37	1
MeFOSAA	2355-31-9	ND	2.14		B9J0240	30-Oct-19	0.234 L	06-Nov-19 22:37	1
EtFOSAA	2991-50-6	ND	2.14		B9J0240	30-Oct-19	0.234 L	06-Nov-19 22:37	1
PFUnA	2058-94-8	ND	2.14		B9J0240	30-Oct-19	0.234 L	06-Nov-19 22:37	1
PFDS	335-77-3	ND	2.14		B9J0240	30-Oct-19	0.234 L	06-Nov-19 22:37	1
PFDoA	307-55-1	ND	2.14		B9J0240	30-Oct-19	0.234 L	06-Nov-19 22:37	1
PFTrDA	72629-94-8	ND	2.14		B9J0240	30-Oct-19	0.234 L	06-Nov-19 22:37	1
PFTeDA	376-06-7	ND	2.14		B9J0240	30-Oct-19	0.234 L	06-Nov-19 22:37	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	86.2	50 - 150		B9J0240	30-Oct-19	0.234 L	06-Nov-19 22:37	1
13C3-PFPeA	IS	115	50 - 150		B9J0240	30-Oct-19	0.234 L	06-Nov-19 22:37	1
13C3-PFBS	IS	131	50 - 150		B9J0240	30-Oct-19	0.234 L	06-Nov-19 22:37	1
13C2-4:2 FTS	IS	121	50 - 150		B9J0240	30-Oct-19	0.234 L	06-Nov-19 22:37	1
13C2-PFHxA	IS	112	50 - 150		B9J0240	30-Oct-19	0.234 L	06-Nov-19 22:37	1
13C4-PFHpA	IS	106	50 - 150		B9J0240	30-Oct-19	0.234 L	06-Nov-19 22:37	1
13C3-PFHxS	IS	113	50 - 150		B9J0240	30-Oct-19	0.234 L	06-Nov-19 22:37	1
13C2-6:2 FTS	IS	101	50 - 150		B9J0240	30-Oct-19	0.234 L	06-Nov-19 22:37	1
13C5-PFNA	IS	119	50 - 150		B9J0240	30-Oct-19	0.234 L	06-Nov-19 22:37	1
13C8-PFOSA	IS	52.9	50 - 150		B9J0240	30-Oct-19	0.234 L	06-Nov-19 22:37	1
13C2-PFOA	IS	125	50 - 150		B9J0240	30-Oct-19	0.234 L	06-Nov-19 22:37	1
13C8-PFOS	IS	114	50 - 150		B9J0240	30-Oct-19	0.234 L	06-Nov-19 22:37	1
13C2-PFDA	IS	108	50 - 150		B9J0240	30-Oct-19	0.234 L	06-Nov-19 22:37	1
13C2-8:2 FTS	IS	105	50 - 150		B9J0240	30-Oct-19	0.234 L	06-Nov-19 22:37	1

Sample ID: L12-3-6W **PFAS Isotope Dilution Method**

Client Data				**Laboratory Data**			
Name:	Woodard & Curran	Matrix:	Aqueous	Lab Sample:	1903735-10	Column:	BEH C18
Project:	SJC PFAS Investigation	Date Collected:	18-Oct-19 01:30	Date Received:	19-Oct-19 09:58		
Location:	Location 12						

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
d3-MeFOSAA	IS	115	50 - 150		B9J0240	30-Oct-19	0.234 L	06-Nov-19 22:37	1
13C2-PFUnA	IS	95.6	50 - 150		B9J0240	30-Oct-19	0.234 L	06-Nov-19 22:37	1
d5-EtFOSAA	IS	112	50 - 150		B9J0240	30-Oct-19	0.234 L	06-Nov-19 22:37	1
13C2-PFDoA	IS	94.1	50 - 150		B9J0240	30-Oct-19	0.234 L	06-Nov-19 22:37	1
13C2-PFTeDA	IS	71.4	50 - 150		B9J0240	30-Oct-19	0.234 L	06-Nov-19 22:37	1

RL - Reporting limit

Results reported to RL.

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

Sample ID: L12-30-6W PFAS Isotope Dilution Method

Client Data

Name:	Woodard & Curran	Matrix:	Aqueous
Project:	SJC PFAS Investigation	Date Collected:	18-Oct-19 01:30
Location:	Location 12		

Laboratory Data

Lab Sample:	1903735-11	Column:	BEH C18
Date Received:	19-Oct-19 09:58		

Analyte	CAS Number	Conc. (ng/L)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	10.5	2.13		B9J0240	30-Oct-19	0.235 L	06-Nov-19 22:48	1
PFPeA	2706-90-3	ND	2.13		B9J0240	30-Oct-19	0.235 L	06-Nov-19 22:48	1
PFBS	375-73-5	12.5	2.13		B9J0240	30-Oct-19	0.235 L	06-Nov-19 22:48	1
4:2 FTS	757124-72-4	ND	2.13		B9J0240	30-Oct-19	0.235 L	06-Nov-19 22:48	1
PFHxA	307-24-4	ND	2.13		B9J0240	30-Oct-19	0.235 L	06-Nov-19 22:48	1
PFPeS	2706-91-4	9.05	2.13		B9J0240	30-Oct-19	0.235 L	06-Nov-19 22:48	1
PFHpA	375-85-9	ND	2.13		B9J0240	30-Oct-19	0.235 L	06-Nov-19 22:48	1
PFHxS	355-46-4	45.1	2.13		B9J0240	30-Oct-19	0.235 L	06-Nov-19 22:48	1
6:2 FTS	27619-97-2	ND	2.13		B9J0240	30-Oct-19	0.235 L	06-Nov-19 22:48	1
PFOA	335-67-1	3.00	2.13		B9J0240	30-Oct-19	0.235 L	06-Nov-19 22:48	1
PFHpS	375-92-8	ND	2.13		B9J0240	30-Oct-19	0.235 L	06-Nov-19 22:48	1
PFNA	375-95-1	ND	2.13		B9J0240	30-Oct-19	0.235 L	06-Nov-19 22:48	1
PFOSA	754-91-6	ND	2.13		B9J0240	30-Oct-19	0.235 L	06-Nov-19 22:48	1
PFOS	1763-23-1	3.43	2.13		B9J0240	30-Oct-19	0.235 L	06-Nov-19 22:48	1
PFDA	335-76-2	ND	2.13		B9J0240	30-Oct-19	0.235 L	06-Nov-19 22:48	1
8:2 FTS	39108-34-4	ND	2.13		B9J0240	30-Oct-19	0.235 L	06-Nov-19 22:48	1
MeFOSAA	2355-31-9	ND	2.13		B9J0240	30-Oct-19	0.235 L	06-Nov-19 22:48	1
EtFOSAA	2991-50-6	ND	2.13		B9J0240	30-Oct-19	0.235 L	06-Nov-19 22:48	1
PFUnA	2058-94-8	ND	2.13		B9J0240	30-Oct-19	0.235 L	06-Nov-19 22:48	1
PFDS	335-77-3	ND	2.13		B9J0240	30-Oct-19	0.235 L	06-Nov-19 22:48	1
PFDoA	307-55-1	ND	2.13		B9J0240	30-Oct-19	0.235 L	06-Nov-19 22:48	1
PFTrDA	72629-94-8	ND	2.13		B9J0240	30-Oct-19	0.235 L	06-Nov-19 22:48	1
PFTeDA	376-06-7	ND	2.13		B9J0240	30-Oct-19	0.235 L	06-Nov-19 22:48	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	88.4	50 - 150		B9J0240	30-Oct-19	0.235 L	06-Nov-19 22:48	1
13C3-PFPeA	IS	119	50 - 150		B9J0240	30-Oct-19	0.235 L	06-Nov-19 22:48	1
13C3-PFBS	IS	139	50 - 150		B9J0240	30-Oct-19	0.235 L	06-Nov-19 22:48	1
13C2-4:2 FTS	IS	127	50 - 150		B9J0240	30-Oct-19	0.235 L	06-Nov-19 22:48	1
13C2-PFHxA	IS	121	50 - 150		B9J0240	30-Oct-19	0.235 L	06-Nov-19 22:48	1
13C4-PFHpA	IS	113	50 - 150		B9J0240	30-Oct-19	0.235 L	06-Nov-19 22:48	1
13C3-PFHxS	IS	117	50 - 150		B9J0240	30-Oct-19	0.235 L	06-Nov-19 22:48	1
13C2-6:2 FTS	IS	136	50 - 150		B9J0240	30-Oct-19	0.235 L	06-Nov-19 22:48	1
13C5-PFNA	IS	123	50 - 150		B9J0240	30-Oct-19	0.235 L	06-Nov-19 22:48	1
13C8-PFOSA	IS	59.2	50 - 150		B9J0240	30-Oct-19	0.235 L	06-Nov-19 22:48	1
13C2-PFOA	IS	136	50 - 150		B9J0240	30-Oct-19	0.235 L	06-Nov-19 22:48	1
13C8-PFOS	IS	109	50 - 150		B9J0240	30-Oct-19	0.235 L	06-Nov-19 22:48	1
13C2-PFDA	IS	103	50 - 150		B9J0240	30-Oct-19	0.235 L	06-Nov-19 22:48	1
13C2-8:2 FTS	IS	103	50 - 150		B9J0240	30-Oct-19	0.235 L	06-Nov-19 22:48	1

Sample ID: L12-30-6W

PFAS Isotope Dilution Method

Client Data				**Laboratory Data**			
Name:	Woodard & Curran	Matrix:	Aqueous	Lab Sample:	1903735-11	Column:	BEH C18
Project:	SJC PFAS Investigation	Date Collected:	18-Oct-19 01:30	Date Received:	19-Oct-19 09:58		
Location:	Location 12						

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
d3-MeFOSAA	IS	97.6	50 - 150		B9J0240	30-Oct-19	0.235 L	06-Nov-19 22:48	1
13C2-PFUnA	IS	85.7	50 - 150		B9J0240	30-Oct-19	0.235 L	06-Nov-19 22:48	1
d5-EtFOSAA	IS	93.4	50 - 150		B9J0240	30-Oct-19	0.235 L	06-Nov-19 22:48	1
13C2-PFDoA	IS	76.3	50 - 150		B9J0240	30-Oct-19	0.235 L	06-Nov-19 22:48	1
13C2-PFTeDA	IS	86.5	50 - 150		B9J0240	30-Oct-19	0.235 L	06-Nov-19 22:48	1

RL - Reporting limit

Results reported to RL.

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

DATA QUALIFIERS & ABBREVIATIONS

B	This compound was also detected in the method blank
Conc.	Concentration
CRS	Cleanup Recovery Standard
D	Dilution
DL	Detection limit
E	The associated compound concentration exceeded the calibration range of the instrument
H	Recovery and/or RPD was outside laboratory acceptance limits
I	Chemical Interference
IS	Internal Standard
J	The amount detected is below the Reporting Limit/LOQ
LOD	Limit of Detection
LOQ	Limit of Quantitation
M	Estimated Maximum Possible Concentration (CA Region 2 projects only)
NA	Not applicable
ND	Not Detected
OPR	Ongoing Precision and Recovery sample
P	The reported concentration may include contribution from chlorinated diphenyl ether(s).
Q	The ion transition ratio is outside of the acceptance criteria.
RL	Reporting Limit
TEQ	Toxic Equivalency
U	Not Detected (specific projects only)
*	See Cover Letter

Unless otherwise noted, solid sample results are reported in dry weight. Tissue samples are reported in wet weight.

Vista Analytical Laboratory Certifications

Accrediting Authority	Certificate Number
Alaska Department of Environmental Conservation	17-013
Arkansas Department of Environmental Quality	19-013-0
California Department of Health – ELAP	2892
DoD ELAP - A2LA Accredited - ISO/IEC 17025:2005	3091.01
Florida Department of Health	E87777-23
Hawaii Department of Health	N/A
Louisiana Department of Environmental Quality	01977
Maine Department of Health	2018017
Massachusetts Department of Environmental Protection	N/A
Michigan Department of Environmental Quality	9932
Minnesota Department of Health	1521520
New Hampshire Environmental Accreditation Program	207718-B
New Jersey Department of Environmental Protection	190001
New York Department of Health	11411
Oregon Laboratory Accreditation Program	4042-010
Pennsylvania Department of Environmental Protection	016
Texas Commission on Environmental Quality	T104704189-19-10
Vermont Department of Health	VT-4042
Virginia Department of General Services	10272
Washington Department of Ecology	C584-19
Wisconsin Department of Natural Resources	998036160

Current certificates and lists of licensed parameters are located in the Quality Assurance office and are available upon request.

NELAP Accredited Test Methods

MATRIX: Air	
Description of Test	**Method**
Determination of Polychlorinated p-Dioxins & Polychlorinated Dibenzofurans	EPA 23
Determination of Polychlorinated p-Dioxins & Polychlorinated Dibenzofurans	EPA TO-9A

MATRIX: Biological Tissue	
Description of Test	**Method**
Tetra- through Octa-Chlorinated Dioxins and Furans by Isotope Dilution GC/HRMS	EPA 1613B
Brominated Diphenyl Ethers by HRGC/HRMS	EPA 1614A
Chlorinated Biphenyl Congeners in Water, Soil, Sediment, and Tissue by GC/HRMS	EPA 1668A/C
Pesticides in Water, Soil, Sediment, Biosolids, and Tissue by HRGC/HRMS	EPA 1699
Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/MS/MS	EPA 537
Polychlorinated Dibenzo-p-Dioxins and Polychlorinated Dibenzofurans by GC/HRMS	EPA 8280A/B
Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by GC/HRMS	EPA 8290/8290A

MATRIX: Drinking Water	
Description of Test	**Method**
2,3,7,8-Tetrachlorodibenzo- p-dioxin (2,3,7,8-TCDD) GC/HRMS	EPA 1613/1613B
1,4-Dioxane (1,4-Diethyleneoxide) analysis by GC/HRMS	EPA 522
Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/MS/MS	EPA 537
Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/MS/MS	ISO 25101 2009

MATRIX: Non-Potable Water	
Description of Test	**Method**
Tetra- through Octa-Chlorinated Dioxins and Furans by Isotope Dilution GC/HRMS	EPA 1613B
Brominated Diphenyl Ethers by HRGC/HRMS	EPA 1614A
Chlorinated Biphenyl Congeners in Water, Soil, Sediment, and Tissue by GC/HRMS	EPA 1668A/C
Pesticides in Water, Soil, Sediment, Biosolids, and Tissue by HRGC/HRMS	EPA 1699
Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/MS/MS	EPA 537
Dioxin by GC/HRMS	EPA 613
Polychlorinated Dibenzo-p-Dioxins and Polychlorinated Dibenzofurans by GC/HRMS	EPA 8280A/B
Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by GC/HRMS	EPA 8290/8290A

MATRIX: Solids	
Description of Test	**Method**
Tetra-Octa Chlorinated Dioxins and Furans by Isotope Dilution GC/HRMS	EPA 1613
Tetra- through Octa-Chlorinated Dioxins and Furans by Isotope Dilution GC/HRMS	EPA 1613B
Brominated Diphenyl Ethers by HRGC/HRMS	EPA 1614A
Chlorinated Biphenyl Congeners in Water, Soil, Sediment, and Tissue by GC/HRMS	EPA 1668A/C
Pesticides in Water, Soil, Sediment, Biosolids, and Tissue by HRGC/HRMS	EPA 1699
Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/MS/MS	EPA 537
Polychlorinated Dibenzo-p-Dioxins and Polychlorinated Dibenzofurans by GC/HRMS	EPA 8280A/B
Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by GC/HRMS	EPA 8290/8290A

Rev. No.: 0
Rev. Date: 06/27/2017

ID: LR - 537COC

Vista
Analytical Laboratory

CHAIN OF CUSTODY

For Laboratory Use Only gji 10/21/19
Work Order #: 190373~~4~~5 Temp: 0.8 °C
Storage ID: R-13, WR-2 Storage Secured: Yes ☑ No ☐

Project ID: SJC PFAS Investigation PO#: ______ Sampler: KA/GV (name)

TAT (check one): Standard: ☒ 21 days
Rush (surcharge may apply) ☐ 14 days ☐ 7 days Specify: ______

Invoice to:

Name	Company	Address	City	State	Ph#	Fax#
Jim Strandberg	Woodard & Curran	2175 N California Blvd, Ste 315	Walnut Creek	CA	(925) 627-4122	(925)-627-410

Relinquished by (printed name and signature)	Date	Time	Received by (printed name and signature)	Date	Time
Kevin Almestad	10/18/19	1345	~~Kevin Almestad~~ Fedex	10/18/19	1345
Fedex			Kim Euric	10/19/19	0958

SHIP TO: Vista Analytical Laboratory
1104 Windfield Way
El Dorado Hills, CA 95762
(916) 673-1520 * Fax (916) 673-0106

ATTN: Jennifer Miller

Method of Shipment: Fedex

Tracking No.: ______

Add Analysis(es) Requested

Sample ID	Date	Time	Location/Sample Description	Container(s) Quantity	Container(s) Type	Container(s) Matrix	Mod. EPA Method 537 PFOA/PFOS	Mod. EPA Method 537 UCMR3 PFAS List:6	Mod. EPA Method 537 537 List: 14	Mod. EPA Method 537 Full List of 26	Mod. EPA Method 537 Other: Please List Below CA Airport List (23)	EPA Method 537 (DW only) PFOA/PFOS	EPA Method 537 (DW only) UCMR3 PFAS List:6	EPA Method 537 (DW only) PFAS List: 14	Comments
L12-2-1	10/17/19	2337	Location 12	1	PJ	SO					X				
L12-2-5	↓	2341	↓	1	↓	↓					↓				
L12-2-10		2344		1											
L12-4-1		2350		1											
L12-4-5		2355		1											
L12-4-10		2359		1											
L12-3-1	10/18/19	0002		1											
L12-3-5	↓	0007		1											
L12-3-10		0010		1											
L12-3-GW		0130		2	P	AQ									
L12-30-GW		0130		2	P	AQ									

Special Instructions/Comments:
Geotracker EDF
Fedex wouldn't sign chain, signed for them

SEND DOCUMENTATION AND RESULTS TO:
Name: Jim Strandberg
Company: Woodard & Curran, Inc.
Address: 2175 N California Blvd, Ste 315
City: Walnut Creek State: CA Zip: 94597
Phone: (510) 310-3776 Fax: (925)-627-4101
Email: Jstrandberg@woodardcurran.com

Container Types: P= HDPE, PJ= HDPE Jar
O = Other: ______

Bottle Preservation Type: T = Thiosulfate,
TZ = Trizma: ______

Matrix Types: AQ = Aqueous, DW = Drinking Water, EF = Effluent, PP = Pulp/Paper, SD = Sediment, SL = Sludge, SO = Soil, WW = Wastewater, B = Blood/Serum, O = Other: ______

Page: ~~1~~ 2 of ~~1~~ 2

Vista
Analytical Laboratory

Sample Log-In Checklist

Page # 1 of 1

Vista Work Order #: 1903735 TAT Std

Samples Arrival:	**Date/Time** 10/19/19 0958	**Initials:** KG	**Location:** WR-2 **Shelf/Rack:** NA

Delivered By:	[✓ FedEx]	UPS	On Trac	GSO	DHL	Hand Delivered	Other
Preservation:	[✓ Ice]	Blue Ice	Dry Ice	None			

Temp °C: 6.8 **(uncorrected)** **Temp °C:** 0.8 **(corrected)**	**Probe used:** Y / [✓ N]	**Thermometer ID:** IR-4

[redacted]	YES	NO	NA
Shipping Container(s) Intact?	✓		
Shipping Custody Seals Intact?			✓
Airbill SAT DELIVERY Trk # 7803 6137 7680	✓		
Shipping Documentation Present?	✓		
Shipping Container [✓ Vista] Client [✓ Retain] Return Dispose			
Chain of Custody / Sample Documentation Present?	✓		
Chain of Custody / Sample Documentation Complete?	✓		
Holding Time Acceptable?	✓		

Logged In:	**Date/Time** 10/21/19 1132	**Initials:** gjm	**Location:** R-13 / WR-2 **Shelf/Rack:** A-1 / E-2

	YES	NO	NA
COC Anomaly/Sample Acceptance Form completed?		✓	✓

Comments:

***ID.:** LR – SLC* ***Rev No.:** 4* ***Rev Date:** 10/08/2019* ***Page:** 1 of 1*

CoC/Label Reconciliation Report WO# 1903735

LabNumber	CoC Sample ID	Label ID matches COCID	Label ID doesn't match COCID	SampleAlias	Sampled	Label Sampled matches	Sampled doesn't match	Container	Container Correct	BaseMatrix	Sample Comments
1903735-01 A	L12-2-1	☑		Location 12	17-Oct-19 23:37	☑		HDPE Jar, 6 oz	☑	Solid	
1903735-02 A	L12-2-5	☑		Location 12	17-Oct-19 23:41	☑		HDPE Jar, 6 oz	☑	Solid	
1903735-03 A	L12-2-10	☑		Location 12	17-Oct-19 23:44	☑		HDPE Jar, 6 oz	☑	Solid	
1903735-04 A	L12-4-1	☑		Location 12	17-Oct-19 23:50	☑		HDPE Jar, 6 oz	☑	Solid	
1903735-05 A	L12-4-5	☑		Location 12	17-Oct-19 23:55	☑		HDPE Jar, 6 oz	☑	Solid	
1903735-06 A	L12-4-10	☑		Location 12	17-Oct-19 23:59	☑		HDPE Jar, 6 oz	☑	Solid	
1903735-07 A	L12-3-1	☑		Location 12	18-Oct-19 00:02	☑		HDPE Jar, 6 oz	☑	Solid	
1903735-08 A	L12-3-5	☑		Location 12	18-Oct-19 00:07	☑		HDPE Jar, 6 oz	☑	Solid	
1903735-09 A	L12-3-10	☑		Location 12	18-Oct-19 00:10	☑		HDPE Jar, 6 oz	☑	Solid	
1903735-10 A	L12-3-6W	☑		Location 12	18-Oct-19 01:30	☑		HDPE Bottle, 250 mL	☑	Aqueous	
1903735-10 B	L12-3-6W	☑		Location 12	A 18-Oct-19 01:30	☐		HDPE Bottle, 250 mL	☑	Aqueous	
1903735-11 A	L12-30-6W	☑		Location 12	18-Oct-19 01:30	☑		HDPE Bottle, 250 mL	☑	Aqueous	
1903735-11 B	L12-30-6W	☑		Location 12	18-Oct-19 01:30	☑		HDPE Bottle, 250 mL	☑	Aqueous	

	Yes	No	NA
Sample Container Intact?	✓		
Sample Custody Seals Intact?			✓
Adequate Sample Volume?	✓		
Preservation Documented: Na2S2O3 Trizma [✓ None] Other			✓
If Chlorinated or Drinking Water Samples, Acceptable Preservation?			✓

Comments: A - no time on client label

Verifed by/Date: SC 10/21/19

November 25, 2019

Vista Work Order No. 1903773

Mr. Jim Strandberg
Woodard & Curran
2175 North California Boulevard, Suite 315
Walnut Creek, CA 94596

Dear Mr. Strandberg,

Enclosed are the results for the sample set received at Vista Analytical Laboratory on October 23, 2019 under your Project Name 'SJC PFAS Investigation'.

Vista Analytical Laboratory is committed to serving you effectively. If you require additional information, please contact me at 916-673-1520 or by email at mmaier@vista-analytical.com.

Thank you for choosing Vista as part of your analytical support team.

Sincerely,

Martha Maier
Laboratory Director

Vista Work Order No. 1903773
Case Narrative

Sample Condition on Receipt:

Nine soil samples and four aqueous samples were received in good condition and within the method temperature requirements. The samples were received and stored securely in accordance with Vista standard operating procedures and EPA methodology. Sample "Trip Blank" was not listed on the CoC. As directed, this sample was analyzed.

Analytical Notes:

PFAS Isotope Dilution Method - Soil

The soil samples were extracted and analyzed for a selected list of PFAS. The results for PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Results for all other analytes include the linear isomers only.

Holding Times

The samples were extracted and analyzed within the hold times.

Quality Control

The Initial Calibration and Continuing Calibration Verifications met the method acceptance criteria.

A Method Blank and Ongoing Precision and Recovery (OPR) sample were extracted and analyzed with the preparation batch. No analytes were detected in the Method Blank above the Reporting Limit (RL). The OPR recoveries were within the method acceptance criteria.

An MS/MSD was performed on sample "L4-3-1". The MSD recovery and RPD were out of the acceptance criteria for PFTrDA.

The internal standard recoveries outside the acceptance criteria are flagged with an "H" qualifier.

PFAS Isotope Dilution Method - Aqueous

Samples "L4-2-6W" and "L4-20-6W" contained particulate and were centrifuged prior to extraction.

The aqueous samples were extracted and analyzed for a selected list of PFAS using the PFAS Isotope Dilution Method. The results for PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Results for all other analytes include the linear isomers only.

Holding Times

The samples were extracted and analyzed within the method hold times.

Quality Control

The Initial Calibration and Continuing Calibration Verifications met the acceptance criteria.

A Method Blank and Laboratory Control Sample (LCS)/Laboratory Control Sample Duplicate (LCSD) were extracted and analyzed with the preparation batch. No analytes were detected in the Method Blank above the Reporting Limit. The LCS/LCSD recoveries were within the method acceptance criteria.

The internal standard recoveries outside the acceptance criteria are flagged with an "H" qualifier.

TABLE OF CONTENTS

Sample Inventory Report

Vista Sample ID	Client Sample ID	Sampled	Received	Components/Containers
1903773-01	L4-2-1	22-Oct-19 02:23	23-Oct-19 09:21	HDPE Jar, 6 oz
1903773-02	L4-2-5	22-Oct-19 02:25	23-Oct-19 09:21	HDPE Jar, 6 oz
1903773-03	L4-2-10	22-Oct-19 02:28	23-Oct-19 09:21	HDPE Jar, 6 oz
1903773-04	L4-1-1	22-Oct-19 02:40	23-Oct-19 09:21	HDPE Jar, 6 oz
1903773-05	L4-1-5	22-Oct-19 02:42	23-Oct-19 09:21	HDPE Jar, 6 oz
1903773-06	L4-1-10	22-Oct-19 02:44	23-Oct-19 09:21	HDPE Jar, 6 oz
1903773-07	L4-3-1	22-Oct-19 03:20	23-Oct-19 09:21	HDPE Jar, 6 oz
1903773-08	L4-3-5	22-Oct-19 03:22	23-Oct-19 09:21	HDPE Jar, 6 oz
1903773-09	L4-3-10	22-Oct-19 03:24	23-Oct-19 09:21	HDPE Jar, 6 oz
1903773-10	FB-3	22-Oct-19 01:15	23-Oct-19 09:21	HDPE Bottle, 250 mL HDPE Bottle, 250 mL
1903773-11	L4-2-GW	22-Oct-19 04:30	23-Oct-19 09:21	HDPE Bottle, 250 mL HDPE Bottle, 250 mL
1903773-12	L4-20-GW	22-Oct-19 04:30	23-Oct-19 09:21	HDPE Bottle, 250 mL HDPE Bottle, 250 mL
1903773-13	EB-3	22-Oct-19 04:00	23-Oct-19 09:21	HDPE Bottle, 250 mL HDPE Bottle, 250 mL
1903773-14	Trip Blank	18-Oct-19 00:00	23-Oct-19 09:21	HDPE Bottle, 250 mL HDPE Bottle, 250 mL

Vista Project: 1903773

Client Project: SJC PFAS Investigation

ANALYTICAL RESULTS

Sample ID: Method Blank **PFAS Isotope Dilution Method**

Client Data				**Laboratory Data**		
Name:	Woodard & Curran	Matrix:	Solid	Lab Sample:	B9K0002-BLK1	Column: BEH C18
Project:	SJC PFAS Investigation					

Analyte	CAS Number	Conc. (ng/g)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	ND	2.00		B9K0002	07-Nov-19	1.00 g	21-Nov-19 00:01	1
PFPeA	2706-90-3	ND	2.00		B9K0002	07-Nov-19	1.00 g	21-Nov-19 00:01	1
PFBS	375-73-5	ND	2.00		B9K0002	07-Nov-19	1.00 g	21-Nov-19 00:01	1
4:2 FTS	757124-72-4	ND	2.00		B9K0002	07-Nov-19	1.00 g	21-Nov-19 00:01	1
PFHxA	307-24-4	ND	2.00		B9K0002	07-Nov-19	1.00 g	21-Nov-19 00:01	1
PFPeS	2706-91-4	ND	2.00		B9K0002	07-Nov-19	1.00 g	21-Nov-19 00:01	1
PFHpA	375-85-9	ND	2.00		B9K0002	07-Nov-19	1.00 g	21-Nov-19 00:01	1
PFHxS	355-46-4	ND	2.00		B9K0002	07-Nov-19	1.00 g	21-Nov-19 00:01	1
6:2 FTS	27619-97-2	ND	2.00		B9K0002	07-Nov-19	1.00 g	21-Nov-19 00:01	1
PFOA	335-67-1	ND	2.00		B9K0002	07-Nov-19	1.00 g	21-Nov-19 00:01	1
PFHpS	375-92-8	ND	2.00		B9K0002	07-Nov-19	1.00 g	21-Nov-19 00:01	1
PFNA	375-95-1	ND	2.00		B9K0002	07-Nov-19	1.00 g	21-Nov-19 00:01	1
PFOSA	754-91-6	ND	2.00		B9K0002	07-Nov-19	1.00 g	21-Nov-19 00:01	1
PFOS	1763-23-1	ND	2.00		B9K0002	07-Nov-19	1.00 g	21-Nov-19 00:01	1
PFDA	335-76-2	ND	2.00		B9K0002	07-Nov-19	1.00 g	21-Nov-19 00:01	1
8:2 FTS	39108-34-4	ND	2.00		B9K0002	07-Nov-19	1.00 g	21-Nov-19 00:01	1
MeFOSAA	2355-31-9	ND	2.00		B9K0002	07-Nov-19	1.00 g	21-Nov-19 00:01	1
EtFOSAA	2991-50-6	ND	2.00		B9K0002	07-Nov-19	1.00 g	21-Nov-19 00:01	1
PFUnA	2058-94-8	ND	2.00		B9K0002	07-Nov-19	1.00 g	21-Nov-19 00:01	1
PFDS	335-77-3	ND	2.00		B9K0002	07-Nov-19	1.00 g	21-Nov-19 00:01	1
PFDoA	307-55-1	ND	2.00		B9K0002	07-Nov-19	1.00 g	21-Nov-19 00:01	1
PFTrDA	72629-94-8	ND	2.00		B9K0002	07-Nov-19	1.00 g	21-Nov-19 00:01	1
PFTeDA	376-06-7	ND	2.00		B9K0002	07-Nov-19	1.00 g	21-Nov-19 00:01	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	149	50 - 150		B9K0002	07-Nov-19	1.00 g	21-Nov-19 00:01	1
13C3-PFPeA	IS	75.7	50 - 150		B9K0002	07-Nov-19	1.00 g	21-Nov-19 00:01	1
13C3-PFBS	IS	85.2	50 - 150		B9K0002	07-Nov-19	1.00 g	21-Nov-19 00:01	1
13C2-4:2 FTS	IS	90.2	50 - 150		B9K0002	07-Nov-19	1.00 g	21-Nov-19 00:01	1
13C2-PFHxA	IS	68.6	50 - 150		B9K0002	07-Nov-19	1.00 g	21-Nov-19 00:01	1
13C4-PFHpA	IS	73.7	50 - 150		B9K0002	07-Nov-19	1.00 g	21-Nov-19 00:01	1
13C3-PFHxS	IS	83.5	50 - 150		B9K0002	07-Nov-19	1.00 g	21-Nov-19 00:01	1
13C2-6:2 FTS	IS	83.3	50 - 150		B9K0002	07-Nov-19	1.00 g	21-Nov-19 00:01	1
13C5-PFNA	IS	69.3	50 - 150		B9K0002	07-Nov-19	1.00 g	21-Nov-19 00:01	1
13C8-PFOSA	IS	39.2	50 - 150	H	B9K0002	07-Nov-19	1.00 g	21-Nov-19 00:01	1
13C2-PFOA	IS	73.7	50 - 150		B9K0002	07-Nov-19	1.00 g	21-Nov-19 00:01	1
13C8-PFOS	IS	77.1	50 - 150		B9K0002	07-Nov-19	1.00 g	21-Nov-19 00:01	1
13C2-PFDA	IS	61.5	50 - 150		B9K0002	07-Nov-19	1.00 g	21-Nov-19 00:01	1
13C2-8:2 FTS	IS	75.8	50 - 150		B9K0002	07-Nov-19	1.00 g	21-Nov-19 00:01	1

Sample ID: Method Blank **PFAS Isotope Dilution Method**

Client Data

Name:	Woodard & Curran	Matrix:	Solid
Project:	SJC PFAS Investigation		

Laboratory Data

Lab Sample:	B9K0002-BLK1	Column:	BEH C18

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
d3-MeFOSAA	IS	54.6	50 - 150		B9K0002	07-Nov-19	1.00 g	21-Nov-19 00:01	1
13C2-PFUnA	IS	51.1	50 - 150		B9K0002	07-Nov-19	1.00 g	21-Nov-19 00:01	1
d5-EtFOSAA	IS	57.5	50 - 150		B9K0002	07-Nov-19	1.00 g	21-Nov-19 00:01	1
13C2-PFDoA	IS	42.8	50 - 150	H	B9K0002	07-Nov-19	1.00 g	21-Nov-19 00:01	1
13C2-PFTeDA	IS	48.3	50 - 150	H	B9K0002	07-Nov-19	1.00 g	21-Nov-19 00:01	1

RL - Reporting limit

The results are reported in dry weight.
The sample size is reported in wet weight.
Results reported to RL.

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

Sample ID: OPR **PFAS Isotope Dilution Method**

Client Data				**Laboratory Data**			
Name:	Woodard & Curran	Matrix:	Solid	Lab Sample:	B9K0002-BS1	Column:	BEH C18
Project:	SJC PFAS Investigation						

Analyte	CAS Number	Amt Found (ng/g)	Spike Amt	% Rec	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	10.1	10.0	101	71 - 135		B9K0002	07-Nov-19	1.00 g	21-Nov-19 00:12	1
PFPeA	2706-90-3	10.6	10.0	106	69 - 132		B9K0002	07-Nov-19	1.00 g	21-Nov-19 00:12	1
PFBS	375-73-5	10.4	10.0	104	72 - 128		B9K0002	07-Nov-19	1.00 g	21-Nov-19 00:12	1
4:2 FTS	757124-72-4	11.3	10.0	113	62 - 145		B9K0002	07-Nov-19	1.00 g	21-Nov-19 00:12	1
PFHxA	307-24-4	10.0	10.0	100	70 - 132	Q	B9K0002	07-Nov-19	1.00 g	21-Nov-19 00:12	1
PFPeS	2706-91-4	9.93	10.0	99.3	73 - 123		B9K0002	07-Nov-19	1.00 g	21-Nov-19 00:12	1
PFHpA	375-85-9	10.3	10.0	103	71 - 131	Q	B9K0002	07-Nov-19	1.00 g	21-Nov-19 00:12	1
PFHxS	355-46-4	9.78	10.0	97.8	67 - 130		B9K0002	07-Nov-19	1.00 g	21-Nov-19 00:12	1
6:2 FTS	27619-97-2	8.52	10.0	85.2	64 - 140		B9K0002	07-Nov-19	1.00 g	21-Nov-19 00:12	1
PFOA	335-67-1	11.0	10.0	110	69 - 133		B9K0002	07-Nov-19	1.00 g	21-Nov-19 00:12	1
PFHpS	375-92-8	12.4	10.0	124	70 - 132		B9K0002	07-Nov-19	1.00 g	21-Nov-19 00:12	1
PFNA	375-95-1	11.0	10.0	110	72 - 129		B9K0002	07-Nov-19	1.00 g	21-Nov-19 00:12	1
PFOSA	754-91-6	10.8	10.0	108	67 - 137		B9K0002	07-Nov-19	1.00 g	21-Nov-19 00:12	1
PFOS	1763-23-1	12.9	10.0	129	68 - 136		B9K0002	07-Nov-19	1.00 g	21-Nov-19 00:12	1
PFDA	335-76-2	10.6	10.0	106	69 - 133		B9K0002	07-Nov-19	1.00 g	21-Nov-19 00:12	1
8:2 FTS	39108-34-4	10.3	10.0	103	65 - 137	Q	B9K0002	07-Nov-19	1.00 g	21-Nov-19 00:12	1
MeFOSAA	2355-31-9	11.4	10.0	114	63 - 144	Q	B9K0002	07-Nov-19	1.00 g	21-Nov-19 00:12	1
EtFOSAA	2991-50-6	9.44	10.0	94.4	61 - 139		B9K0002	07-Nov-19	1.00 g	21-Nov-19 00:12	1
PFUnA	2058-94-8	9.57	10.0	95.7	64 - 136	Q	B9K0002	07-Nov-19	1.00 g	21-Nov-19 00:12	1
PFDS	335-77-3	9.38	10.0	93.6	59 - 134		B9K0002	07-Nov-19	1.00 g	21-Nov-19 00:12	1
PFDoA	307-55-1	10.5	10.0	105	69 - 135	Q	B9K0002	07-Nov-19	1.00 g	21-Nov-19 00:12	1
PFTrDA	72629-94-8	10.7	10.0	107	66 - 139		B9K0002	07-Nov-19	1.00 g	21-Nov-19 00:12	1
PFTeDA	376-06-7	10.4	10.0	104	69 - 133		B9K0002	07-Nov-19	1.00 g	21-Nov-19 00:12	1

Labeled Standards	Type	% Rec	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	149	50- 150		B9K0002	07-Nov-19	1.00 g	21-Nov-19 00:12	1
13C3-PFPeA	IS	75.4	50- 150		B9K0002	07-Nov-19	1.00 g	21-Nov-19 00:12	1
13C3-PFBS	IS	98.5	50- 150		B9K0002	07-Nov-19	1.00 g	21-Nov-19 00:12	1
13C2-4:2 FTS	IS	88.1	50- 150		B9K0002	07-Nov-19	1.00 g	21-Nov-19 00:12	1
13C2-PFHxA	IS	73.7	50- 150		B9K0002	07-Nov-19	1.00 g	21-Nov-19 00:12	1
13C4-PFHpA	IS	75.0	50- 150		B9K0002	07-Nov-19	1.00 g	21-Nov-19 00:12	1
13C3-PFHxS	IS	90.4	50- 150		B9K0002	07-Nov-19	1.00 g	21-Nov-19 00:12	1
13C2-6:2 FTS	IS	100	50- 150		B9K0002	07-Nov-19	1.00 g	21-Nov-19 00:12	1
13C5-PFNA	IS	70.7	50- 150		B9K0002	07-Nov-19	1.00 g	21-Nov-19 00:12	1
13C8-PFOSA	IS	35.1	50- 150	H	B9K0002	07-Nov-19	1.00 g	21-Nov-19 00:12	1
13C2-PFOA	IS	76.0	50- 150		B9K0002	07-Nov-19	1.00 g	21-Nov-19 00:12	1

Sample ID: OPR

PFAS Isotope Dilution Method

Client Data

Name:	Woodard & Curran	Matrix:	Solid
Project:	SJC PFAS Investigation		

Laboratory Data

Lab Sample:	B9K0002-BS1	Column:	BEH C18

Labeled Standards	Type	% Rec	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C8-PFOS	IS	77.6	50- 150		B9K0002	07-Nov-19	1.00 g	21-Nov-19 00:12	1
13C2-PFDA	IS	61.9	50- 150		B9K0002	07-Nov-19	1.00 g	21-Nov-19 00:12	1
13C2-8:2 FTS	IS	73.1	50- 150		B9K0002	07-Nov-19	1.00 g	21-Nov-19 00:12	1
d3-MeFOSAA	IS	53.0	50- 150		B9K0002	07-Nov-19	1.00 g	21-Nov-19 00:12	1
13C2-PFUnA	IS	54.6	50- 150		B9K0002	07-Nov-19	1.00 g	21-Nov-19 00:12	1
d5-EtFOSAA	IS	53.9	50- 150		B9K0002	07-Nov-19	1.00 g	21-Nov-19 00:12	1
13C2-PFDoA	IS	51.9	50- 150		B9K0002	07-Nov-19	1.00 g	21-Nov-19 00:12	1
13C2-PFTeDA	IS	57.6	50- 150		B9K0002	07-Nov-19	1.00 g	21-Nov-19 00:12	1

Sample ID: L4-2-1 **PFAS Isotope Dilution Method**

Client Data				**Laboratory Data**			
Name:	Woodard & Curran	Matrix:	Soil	Lab Sample:	1903773-01	Column:	BEH C18
Project:	SJC PFAS Investigation	Date Collected:	22-Oct-19 02:23	Date Received:	23-Oct-19 09:21		
Location:	Loc. 4			% Solids:	89.8		

Analyte	CAS Number	Conc. (ng/g)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	ND	1.95		B9K0002	07-Nov-19	1.14 g	21-Nov-19 00:43	1
PFPeA	2706-90-3	ND	1.95		B9K0002	07-Nov-19	1.14 g	21-Nov-19 00:43	1
PFBS	375-73-5	ND	1.95		B9K0002	07-Nov-19	1.14 g	21-Nov-19 00:43	1
4:2 FTS	757124-72-4	ND	1.95		B9K0002	07-Nov-19	1.14 g	21-Nov-19 00:43	1
PFHxA	307-24-4	ND	1.95		B9K0002	07-Nov-19	1.14 g	21-Nov-19 00:43	1
PFPeS	2706-91-4	ND	1.95		B9K0002	07-Nov-19	1.14 g	21-Nov-19 00:43	1
PFHpA	375-85-9	ND	1.95		B9K0002	07-Nov-19	1.14 g	21-Nov-19 00:43	1
PFHxS	355-46-4	ND	1.95		B9K0002	07-Nov-19	1.14 g	21-Nov-19 00:43	1
6:2 FTS	27619-97-2	ND	1.95		B9K0002	07-Nov-19	1.14 g	21-Nov-19 00:43	1
PFOA	335-67-1	ND	1.95		B9K0002	07-Nov-19	1.14 g	21-Nov-19 00:43	1
PFHpS	375-92-8	ND	1.95		B9K0002	07-Nov-19	1.14 g	21-Nov-19 00:43	1
PFNA	375-95-1	ND	1.95		B9K0002	07-Nov-19	1.14 g	21-Nov-19 00:43	1
PFOSA	754-91-6	ND	1.95		B9K0002	07-Nov-19	1.14 g	21-Nov-19 00:43	1
PFOS	1763-23-1	5.69	1.95		B9K0002	07-Nov-19	1.14 g	21-Nov-19 00:43	1
PFDA	335-76-2	ND	1.95		B9K0002	07-Nov-19	1.14 g	21-Nov-19 00:43	1
8:2 FTS	39108-34-4	ND	1.95		B9K0002	07-Nov-19	1.14 g	21-Nov-19 00:43	1
MeFOSAA	2355-31-9	ND	1.95		B9K0002	07-Nov-19	1.14 g	21-Nov-19 00:43	1
EtFOSAA	2991-50-6	ND	1.95		B9K0002	07-Nov-19	1.14 g	21-Nov-19 00:43	1
PFUnA	2058-94-8	ND	1.95		B9K0002	07-Nov-19	1.14 g	21-Nov-19 00:43	1
PFDS	335-77-3	ND	1.95		B9K0002	07-Nov-19	1.14 g	21-Nov-19 00:43	1
PFDoA	307-55-1	ND	1.95		B9K0002	07-Nov-19	1.14 g	21-Nov-19 00:43	1
PFTrDA	72629-94-8	ND	1.95		B9K0002	07-Nov-19	1.14 g	21-Nov-19 00:43	1
PFTeDA	376-06-7	ND	1.95		B9K0002	07-Nov-19	1.14 g	21-Nov-19 00:43	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	171	50 - 150	H	B9K0002	07-Nov-19	1.14 g	21-Nov-19 00:43	1
13C3-PFPeA	IS	85.0	50 - 150		B9K0002	07-Nov-19	1.14 g	21-Nov-19 00:43	1
13C3-PFBS	IS	91.4	50 - 150		B9K0002	07-Nov-19	1.14 g	21-Nov-19 00:43	1
13C2-4:2 FTS	IS	88.4	50 - 150		B9K0002	07-Nov-19	1.14 g	21-Nov-19 00:43	1
13C2-PFHxA	IS	82.0	50 - 150		B9K0002	07-Nov-19	1.14 g	21-Nov-19 00:43	1
13C4-PFHpA	IS	81.3	50 - 150		B9K0002	07-Nov-19	1.14 g	21-Nov-19 00:43	1
13C3-PFHxS	IS	82.1	50 - 150		B9K0002	07-Nov-19	1.14 g	21-Nov-19 00:43	1
13C2-6:2 FTS	IS	89.8	50 - 150		B9K0002	07-Nov-19	1.14 g	21-Nov-19 00:43	1
13C5-PFNA	IS	76.9	50 - 150		B9K0002	07-Nov-19	1.14 g	21-Nov-19 00:43	1
13C8-PFOSA	IS	65.5	50 - 150		B9K0002	07-Nov-19	1.14 g	21-Nov-19 00:43	1
13C2-PFOA	IS	78.2	50 - 150		B9K0002	07-Nov-19	1.14 g	21-Nov-19 00:43	1
13C8-PFOS	IS	77.2	50 - 150		B9K0002	07-Nov-19	1.14 g	21-Nov-19 00:43	1
13C2-PFDA	IS	68.0	50 - 150		B9K0002	07-Nov-19	1.14 g	21-Nov-19 00:43	1
13C2-8:2 FTS	IS	83.6	50 - 150		B9K0002	07-Nov-19	1.14 g	21-Nov-19 00:43	1

Sample ID: L4-2-1

PFAS Isotope Dilution Method

Client Data				**Laboratory Data**			
Name:	Woodard & Curran	Matrix:	Soil	Lab Sample:	1903773-01	Column:	BEH C18
Project:	SJC PFAS Investigation	Date Collected:	22-Oct-19 02:23	Date Received:	23-Oct-19 09:21		
Location:	Loc. 4			% Solids:	89.8		

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
d3-MeFOSAA	IS	76.1	50 - 150		B9K0002	07-Nov-19	1.14 g	21-Nov-19 00:43	1
13C2-PFUnA	IS	65.4	50 - 150		B9K0002	07-Nov-19	1.14 g	21-Nov-19 00:43	1
d5-EtFOSAA	IS	76.2	50 - 150		B9K0002	07-Nov-19	1.14 g	21-Nov-19 00:43	1
13C2-PFDoA	IS	50.2	50 - 150		B9K0002	07-Nov-19	1.14 g	21-Nov-19 00:43	1
13C2-PFTeDA	IS	19.7	50 - 150	H	B9K0002	07-Nov-19	1.14 g	21-Nov-19 00:43	1

RL - Reporting limit

The results are reported in dry weight.
The sample size is reported in wet weight.
Results reported to RL.

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

Sample ID: L4-2-5 **PFAS Isotope Dilution Method**

Client Data				**Laboratory Data**			
Name:	Woodard & Curran	Matrix:	Soil	Lab Sample:	1903773-02	Column:	BEH C18
Project:	SJC PFAS Investigation	Date Collected:	22-Oct-19 02:25	Date Received:	23-Oct-19 09:21		
Location:	Loc. 4			% Solids:	72.8		

Analyte	CAS Number	Conc. (ng/g)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	2.21	1.98		B9K0002	07-Nov-19	1.39 g	21-Nov-19 00:54	1
PFPeA	2706-90-3	4.10	1.98		B9K0002	07-Nov-19	1.39 g	21-Nov-19 00:54	1
PFBS	375-73-5	6.36	1.98		B9K0002	07-Nov-19	1.39 g	21-Nov-19 00:54	1
4:2 FTS	757124-72-4	ND	1.98		B9K0002	07-Nov-19	1.39 g	21-Nov-19 00:54	1
PFHxA	307-24-4	10.1	1.98	Q	B9K0002	07-Nov-19	1.39 g	21-Nov-19 00:54	1
PFPeS	2706-91-4	3.50	1.98		B9K0002	07-Nov-19	1.39 g	21-Nov-19 00:54	1
PFHpA	375-85-9	ND	1.98		B9K0002	07-Nov-19	1.39 g	21-Nov-19 00:54	1
PFHxS	355-46-4	5.24	1.98		B9K0002	07-Nov-19	1.39 g	21-Nov-19 00:54	1
6:2 FTS	27619-97-2	ND	1.98		B9K0002	07-Nov-19	1.39 g	21-Nov-19 00:54	1
PFOA	335-67-1	ND	1.98		B9K0002	07-Nov-19	1.39 g	21-Nov-19 00:54	1
PFHpS	375-92-8	ND	1.98		B9K0002	07-Nov-19	1.39 g	21-Nov-19 00:54	1
PFNA	375-95-1	ND	1.98		B9K0002	07-Nov-19	1.39 g	21-Nov-19 00:54	1
PFOSA	754-91-6	ND	1.98		B9K0002	07-Nov-19	1.39 g	21-Nov-19 00:54	1
PFOS	1763-23-1	ND	1.98		B9K0002	07-Nov-19	1.39 g	21-Nov-19 00:54	1
PFDA	335-76-2	ND	1.98		B9K0002	07-Nov-19	1.39 g	21-Nov-19 00:54	1
8:2 FTS	39108-34-4	ND	1.98		B9K0002	07-Nov-19	1.39 g	21-Nov-19 00:54	1
MeFOSAA	2355-31-9	ND	1.98		B9K0002	07-Nov-19	1.39 g	21-Nov-19 00:54	1
EtFOSAA	2991-50-6	ND	1.98		B9K0002	07-Nov-19	1.39 g	21-Nov-19 00:54	1
PFUnA	2058-94-8	ND	1.98		B9K0002	07-Nov-19	1.39 g	21-Nov-19 00:54	1
PFDS	335-77-3	ND	1.98		B9K0002	07-Nov-19	1.39 g	21-Nov-19 00:54	1
PFDoA	307-55-1	ND	1.98		B9K0002	07-Nov-19	1.39 g	21-Nov-19 00:54	1
PFTrDA	72629-94-8	ND	1.98		B9K0002	07-Nov-19	1.39 g	21-Nov-19 00:54	1
PFTeDA	376-06-7	ND	1.98		B9K0002	07-Nov-19	1.39 g	21-Nov-19 00:54	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	131	50 - 150		B9K0002	07-Nov-19	1.39 g	21-Nov-19 00:54	1
13C3-PFPeA	IS	67.6	50 - 150		B9K0002	07-Nov-19	1.39 g	21-Nov-19 00:54	1
13C3-PFBS	IS	83.3	50 - 150		B9K0002	07-Nov-19	1.39 g	21-Nov-19 00:54	1
13C2-4:2 FTS	IS	79.7	50 - 150		B9K0002	07-Nov-19	1.39 g	21-Nov-19 00:54	1
13C2-PFHxA	IS	60.5	50 - 150		B9K0002	07-Nov-19	1.39 g	21-Nov-19 00:54	1
13C4-PFHpA	IS	63.7	50 - 150		B9K0002	07-Nov-19	1.39 g	21-Nov-19 00:54	1
13C3-PFHxS	IS	68.7	50 - 150		B9K0002	07-Nov-19	1.39 g	21-Nov-19 00:54	1
13C2-6:2 FTS	IS	74.7	50 - 150		B9K0002	07-Nov-19	1.39 g	21-Nov-19 00:54	1
13C5-PFNA	IS	58.3	50 - 150		B9K0002	07-Nov-19	1.39 g	21-Nov-19 00:54	1
13C8-PFOSA	IS	42.7	50 - 150	H	B9K0002	07-Nov-19	1.39 g	21-Nov-19 00:54	1
13C2-PFOA	IS	63.6	50 - 150		B9K0002	07-Nov-19	1.39 g	21-Nov-19 00:54	1
13C8-PFOS	IS	66.8	50 - 150		B9K0002	07-Nov-19	1.39 g	21-Nov-19 00:54	1
13C2-PFDA	IS	47.8	50 - 150	H	B9K0002	07-Nov-19	1.39 g	21-Nov-19 00:54	1
13C2-8:2 FTS	IS	63.9	50 - 150		B9K0002	07-Nov-19	1.39 g	21-Nov-19 00:54	1

Sample ID: L4-2-5 **PFAS Isotope Dilution Method**

Client Data				**Laboratory Data**			
Name:	Woodard & Curran	Matrix:	Soil	Lab Sample:	1903773-02	Column:	BEH C18
Project:	SJC PFAS Investigation	Date Collected:	22-Oct-19 02:25	Date Received:	23-Oct-19 09:21		
Location:	Loc. 4			% Solids:	72.8		

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
d3-MeFOSAA	IS	58.2	50 - 150		B9K0002	07-Nov-19	1.39 g	21-Nov-19 00:54	1
13C2-PFUnA	IS	47.7	50 - 150	H	B9K0002	07-Nov-19	1.39 g	21-Nov-19 00:54	1
d5-EtFOSAA	IS	58.2	50 - 150		B9K0002	07-Nov-19	1.39 g	21-Nov-19 00:54	1
13C2-PFDoA	IS	51.3	50 - 150		B9K0002	07-Nov-19	1.39 g	21-Nov-19 00:54	1
13C2-PFTeDA	IS	61.3	50 - 150		B9K0002	07-Nov-19	1.39 g	21-Nov-19 00:54	1

RL - Reporting limit

The results are reported in dry weight.
The sample size is reported in wet weight.
Results reported to RL.

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

Sample ID: L4-2-10 **PFAS Isotope Dilution Method**

Client Data
Name: Woodard & Curran
Project: SJC PFAS Investigation
Location: Loc. 4
Matrix: Soil
Date Collected: 22-Oct-19 02:28

Laboratory Data
Lab Sample: 1903773-03
Date Received: 23-Oct-19 09:21
% Solids: 75.9
Column: BEH C18

Analyte	CAS Number	Conc. (ng/g)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	ND	1.95		B9K0002	07-Nov-19	1.35 g	21-Nov-19 01:04	1
PFPeA	2706-90-3	ND	1.95		B9K0002	07-Nov-19	1.35 g	21-Nov-19 01:04	1
PFBS	375-73-5	ND	1.95		B9K0002	07-Nov-19	1.35 g	21-Nov-19 01:04	1
4:2 FTS	757124-72-4	ND	1.95		B9K0002	07-Nov-19	1.35 g	21-Nov-19 01:04	1
PFHxA	307-24-4	ND	1.95		B9K0002	07-Nov-19	1.35 g	21-Nov-19 01:04	1
PFPeS	2706-91-4	ND	1.95		B9K0002	07-Nov-19	1.35 g	21-Nov-19 01:04	1
PFHpA	375-85-9	ND	1.95		B9K0002	07-Nov-19	1.35 g	21-Nov-19 01:04	1
PFHxS	355-46-4	ND	1.95		B9K0002	07-Nov-19	1.35 g	21-Nov-19 01:04	1
6:2 FTS	27619-97-2	ND	1.95		B9K0002	07-Nov-19	1.35 g	21-Nov-19 01:04	1
PFOA	335-67-1	ND	1.95		B9K0002	07-Nov-19	1.35 g	21-Nov-19 01:04	1
PFHpS	375-92-8	ND	1.95		B9K0002	07-Nov-19	1.35 g	21-Nov-19 01:04	1
PFNA	375-95-1	ND	1.95		B9K0002	07-Nov-19	1.35 g	21-Nov-19 01:04	1
PFOSA	754-91-6	ND	1.95		B9K0002	07-Nov-19	1.35 g	21-Nov-19 01:04	1
PFOS	1763-23-1	9.99	1.95		B9K0002	07-Nov-19	1.35 g	21-Nov-19 01:04	1
PFDA	335-76-2	ND	1.95		B9K0002	07-Nov-19	1.35 g	21-Nov-19 01:04	1
8:2 FTS	39108-34-4	ND	1.95		B9K0002	07-Nov-19	1.35 g	21-Nov-19 01:04	1
MeFOSAA	2355-31-9	ND	1.95		B9K0002	07-Nov-19	1.35 g	21-Nov-19 01:04	1
EtFOSAA	2991-50-6	ND	1.95		B9K0002	07-Nov-19	1.35 g	21-Nov-19 01:04	1
PFUnA	2058-94-8	ND	1.95		B9K0002	07-Nov-19	1.35 g	21-Nov-19 01:04	1
PFDS	335-77-3	ND	1.95		B9K0002	07-Nov-19	1.35 g	21-Nov-19 01:04	1
PFDoA	307-55-1	ND	1.95		B9K0002	07-Nov-19	1.35 g	21-Nov-19 01:04	1
PFTrDA	72629-94-8	ND	1.95		B9K0002	07-Nov-19	1.35 g	21-Nov-19 01:04	1
PFTeDA	376-06-7	ND	1.95		B9K0002	07-Nov-19	1.35 g	21-Nov-19 01:04	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	145	50 - 150		B9K0002	07-Nov-19	1.35 g	21-Nov-19 01:04	1
13C3-PFPeA	IS	74.2	50 - 150		B9K0002	07-Nov-19	1.35 g	21-Nov-19 01:04	1
13C3-PFBS	IS	85.8	50 - 150		B9K0002	07-Nov-19	1.35 g	21-Nov-19 01:04	1
13C2-4:2 FTS	IS	76.5	50 - 150		B9K0002	07-Nov-19	1.35 g	21-Nov-19 01:04	1
13C2-PFHxA	IS	73.5	50 - 150		B9K0002	07-Nov-19	1.35 g	21-Nov-19 01:04	1
13C4-PFHpA	IS	72.4	50 - 150		B9K0002	07-Nov-19	1.35 g	21-Nov-19 01:04	1
13C3-PFHxS	IS	84.4	50 - 150		B9K0002	07-Nov-19	1.35 g	21-Nov-19 01:04	1
13C2-6:2 FTS	IS	78.5	50 - 150		B9K0002	07-Nov-19	1.35 g	21-Nov-19 01:04	1
13C5-PFNA	IS	68.1	50 - 150		B9K0002	07-Nov-19	1.35 g	21-Nov-19 01:04	1
13C8-PFOSA	IS	47.2	50 - 150	H	B9K0002	07-Nov-19	1.35 g	21-Nov-19 01:04	1
13C2-PFOA	IS	73.8	50 - 150		B9K0002	07-Nov-19	1.35 g	21-Nov-19 01:04	1
13C8-PFOS	IS	79.1	50 - 150		B9K0002	07-Nov-19	1.35 g	21-Nov-19 01:04	1
13C2-PFDA	IS	62.1	50 - 150		B9K0002	07-Nov-19	1.35 g	21-Nov-19 01:04	1
13C2-8:2 FTS	IS	75.1	50 - 150		B9K0002	07-Nov-19	1.35 g	21-Nov-19 01:04	1

Sample ID: L4-2-10 **PFAS Isotope Dilution Method**

Client Data				**Laboratory Data**			
Name:	Woodard & Curran	Matrix:	Soil	Lab Sample:	1903773-03	Column:	BEH C18
Project:	SJC PFAS Investigation	Date Collected:	22-Oct-19 02:28	Date Received:	23-Oct-19 09:21		
Location:	Loc. 4			% Solids:	75.9		

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
d3-MeFOSAA	IS	75.7	50 - 150		B9K0002	07-Nov-19	1.35 g	21-Nov-19 01:04	1
13C2-PFUnA	IS	56.7	50 - 150		B9K0002	07-Nov-19	1.35 g	21-Nov-19 01:04	1
d5-EtFOSAA	IS	70.2	50 - 150		B9K0002	07-Nov-19	1.35 g	21-Nov-19 01:04	1
13C2-PFDoA	IS	58.8	50 - 150		B9K0002	07-Nov-19	1.35 g	21-Nov-19 01:04	1
13C2-PFTeDA	IS	69.2	50 - 150		B9K0002	07-Nov-19	1.35 g	21-Nov-19 01:04	1

RL - Reporting limit

The results are reported in dry weight.
The sample size is reported in wet weight.
Results reported to RL.

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

Sample ID: L4-1-1 **PFAS Isotope Dilution Method**

Client Data				**Laboratory Data**			
Name:	Woodard & Curran	Matrix:	Soil	Lab Sample:	1903773-04	Column:	BEH C18
Project:	SJC PFAS Investigation	Date Collected:	22-Oct-19 02:40	Date Received:	23-Oct-19 09:21		
Location:	Loc. 4			% Solids:	88.8		

Analyte	CAS Number	Conc. (ng/g)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	ND	1.94		B9K0002	07-Nov-19	1.16 g	21-Nov-19 01:36	1
PFPeA	2706-90-3	ND	1.94		B9K0002	07-Nov-19	1.16 g	21-Nov-19 01:36	1
PFBS	375-73-5	ND	1.94		B9K0002	07-Nov-19	1.16 g	21-Nov-19 01:36	1
4:2 FTS	757124-72-4	ND	1.94		B9K0002	07-Nov-19	1.16 g	21-Nov-19 01:36	1
PFHxA	307-24-4	ND	1.94		B9K0002	07-Nov-19	1.16 g	21-Nov-19 01:36	1
PFPeS	2706-91-4	ND	1.94		B9K0002	07-Nov-19	1.16 g	21-Nov-19 01:36	1
PFHpA	375-85-9	ND	1.94		B9K0002	07-Nov-19	1.16 g	21-Nov-19 01:36	1
PFHxS	355-46-4	ND	1.94		B9K0002	07-Nov-19	1.16 g	21-Nov-19 01:36	1
6:2 FTS	27619-97-2	ND	1.94		B9K0002	07-Nov-19	1.16 g	21-Nov-19 01:36	1
PFOA	335-67-1	ND	1.94		B9K0002	07-Nov-19	1.16 g	21-Nov-19 01:36	1
PFHpS	375-92-8	ND	1.94		B9K0002	07-Nov-19	1.16 g	21-Nov-19 01:36	1
PFNA	375-95-1	ND	1.94		B9K0002	07-Nov-19	1.16 g	21-Nov-19 01:36	1
PFOSA	754-91-6	ND	1.94		B9K0002	07-Nov-19	1.16 g	21-Nov-19 01:36	1
PFOS	1763-23-1	ND	1.94		B9K0002	07-Nov-19	1.16 g	21-Nov-19 01:36	1
PFDA	335-76-2	ND	1.94		B9K0002	07-Nov-19	1.16 g	21-Nov-19 01:36	1
8:2 FTS	39108-34-4	ND	1.94		B9K0002	07-Nov-19	1.16 g	21-Nov-19 01:36	1
MeFOSAA	2355-31-9	ND	1.94		B9K0002	07-Nov-19	1.16 g	21-Nov-19 01:36	1
EtFOSAA	2991-50-6	ND	1.94		B9K0002	07-Nov-19	1.16 g	21-Nov-19 01:36	1
PFUnA	2058-94-8	ND	1.94		B9K0002	07-Nov-19	1.16 g	21-Nov-19 01:36	1
PFDS	335-77-3	ND	1.94		B9K0002	07-Nov-19	1.16 g	21-Nov-19 01:36	1
PFDoA	307-55-1	ND	1.94		B9K0002	07-Nov-19	1.16 g	21-Nov-19 01:36	1
PFTrDA	72629-94-8	ND	1.94		B9K0002	07-Nov-19	1.16 g	21-Nov-19 01:36	1
PFTeDA	376-06-7	ND	1.94		B9K0002	07-Nov-19	1.16 g	21-Nov-19 01:36	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	175	50 - 150	H	B9K0002	07-Nov-19	1.16 g	21-Nov-19 01:36	1
13C3-PFPeA	IS	87.5	50 - 150		B9K0002	07-Nov-19	1.16 g	21-Nov-19 01:36	1
13C3-PFBS	IS	86.3	50 - 150		B9K0002	07-Nov-19	1.16 g	21-Nov-19 01:36	1
13C2-4:2 FTS	IS	83.3	50 - 150		B9K0002	07-Nov-19	1.16 g	21-Nov-19 01:36	1
13C2-PFHxA	IS	87.5	50 - 150		B9K0002	07-Nov-19	1.16 g	21-Nov-19 01:36	1
13C4-PFHpA	IS	81.8	50 - 150		B9K0002	07-Nov-19	1.16 g	21-Nov-19 01:36	1
13C3-PFHxS	IS	81.1	50 - 150		B9K0002	07-Nov-19	1.16 g	21-Nov-19 01:36	1
13C2-6:2 FTS	IS	85.8	50 - 150		B9K0002	07-Nov-19	1.16 g	21-Nov-19 01:36	1
13C5-PFNA	IS	74.8	50 - 150		B9K0002	07-Nov-19	1.16 g	21-Nov-19 01:36	1
13C8-PFOSA	IS	74.7	50 - 150		B9K0002	07-Nov-19	1.16 g	21-Nov-19 01:36	1
13C2-PFOA	IS	83.8	50 - 150		B9K0002	07-Nov-19	1.16 g	21-Nov-19 01:36	1
13C8-PFOS	IS	75.2	50 - 150		B9K0002	07-Nov-19	1.16 g	21-Nov-19 01:36	1
13C2-PFDA	IS	77.2	50 - 150		B9K0002	07-Nov-19	1.16 g	21-Nov-19 01:36	1
13C2-8:2 FTS	IS	85.0	50 - 150		B9K0002	07-Nov-19	1.16 g	21-Nov-19 01:36	1

Sample ID: L4-1-1	**PFAS Isotope Dilution Method**

Client Data				**Laboratory Data**			
Name:	Woodard & Curran	Matrix:	Soil	Lab Sample:	1903773-04	Column:	BEH C18
Project:	SJC PFAS Investigation	Date Collected:	22-Oct-19 02:40	Date Received:	23-Oct-19 09:21		
Location:	Loc. 4			% Solids:	88.8		

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
d3-MeFOSAA	IS	86.4	50 - 150		B9K0002	07-Nov-19	1.16 g	21-Nov-19 01:36	1
13C2-PFUnA	IS	68.7	50 - 150		B9K0002	07-Nov-19	1.16 g	21-Nov-19 01:36	1
d5-EtFOSAA	IS	80.4	50 - 150		B9K0002	07-Nov-19	1.16 g	21-Nov-19 01:36	1
13C2-PFDoA	IS	47.2	50 - 150	H	B9K0002	07-Nov-19	1.16 g	21-Nov-19 01:36	1
13C2-PFTeDA	IS	22.3	50 - 150	H	B9K0002	07-Nov-19	1.16 g	21-Nov-19 01:36	1

RL - Reporting limit

The results are reported in dry weight.
The sample size is reported in wet weight.
Results reported to RL.

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

Sample ID: L4-1-5 **PFAS Isotope Dilution Method**

Client Data

Name:	Woodard & Curran	Matrix:	Soil
Project:	SJC PFAS Investigation	Date Collected:	22-Oct-19 02:42
Location:	Loc. 4		

Laboratory Data

Lab Sample:	1903773-05	Column:	BEH C18
Date Received:	23-Oct-19 09:21		
% Solids:	74.4		

Analyte	CAS Number	Conc. (ng/g)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	ND	1.98		B9K0002	07-Nov-19	1.36 g	21-Nov-19 01:46	1
PFPeA	2706-90-3	ND	1.98		B9K0002	07-Nov-19	1.36 g	21-Nov-19 01:46	1
PFBS	375-73-5	ND	1.98		B9K0002	07-Nov-19	1.36 g	21-Nov-19 01:46	1
4:2 FTS	757124-72-4	ND	1.98		B9K0002	07-Nov-19	1.36 g	21-Nov-19 01:46	1
PFHxA	307-24-4	2.71	1.98	Q	B9K0002	07-Nov-19	1.36 g	21-Nov-19 01:46	1
PFPeS	2706-91-4	ND	1.98		B9K0002	07-Nov-19	1.36 g	21-Nov-19 01:46	1
PFHpA	375-85-9	ND	1.98		B9K0002	07-Nov-19	1.36 g	21-Nov-19 01:46	1
PFHxS	355-46-4	3.14	1.98		B9K0002	07-Nov-19	1.36 g	21-Nov-19 01:46	1
6:2 FTS	27619-97-2	ND	1.98		B9K0002	07-Nov-19	1.36 g	21-Nov-19 01:46	1
PFOA	335-67-1	ND	1.98		B9K0002	07-Nov-19	1.36 g	21-Nov-19 01:46	1
PFHpS	375-92-8	ND	1.98		B9K0002	07-Nov-19	1.36 g	21-Nov-19 01:46	1
PFNA	375-95-1	ND	1.98		B9K0002	07-Nov-19	1.36 g	21-Nov-19 01:46	1
PFOSA	754-91-6	ND	1.98		B9K0002	07-Nov-19	1.36 g	21-Nov-19 01:46	1
PFOS	1763-23-1	ND	1.98		B9K0002	07-Nov-19	1.36 g	21-Nov-19 01:46	1
PFDA	335-76-2	ND	1.98		B9K0002	07-Nov-19	1.36 g	21-Nov-19 01:46	1
8:2 FTS	39108-34-4	ND	1.98		B9K0002	07-Nov-19	1.36 g	21-Nov-19 01:46	1
MeFOSAA	2355-31-9	ND	1.98		B9K0002	07-Nov-19	1.36 g	21-Nov-19 01:46	1
EtFOSAA	2991-50-6	ND	1.98		B9K0002	07-Nov-19	1.36 g	21-Nov-19 01:46	1
PFUnA	2058-94-8	ND	1.98		B9K0002	07-Nov-19	1.36 g	21-Nov-19 01:46	1
PFDS	335-77-3	ND	1.98		B9K0002	07-Nov-19	1.36 g	21-Nov-19 01:46	1
PFDoA	307-55-1	ND	1.98		B9K0002	07-Nov-19	1.36 g	21-Nov-19 01:46	1
PFTrDA	72629-94-8	ND	1.98		B9K0002	07-Nov-19	1.36 g	21-Nov-19 01:46	1
PFTeDA	376-06-7	ND	1.98		B9K0002	07-Nov-19	1.36 g	21-Nov-19 01:46	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	143	50 - 150		B9K0002	07-Nov-19	1.36 g	21-Nov-19 01:46	1
13C3-PFPeA	IS	71.7	50 - 150		B9K0002	07-Nov-19	1.36 g	21-Nov-19 01:46	1
13C3-PFBS	IS	87.6	50 - 150		B9K0002	07-Nov-19	1.36 g	21-Nov-19 01:46	1
13C2-4:2 FTS	IS	88.3	50 - 150		B9K0002	07-Nov-19	1.36 g	21-Nov-19 01:46	1
13C2-PFHxA	IS	73.4	50 - 150		B9K0002	07-Nov-19	1.36 g	21-Nov-19 01:46	1
13C4-PFHpA	IS	68.0	50 - 150		B9K0002	07-Nov-19	1.36 g	21-Nov-19 01:46	1
13C3-PFHxS	IS	75.2	50 - 150		B9K0002	07-Nov-19	1.36 g	21-Nov-19 01:46	1
13C2-6:2 FTS	IS	82.8	50 - 150		B9K0002	07-Nov-19	1.36 g	21-Nov-19 01:46	1
13C5-PFNA	IS	62.7	50 - 150		B9K0002	07-Nov-19	1.36 g	21-Nov-19 01:46	1
13C8-PFOSA	IS	50.6	50 - 150		B9K0002	07-Nov-19	1.36 g	21-Nov-19 01:46	1
13C2-PFOA	IS	64.1	50 - 150		B9K0002	07-Nov-19	1.36 g	21-Nov-19 01:46	1
13C8-PFOS	IS	74.6	50 - 150		B9K0002	07-Nov-19	1.36 g	21-Nov-19 01:46	1
13C2-PFDA	IS	51.9	50 - 150		B9K0002	07-Nov-19	1.36 g	21-Nov-19 01:46	1
13C2-8:2 FTS	IS	69.0	50 - 150		B9K0002	07-Nov-19	1.36 g	21-Nov-19 01:46	1

Sample ID: L4-1-5

PFAS Isotope Dilution Method

Client Data				**Laboratory Data**			
Name:	Woodard & Curran	Matrix:	Soil	Lab Sample:	1903773-05	Column:	BEH C18
Project:	SJC PFAS Investigation	Date Collected:	22-Oct-19 02:42	Date Received:	23-Oct-19 09:21		
Location:	Loc. 4			% Solids:	74.4		

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
d3-MeFOSAA	IS	59.9	50 - 150		B9K0002	07-Nov-19	1.36 g	21-Nov-19 01:46	1
13C2-PFUnA	IS	56.0	50 - 150		B9K0002	07-Nov-19	1.36 g	21-Nov-19 01:46	1
d5-EtFOSAA	IS	57.0	50 - 150		B9K0002	07-Nov-19	1.36 g	21-Nov-19 01:46	1
13C2-PFDoA	IS	55.6	50 - 150		B9K0002	07-Nov-19	1.36 g	21-Nov-19 01:46	1
13C2-PFTeDA	IS	55.8	50 - 150		B9K0002	07-Nov-19	1.36 g	21-Nov-19 01:46	1

RL - Reporting limit

The results are reported in dry weight.
The sample size is reported in wet weight.
Results reported to RL.

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

Sample ID: L4-1-10 **PFAS Isotope Dilution Method**

Client Data				**Laboratory Data**			
Name:	Woodard & Curran	Matrix:	Soil	Lab Sample:	1903773-06	Column:	BEH C18
Project:	SJC PFAS Investigation	Date Collected:	22-Oct-19 02:44	Date Received:	23-Oct-19 09:21		
Location:	Loc. 4			% Solids:	72.3		

Analyte	CAS Number	Conc. (ng/g)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	ND	1.99		B9K0002	07-Nov-19	1.39 g	21-Nov-19 01:57	1
PFPeA	2706-90-3	ND	1.99		B9K0002	07-Nov-19	1.39 g	21-Nov-19 01:57	1
PFBS	375-73-5	ND	1.99		B9K0002	07-Nov-19	1.39 g	21-Nov-19 01:57	1
4:2 FTS	757124-72-4	ND	1.99		B9K0002	07-Nov-19	1.39 g	21-Nov-19 01:57	1
PFHxA	307-24-4	ND	1.99		B9K0002	07-Nov-19	1.39 g	21-Nov-19 01:57	1
PFPeS	2706-91-4	ND	1.99		B9K0002	07-Nov-19	1.39 g	21-Nov-19 01:57	1
PFHpA	375-85-9	ND	1.99		B9K0002	07-Nov-19	1.39 g	21-Nov-19 01:57	1
PFHxS	355-46-4	4.53	1.99		B9K0002	07-Nov-19	1.39 g	21-Nov-19 01:57	1
6:2 FTS	27619-97-2	ND	1.99		B9K0002	07-Nov-19	1.39 g	21-Nov-19 01:57	1
PFOA	335-67-1	ND	1.99		B9K0002	07-Nov-19	1.39 g	21-Nov-19 01:57	1
PFHpS	375-92-8	ND	1.99		B9K0002	07-Nov-19	1.39 g	21-Nov-19 01:57	1
PFNA	375-95-1	ND	1.99		B9K0002	07-Nov-19	1.39 g	21-Nov-19 01:57	1
PFOSA	754-91-6	ND	1.99		B9K0002	07-Nov-19	1.39 g	21-Nov-19 01:57	1
PFOS	1763-23-1	82.5	1.99		B9K0002	07-Nov-19	1.39 g	21-Nov-19 01:57	1
PFDA	335-76-2	ND	1.99		B9K0002	07-Nov-19	1.39 g	21-Nov-19 01:57	1
8:2 FTS	39108-34-4	ND	1.99		B9K0002	07-Nov-19	1.39 g	21-Nov-19 01:57	1
MeFOSAA	2355-31-9	ND	1.99		B9K0002	07-Nov-19	1.39 g	21-Nov-19 01:57	1
EtFOSAA	2991-50-6	ND	1.99		B9K0002	07-Nov-19	1.39 g	21-Nov-19 01:57	1
PFUnA	2058-94-8	ND	1.99		B9K0002	07-Nov-19	1.39 g	21-Nov-19 01:57	1
PFDS	335-77-3	ND	1.99		B9K0002	07-Nov-19	1.39 g	21-Nov-19 01:57	1
PFDoA	307-55-1	ND	1.99		B9K0002	07-Nov-19	1.39 g	21-Nov-19 01:57	1
PFTrDA	72629-94-8	ND	1.99		B9K0002	07-Nov-19	1.39 g	21-Nov-19 01:57	1
PFTeDA	376-06-7	ND	1.99		B9K0002	07-Nov-19	1.39 g	21-Nov-19 01:57	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	150	50 - 150		B9K0002	07-Nov-19	1.39 g	21-Nov-19 01:57	1
13C3-PFPeA	IS	76.7	50 - 150		B9K0002	07-Nov-19	1.39 g	21-Nov-19 01:57	1
13C3-PFBS	IS	85.8	50 - 150		B9K0002	07-Nov-19	1.39 g	21-Nov-19 01:57	1
13C2-4:2 FTS	IS	90.4	50 - 150		B9K0002	07-Nov-19	1.39 g	21-Nov-19 01:57	1
13C2-PFHxA	IS	77.8	50 - 150		B9K0002	07-Nov-19	1.39 g	21-Nov-19 01:57	1
13C4-PFHpA	IS	74.5	50 - 150		B9K0002	07-Nov-19	1.39 g	21-Nov-19 01:57	1
13C3-PFHxS	IS	75.0	50 - 150		B9K0002	07-Nov-19	1.39 g	21-Nov-19 01:57	1
13C2-6:2 FTS	IS	83.4	50 - 150		B9K0002	07-Nov-19	1.39 g	21-Nov-19 01:57	1
13C5-PFNA	IS	69.4	50 - 150		B9K0002	07-Nov-19	1.39 g	21-Nov-19 01:57	1
13C8-PFOSA	IS	50.4	50 - 150		B9K0002	07-Nov-19	1.39 g	21-Nov-19 01:57	1
13C2-PFOA	IS	69.0	50 - 150		B9K0002	07-Nov-19	1.39 g	21-Nov-19 01:57	1
13C8-PFOS	IS	76.3	50 - 150		B9K0002	07-Nov-19	1.39 g	21-Nov-19 01:57	1
13C2-PFDA	IS	50.4	50 - 150		B9K0002	07-Nov-19	1.39 g	21-Nov-19 01:57	1
13C2-8:2 FTS	IS	78.6	50 - 150		B9K0002	07-Nov-19	1.39 g	21-Nov-19 01:57	1

Sample ID: L4-1-10 **PFAS Isotope Dilution Method**

Client Data				**Laboratory Data**			
Name:	Woodard & Curran	Matrix:	Soil	Lab Sample:	1903773-06	Column:	BEH C18
Project:	SJC PFAS Investigation	Date Collected:	22-Oct-19 02:44	Date Received:	23-Oct-19 09:21		
Location:	Loc. 4			% Solids:	72.3		

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
d3-MeFOSAA	IS	61.9	50 - 150		B9K0002	07-Nov-19	1.39 g	21-Nov-19 01:57	1
13C2-PFUnA	IS	54.2	50 - 150		B9K0002	07-Nov-19	1.39 g	21-Nov-19 01:57	1
d5-EtFOSAA	IS	57.1	50 - 150		B9K0002	07-Nov-19	1.39 g	21-Nov-19 01:57	1
13C2-PFDoA	IS	59.5	50 - 150		B9K0002	07-Nov-19	1.39 g	21-Nov-19 01:57	1
13C2-PFTeDA	IS	63.0	50 - 150		B9K0002	07-Nov-19	1.39 g	21-Nov-19 01:57	1

RL - Reporting limit

The results are reported in dry weight.
The sample size is reported in wet weight.
Results reported to RL.

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

Sample ID: L4-3-1 **PFAS Isotope Dilution Method**

Client Data				**Laboratory Data**			
Name:	Woodard & Curran	Matrix:	Soil	Lab Sample:	1903773-07	Column:	BEH C18
Project:	SJC PFAS Investigation	Date Collected:	22-Oct-19 03:20	Date Received:	23-Oct-19 09:21		
Location:	Loc. 4			% Solids:	91.1		

Analyte	CAS Number	Conc. (ng/g)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	ND	1.93		B9K0002	07-Nov-19	1.14 g	21-Nov-19 02:07	1
PFPeA	2706-90-3	ND	1.93		B9K0002	07-Nov-19	1.14 g	21-Nov-19 02:07	1
PFBS	375-73-5	ND	1.93		B9K0002	07-Nov-19	1.14 g	21-Nov-19 02:07	1
4:2 FTS	757124-72-4	ND	1.93		B9K0002	07-Nov-19	1.14 g	21-Nov-19 02:07	1
PFHxA	307-24-4	ND	1.93		B9K0002	07-Nov-19	1.14 g	21-Nov-19 02:07	1
PFPeS	2706-91-4	ND	1.93		B9K0002	07-Nov-19	1.14 g	21-Nov-19 02:07	1
PFHpA	375-85-9	ND	1.93		B9K0002	07-Nov-19	1.14 g	21-Nov-19 02:07	1
PFHxS	355-46-4	ND	1.93		B9K0002	07-Nov-19	1.14 g	21-Nov-19 02:07	1
6:2 FTS	27619-97-2	ND	1.93		B9K0002	07-Nov-19	1.14 g	21-Nov-19 02:07	1
PFOA	335-67-1	ND	1.93		B9K0002	07-Nov-19	1.14 g	21-Nov-19 02:07	1
PFHpS	375-92-8	ND	1.93		B9K0002	07-Nov-19	1.14 g	21-Nov-19 02:07	1
PFNA	375-95-1	ND	1.93		B9K0002	07-Nov-19	1.14 g	21-Nov-19 02:07	1
PFOSA	754-91-6	ND	1.93		B9K0002	07-Nov-19	1.14 g	21-Nov-19 02:07	1
PFOS	1763-23-1	ND	1.93		B9K0002	07-Nov-19	1.14 g	21-Nov-19 02:07	1
PFDA	335-76-2	ND	1.93		B9K0002	07-Nov-19	1.14 g	21-Nov-19 02:07	1
8:2 FTS	39108-34-4	ND	1.93		B9K0002	07-Nov-19	1.14 g	21-Nov-19 02:07	1
MeFOSAA	2355-31-9	ND	1.93		B9K0002	07-Nov-19	1.14 g	21-Nov-19 02:07	1
EtFOSAA	2991-50-6	ND	1.93		B9K0002	07-Nov-19	1.14 g	21-Nov-19 02:07	1
PFUnA	2058-94-8	ND	1.93		B9K0002	07-Nov-19	1.14 g	21-Nov-19 02:07	1
PFDS	335-77-3	ND	1.93		B9K0002	07-Nov-19	1.14 g	21-Nov-19 02:07	1
PFDoA	307-55-1	ND	1.93		B9K0002	07-Nov-19	1.14 g	21-Nov-19 02:07	1
PFTrDA	72629-94-8	ND	1.93		B9K0002	07-Nov-19	1.14 g	21-Nov-19 02:07	1
PFTeDA	376-06-7	ND	1.93		B9K0002	07-Nov-19	1.14 g	21-Nov-19 02:07	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	165	50 - 150	H	B9K0002	07-Nov-19	1.14 g	21-Nov-19 02:07	1
13C3-PFPeA	IS	86.3	50 - 150		B9K0002	07-Nov-19	1.14 g	21-Nov-19 02:07	1
13C3-PFBS	IS	85.0	50 - 150		B9K0002	07-Nov-19	1.14 g	21-Nov-19 02:07	1
13C2-4:2 FTS	IS	83.9	50 - 150		B9K0002	07-Nov-19	1.14 g	21-Nov-19 02:07	1
13C2-PFHxA	IS	84.0	50 - 150		B9K0002	07-Nov-19	1.14 g	21-Nov-19 02:07	1
13C4-PFHpA	IS	81.1	50 - 150		B9K0002	07-Nov-19	1.14 g	21-Nov-19 02:07	1
13C3-PFHxS	IS	74.9	50 - 150		B9K0002	07-Nov-19	1.14 g	21-Nov-19 02:07	1
13C2-6:2 FTS	IS	85.3	50 - 150		B9K0002	07-Nov-19	1.14 g	21-Nov-19 02:07	1
13C5-PFNA	IS	78.4	50 - 150		B9K0002	07-Nov-19	1.14 g	21-Nov-19 02:07	1
13C8-PFOSA	IS	68.1	50 - 150		B9K0002	07-Nov-19	1.14 g	21-Nov-19 02:07	1
13C2-PFOA	IS	81.1	50 - 150		B9K0002	07-Nov-19	1.14 g	21-Nov-19 02:07	1
13C8-PFOS	IS	72.7	50 - 150		B9K0002	07-Nov-19	1.14 g	21-Nov-19 02:07	1
13C2-PFDA	IS	69.5	50 - 150		B9K0002	07-Nov-19	1.14 g	21-Nov-19 02:07	1
13C2-8:2 FTS	IS	78.5	50 - 150		B9K0002	07-Nov-19	1.14 g	21-Nov-19 02:07	1

Sample ID: L4-3-1 **PFAS Isotope Dilution Method**

Client Data				**Laboratory Data**			
Name:	Woodard & Curran	Matrix:	Soil	Lab Sample:	1903773-07	Column:	BEH C18
Project:	SJC PFAS Investigation	Date Collected:	22-Oct-19 03:20	Date Received:	23-Oct-19 09:21		
Location:	Loc. 4			% Solids:	91.1		

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
d3-MeFOSAA	IS	74.1	50 - 150		B9K0002	07-Nov-19	1.14 g	21-Nov-19 02:07	1
13C2-PFUnA	IS	75.5	50 - 150		B9K0002	07-Nov-19	1.14 g	21-Nov-19 02:07	1
d5-EtFOSAA	IS	74.8	50 - 150		B9K0002	07-Nov-19	1.14 g	21-Nov-19 02:07	1
13C2-PFDoA	IS	66.5	50 - 150		B9K0002	07-Nov-19	1.14 g	21-Nov-19 02:07	1
13C2-PFTeDA	IS	64.8	50 - 150		B9K0002	07-Nov-19	1.14 g	21-Nov-19 02:07	1

RL - Reporting limit

The results are reported in dry weight.
The sample size is reported in wet weight.
Results reported to RL.

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

Sample ID: L4-3-1 **PFAS Isotope Dilution Method**

Name:	Woodard & Curran	Lab Sample:	B9K0002-MS1/B9K0002-MSD1	Source Lab Sample:	1903773-07
Project:	SJC PFAS Investigation	QC Batch:	B9K0002	Date Extracted:	07-Nov-19
Matrix:	Solid	Samp Size:	1.10/1.11 g	Column:	BEH C18

Analyte	CAS Number	Sample (ng/g)	MS (ng/g)	MS Spike	MS % Rec	MS Quals	MSD (ng/g)	MSD Spike	MSD % Rec	RPD	MSD Quals	%Rec Limits	RPD Limits	MS Analyzed	MS Dil	MSD Analyzed	MSD Dil
PFBA	375-22-4	ND	10.2	9.98	102		10.5	9.89	106	3.85		71-135	30	21-Nov-19 00:22	1	21-Nov-19 00:33	1
PFPeA	2706-90-3	ND	10.9	9.98	109		10.2	9.89	103	5.66		69-132	30	21-Nov-19 00:22	1	21-Nov-19 00:33	1
PFBS	375-73-5	ND	11.8	9.98	118		10.5	9.89	106	10.7		72-128	30	21-Nov-19 00:22	1	21-Nov-19 00:33	1
4:2 FTS	757124-72-4	ND	10.9	9.98	109	Q	10.9	9.89	110	0.913		62-145	30	21-Nov-19 00:22	1	21-Nov-19 00:33	1
PFHxA	307-24-4	ND	10.4	9.98	102	Q	10.7	9.89	106	3.85	Q	70-132	30	21-Nov-19 00:22	1	21-Nov-19 00:33	1
PFPeS	2706-91-4	ND	10.8	9.98	108		10.6	9.89	107	0.930		73-123	30	21-Nov-19 00:22	1	21-Nov-19 00:33	1
PFHpA	375-85-9	ND	10.3	9.98	103	Q	10.0	9.89	101	1.96	Q	71-131	30	21-Nov-19 00:22	1	21-Nov-19 00:33	1
PFHxS	355-46-4	ND	11.9	9.98	119		9.78	9.89	98.9	18.4		67-130	30	21-Nov-19 00:22	1	21-Nov-19 00:33	1
6:2 FTS	27619-97-2	ND	11.3	9.98	113		9.70	9.89	98.1	14.1		64-140	30	21-Nov-19 00:22	1	21-Nov-19 00:33	1
PFOA	335-67-1	ND	10.3	9.98	103		10.1	9.89	102	0.976		69-133	30	21-Nov-19 00:22	1	21-Nov-19 00:33	1
PFHpS	375-92-8	ND	10.6	9.98	106		10.0	9.89	101	4.83		70-132	30	21-Nov-19 00:22	1	21-Nov-19 00:33	1
PFNA	375-95-1	ND	9.51	9.98	95.3		10.7	9.89	108	12.5	Q	72-129	30	21-Nov-19 00:22	1	21-Nov-19 00:33	1
PFOSA	754-91-6	ND	9.69	9.98	97.1		9.76	9.89	98.7	1.63		67-137	30	21-Nov-19 00:22	1	21-Nov-19 00:33	1
PFOS	1763-23-1	ND	10.9	10.0	104		9.89	9.91	95.6	8.42		68-136	30	21-Nov-19 00:22	1	21-Nov-19 00:33	1
PFDA	335-76-2	ND	11.1	9.98	112		10.1	9.89	102	9.35		69-133	30	21-Nov-19 00:22	1	21-Nov-19 00:33	1
8:2 FTS	39108-34-4	ND	10.0	9.98	97.2	Q	9.18	9.89	89.5	8.25	Q	65-137	30	21-Nov-19 00:22	1	21-Nov-19 00:33	1
MeFOSAA	2355-31-9	ND	10.4	9.98	104		10.9	9.89	110	5.61		63-144	30	21-Nov-19 00:22	1	21-Nov-19 00:33	1
EtFOSAA	2991-50-6	ND	9.70	9.98	95.3		10.7	9.89	106	10.6		61-139	30	21-Nov-19 00:22	1	21-Nov-19 00:33	1
PFUnA	2058-94-8	ND	10.7	9.98	107	Q	10.9	9.89	110	2.76	Q	64-136	30	21-Nov-19 00:22	1	21-Nov-19 00:33	1
PFDS	335-77-3	ND	8.61	10.0	86.1		8.08	9.91	81.5	5.49		59-134	30	21-Nov-19 00:22	1	21-Nov-19 00:33	1
PFDoA	307-55-1	ND	9.76	9.98	97.8	Q	10.2	9.89	103	5.18	Q	69-135	30	21-Nov-19 00:22	1	21-Nov-19 00:33	1
PFTrDA	72629-94-8	ND	10.6	9.98	107		5.88	9.89	59.4	57.2	H	66-139	30	21-Nov-19 00:22	1	21-Nov-19 00:33	1
PFTeDA	376-06-7	ND	11.1	9.98	111		9.90	9.89	100	10.4		69-133	30	21-Nov-19 00:22	1	21-Nov-19 00:33	1

Labeled Standards	Type	MS % Rec	MS Quals	MSD % Rec	MSD Quals	Limits	MS Analyzed	MS Dil	MSD Analyzed	MSD Dil
13C3-PFBA	IS	173	H	167	H	50-150	21-Nov-19 00:22	1	21-Nov-19 00:33	1
13C3-PFPeA	IS	86.8		88.0		50-150	21-Nov-19 00:22	1	21-Nov-19 00:33	1
13C3-PFBS	IS	87.1		88.0		50-150	21-Nov-19 00:22	1	21-Nov-19 00:33	1
13C2-4:2 FTS	IS	86.7		85.7		50-150	21-Nov-19 00:22	1	21-Nov-19 00:33	1
13C2-PFHxA	IS	84.1		84.3		50-150	21-Nov-19 00:22	1	21-Nov-19 00:33	1
13C4-PFHpA	IS	81.4		82.7		50-150	21-Nov-19 00:22	1	21-Nov-19 00:33	1
13C3-PFHxS	IS	74.4		79.6		50-150	21-Nov-19 00:22	1	21-Nov-19 00:33	1
13C2-6:2 FTS	IS	76.6		86.5		50-150	21-Nov-19 00:22	1	21-Nov-19 00:33	1

Sample ID: L4-3-1 **PFAS Isotope Dilution Method**

Name:	Woodard & Curran	Lab Sample:	B9K0002-MS1/B9K0002-MSD1	Source Lab Sample:	1903773-07
Project:	SJC PFAS Investigation	QC Batch:	B9K0002	Date Extracted:	07-Nov-19
Matrix:	Solid	Samp Size:	1.10/1.11 g	Column:	BEH C18

Labeled Standards	Type	MS % Rec	MS Quals	MSD % Rec	MSD Quals	Limits	MS Analyzed	MS Dil	MSD Analyzed	MSD Dil
13C5-PFNA	IS	81.1		78.1		50-150	21-Nov-19 00:22	1	21-Nov-19 00:33	1
13C8-PFOSA	IS	64.7		72.1		50-150	21-Nov-19 00:22	1	21-Nov-19 00:33	1
13C2-PFOA	IS	79.9		83.1		50-150	21-Nov-19 00:22	1	21-Nov-19 00:33	1
13C8-PFOS	IS	83.6		88.0		50-150	21-Nov-19 00:22	1	21-Nov-19 00:33	1
13C2-PFDA	IS	69.7		73.8		50-150	21-Nov-19 00:22	1	21-Nov-19 00:33	1
13C2-8:2 FTS	IS	67.2		71.5		50-150	21-Nov-19 00:22	1	21-Nov-19 00:33	1
d3-MeFOSAA	IS	81.4		78.8		50-150	21-Nov-19 00:22	1	21-Nov-19 00:33	1
13C2-PFUnA	IS	71.3		64.7		50-150	21-Nov-19 00:22	1	21-Nov-19 00:33	1
d5-EtFOSAA	IS	80.6		71.6		50-150	21-Nov-19 00:22	1	21-Nov-19 00:33	1
13C2-PFDoA	IS	69.4		53.3		50-150	21-Nov-19 00:22	1	21-Nov-19 00:33	1
13C2-PFTeDA	IS	70.0		21.7	H	50-150	21-Nov-19 00:22	1	21-Nov-19 00:33	1

Sample ID: L4-3-5 **PFAS Isotope Dilution Method**

Client Data
Name: Woodard & Curran
Project: SJC PFAS Investigation
Location: Loc. 4
Matrix: Soil
Date Collected: 22-Oct-19 03:22

Laboratory Data
Lab Sample: 1903773-08
Date Received: 23-Oct-19 09:21
% Solids: 74.4
Column: BEH C18

Analyte	CAS Number	Conc. (ng/g)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	4.34	2.01		B9K0002	07-Nov-19	1.34 g	21-Nov-19 02:18	1
PFPeA	2706-90-3	8.12	2.01		B9K0002	07-Nov-19	1.34 g	21-Nov-19 02:18	1
PFBS	375-73-5	14.6	2.01		B9K0002	07-Nov-19	1.34 g	21-Nov-19 02:18	1
4:2 FTS	757124-72-4	ND	2.01		B9K0002	07-Nov-19	1.34 g	21-Nov-19 02:18	1
PFHxA	307-24-4	26.0	2.01	Q	B9K0002	07-Nov-19	1.34 g	21-Nov-19 02:18	1
PFPeS	2706-91-4	16.1	2.01	Q	B9K0002	07-Nov-19	1.34 g	21-Nov-19 02:18	1
PFHpA	375-85-9	3.59	2.01	Q	B9K0002	07-Nov-19	1.34 g	21-Nov-19 02:18	1
PFHxS	355-46-4	165	2.01		B9K0002	07-Nov-19	1.34 g	21-Nov-19 02:18	1
6:2 FTS	27619-97-2	9.99	2.01		B9K0002	07-Nov-19	1.34 g	21-Nov-19 02:18	1
PFOA	335-67-1	9.10	2.01		B9K0002	07-Nov-19	1.34 g	21-Nov-19 02:18	1
PFHpS	375-92-8	10.1	2.01		B9K0002	07-Nov-19	1.34 g	21-Nov-19 02:18	1
PFNA	375-95-1	ND	2.01		B9K0002	07-Nov-19	1.34 g	21-Nov-19 02:18	1
PFOSA	754-91-6	ND	2.01		B9K0002	07-Nov-19	1.34 g	21-Nov-19 02:18	1
PFOS	1763-23-1	482	10.0	D	B9K0002	07-Nov-19	1.34 g	21-Nov-19 20:17	5
PFDA	335-76-2	ND	2.01		B9K0002	07-Nov-19	1.34 g	21-Nov-19 02:18	1
8:2 FTS	39108-34-4	ND	2.01		B9K0002	07-Nov-19	1.34 g	21-Nov-19 02:18	1
MeFOSAA	2355-31-9	ND	2.01		B9K0002	07-Nov-19	1.34 g	21-Nov-19 02:18	1
EtFOSAA	2991-50-6	ND	2.01		B9K0002	07-Nov-19	1.34 g	21-Nov-19 02:18	1
PFUnA	2058-94-8	ND	2.01		B9K0002	07-Nov-19	1.34 g	21-Nov-19 02:18	1
PFDS	335-77-3	ND	2.01		B9K0002	07-Nov-19	1.34 g	21-Nov-19 02:18	1
PFDoA	307-55-1	ND	2.01		B9K0002	07-Nov-19	1.34 g	21-Nov-19 02:18	1
PFTrDA	72629-94-8	ND	2.01		B9K0002	07-Nov-19	1.34 g	21-Nov-19 02:18	1
PFTeDA	376-06-7	ND	2.01		B9K0002	07-Nov-19	1.34 g	21-Nov-19 02:18	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	146	50 - 150		B9K0002	07-Nov-19	1.34 g	21-Nov-19 02:18	1
13C3-PFPeA	IS	73.8	50 - 150		B9K0002	07-Nov-19	1.34 g	21-Nov-19 02:18	1
13C3-PFBS	IS	86.6	50 - 150		B9K0002	07-Nov-19	1.34 g	21-Nov-19 02:18	1
13C2-4:2 FTS	IS	87.2	50 - 150		B9K0002	07-Nov-19	1.34 g	21-Nov-19 02:18	1
13C2-PFHxA	IS	71.8	50 - 150		B9K0002	07-Nov-19	1.34 g	21-Nov-19 02:18	1
13C4-PFHpA	IS	68.3	50 - 150		B9K0002	07-Nov-19	1.34 g	21-Nov-19 02:18	1
13C3-PFHxS	IS	73.1	50 - 150		B9K0002	07-Nov-19	1.34 g	21-Nov-19 02:18	1
13C2-6:2 FTS	IS	80.3	50 - 150		B9K0002	07-Nov-19	1.34 g	21-Nov-19 02:18	1
13C5-PFNA	IS	61.5	50 - 150		B9K0002	07-Nov-19	1.34 g	21-Nov-19 02:18	1
13C8-PFOSA	IS	51.7	50 - 150		B9K0002	07-Nov-19	1.34 g	21-Nov-19 02:18	1
13C2-PFOA	IS	73.3	50 - 150		B9K0002	07-Nov-19	1.34 g	21-Nov-19 02:18	1
13C8-PFOS	IS	79.5	50 - 150	D	B9K0002	07-Nov-19	1.34 g	21-Nov-19 20:17	5
13C2-PFDA	IS	55.8	50 - 150		B9K0002	07-Nov-19	1.34 g	21-Nov-19 02:18	1
13C2-8:2 FTS	IS	68.2	50 - 150		B9K0002	07-Nov-19	1.34 g	21-Nov-19 02:18	1

Sample ID: L4-3-5

PFAS Isotope Dilution Method

Client Data				Laboratory Data			
Name:	Woodard & Curran	Matrix:	Soil	Lab Sample:	1903773-08	Column:	BEH C18
Project:	SJC PFAS Investigation	Date Collected:	22-Oct-19 03:22	Date Received:	23-Oct-19 09:21		
Location:	Loc. 4			% Solids:	74.4		

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
d3-MeFOSAA	IS	60.7	50 - 150		B9K0002	07-Nov-19	1.34 g	21-Nov-19 02:18	1
13C2-PFUnA	IS	55.3	50 - 150		B9K0002	07-Nov-19	1.34 g	21-Nov-19 02:18	1
d5-EtFOSAA	IS	60.2	50 - 150		B9K0002	07-Nov-19	1.34 g	21-Nov-19 02:18	1
13C2-PFDoA	IS	52.1	50 - 150		B9K0002	07-Nov-19	1.34 g	21-Nov-19 02:18	1
13C2-PFTeDA	IS	62.3	50 - 150		B9K0002	07-Nov-19	1.34 g	21-Nov-19 02:18	1

RL - Reporting limit

The results are reported in dry weight.
The sample size is reported in wet weight.
Results reported to RL.

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

Sample ID: L4-3-10 **PFAS Isotope Dilution Method**

Client Data

Name:	Woodard & Curran	Matrix:	Soil
Project:	SJC PFAS Investigation	Date Collected:	22-Oct-19 03:24
Location:	Loc. 4		

Laboratory Data

Lab Sample:	1903773-09	Column:	BEH C18
Date Received:	23-Oct-19 09:21		
% Solids:	74.6		

Analyte	CAS Number	Conc. (ng/g)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	ND	1.96		B9K0002	07-Nov-19	1.37 g	21-Nov-19 20:28	1
PFPeA	2706-90-3	ND	1.96		B9K0002	07-Nov-19	1.37 g	21-Nov-19 20:28	1
PFBS	375-73-5	ND	1.96		B9K0002	07-Nov-19	1.37 g	21-Nov-19 20:28	1
4:2 FTS	757124-72-4	ND	1.96		B9K0002	07-Nov-19	1.37 g	21-Nov-19 20:28	1
PFHxA	307-24-4	ND	1.96		B9K0002	07-Nov-19	1.37 g	21-Nov-19 20:28	1
PFPeS	2706-91-4	ND	1.96		B9K0002	07-Nov-19	1.37 g	21-Nov-19 20:28	1
PFHpA	375-85-9	ND	1.96		B9K0002	07-Nov-19	1.37 g	21-Nov-19 20:28	1
PFHxS	355-46-4	8.57	1.96		B9K0002	07-Nov-19	1.37 g	21-Nov-19 20:28	1
6:2 FTS	27619-97-2	ND	1.96		B9K0002	07-Nov-19	1.37 g	21-Nov-19 20:28	1
PFOA	335-67-1	ND	1.96		B9K0002	07-Nov-19	1.37 g	21-Nov-19 20:28	1
PFHpS	375-92-8	ND	1.96		B9K0002	07-Nov-19	1.37 g	21-Nov-19 20:28	1
PFNA	375-95-1	ND	1.96		B9K0002	07-Nov-19	1.37 g	21-Nov-19 20:28	1
PFOSA	754-91-6	ND	1.96		B9K0002	07-Nov-19	1.37 g	21-Nov-19 20:28	1
PFOS	1763-23-1	63.0	1.96		B9K0002	07-Nov-19	1.37 g	21-Nov-19 20:28	1
PFDA	335-76-2	ND	1.96		B9K0002	07-Nov-19	1.37 g	21-Nov-19 20:28	1
8:2 FTS	39108-34-4	ND	1.96		B9K0002	07-Nov-19	1.37 g	21-Nov-19 20:28	1
MeFOSAA	2355-31-9	ND	1.96		B9K0002	07-Nov-19	1.37 g	21-Nov-19 20:28	1
EtFOSAA	2991-50-6	ND	1.96		B9K0002	07-Nov-19	1.37 g	21-Nov-19 20:28	1
PFUnA	2058-94-8	ND	1.96		B9K0002	07-Nov-19	1.37 g	21-Nov-19 20:28	1
PFDS	335-77-3	ND	1.96		B9K0002	07-Nov-19	1.37 g	21-Nov-19 20:28	1
PFDoA	307-55-1	ND	1.96		B9K0002	07-Nov-19	1.37 g	21-Nov-19 20:28	1
PFTrDA	72629-94-8	ND	1.96		B9K0002	07-Nov-19	1.37 g	21-Nov-19 20:28	1
PFTeDA	376-06-7	ND	1.96		B9K0002	07-Nov-19	1.37 g	21-Nov-19 20:28	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	59.6	50 - 150		B9K0002	07-Nov-19	1.37 g	21-Nov-19 20:28	1
13C3-PFPeA	IS	58.8	50 - 150		B9K0002	07-Nov-19	1.37 g	21-Nov-19 20:28	1
13C3-PFBS	IS	73.2	50 - 150		B9K0002	07-Nov-19	1.37 g	21-Nov-19 20:28	1
13C2-4:2 FTS	IS	71.7	50 - 150		B9K0002	07-Nov-19	1.37 g	21-Nov-19 20:28	1
13C2-PFHxA	IS	59.1	50 - 150		B9K0002	07-Nov-19	1.37 g	21-Nov-19 20:28	1
13C4-PFHpA	IS	54.8	50 - 150		B9K0002	07-Nov-19	1.37 g	21-Nov-19 20:28	1
13C3-PFHxS	IS	68.5	50 - 150		B9K0002	07-Nov-19	1.37 g	21-Nov-19 20:28	1
13C2-6:2 FTS	IS	72.8	50 - 150		B9K0002	07-Nov-19	1.37 g	21-Nov-19 20:28	1
13C5-PFNA	IS	51.1	50 - 150		B9K0002	07-Nov-19	1.37 g	21-Nov-19 20:28	1
13C8-PFOSA	IS	43.1	50 - 150	H	B9K0002	07-Nov-19	1.37 g	21-Nov-19 20:28	1
13C2-PFOA	IS	53.7	50 - 150		B9K0002	07-Nov-19	1.37 g	21-Nov-19 20:28	1
13C8-PFOS	IS	62.1	50 - 150		B9K0002	07-Nov-19	1.37 g	21-Nov-19 20:28	1
13C2-PFDA	IS	46.2	50 - 150	H	B9K0002	07-Nov-19	1.37 g	21-Nov-19 20:28	1
13C2-8:2 FTS	IS	56.7	50 - 150		B9K0002	07-Nov-19	1.37 g	21-Nov-19 20:28	1

Sample ID: L4-3-10 **PFAS Isotope Dilution Method**

Client Data				**Laboratory Data**	
Name:	Woodard & Curran	Matrix:	Soil	Lab Sample:	1903773-09
Project:	SJC PFAS Investigation	Date Collected:	22-Oct-19 03:24	Date Received:	23-Oct-19 09:21
Location:	Loc. 4			% Solids:	74.6
				Column:	BEH C18

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
d3-MeFOSAA	IS	51.7	50 - 150		B9K0002	07-Nov-19	1.37 g	21-Nov-19 20:28	1
13C2-PFUnA	IS	56.0	50 - 150		B9K0002	07-Nov-19	1.37 g	21-Nov-19 20:28	1
d5-EtFOSAA	IS	60.4	50 - 150		B9K0002	07-Nov-19	1.37 g	21-Nov-19 20:28	1
13C2-PFDoA	IS	55.8	50 - 150		B9K0002	07-Nov-19	1.37 g	21-Nov-19 20:28	1
13C2-PFTeDA	IS	43.0	50 - 150	H	B9K0002	07-Nov-19	1.37 g	21-Nov-19 20:28	1

RL - Reporting limit

The results are reported in dry weight.
The sample size is reported in wet weight.
Results reported to RL.

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

Sample ID: Method Blank **PFAS Isotope Dilution Method**

Client Data

Name:	Woodard & Curran	Matrix:	Aqueous
Project:	SJC PFAS Investigation		

Laboratory Data

Lab Sample:	B9J0240-BLK1	Column:	BEH C18

Analyte	CAS Number	Conc. (ng/L)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	ND	2.00		B9J0240	30-Oct-19	0.250 L	06-Nov-19 21:02	1
PFPeA	2706-90-3	ND	2.00		B9J0240	30-Oct-19	0.250 L	06-Nov-19 21:02	1
PFBS	375-73-5	ND	2.00		B9J0240	30-Oct-19	0.250 L	06-Nov-19 21:02	1
4:2 FTS	757124-72-4	ND	2.00		B9J0240	30-Oct-19	0.250 L	06-Nov-19 21:02	1
PFHxA	307-24-4	ND	2.00		B9J0240	30-Oct-19	0.250 L	06-Nov-19 21:02	1
PFPeS	2706-91-4	ND	2.00		B9J0240	30-Oct-19	0.250 L	06-Nov-19 21:02	1
PFHpA	375-85-9	ND	2.00		B9J0240	30-Oct-19	0.250 L	06-Nov-19 21:02	1
PFHxS	355-46-4	ND	2.00		B9J0240	30-Oct-19	0.250 L	06-Nov-19 21:02	1
6:2 FTS	27619-97-2	ND	2.00		B9J0240	30-Oct-19	0.250 L	06-Nov-19 21:02	1
PFOA	335-67-1	ND	2.00		B9J0240	30-Oct-19	0.250 L	06-Nov-19 21:02	1
PFHpS	375-92-8	ND	2.00		B9J0240	30-Oct-19	0.250 L	06-Nov-19 21:02	1
PFNA	375-95-1	ND	2.00		B9J0240	30-Oct-19	0.250 L	06-Nov-19 21:02	1
PFOSA	754-91-6	ND	2.00		B9J0240	30-Oct-19	0.250 L	06-Nov-19 21:02	1
PFOS	1763-23-1	ND	2.00		B9J0240	30-Oct-19	0.250 L	06-Nov-19 21:02	1
PFDA	335-76-2	ND	2.00		B9J0240	30-Oct-19	0.250 L	06-Nov-19 21:02	1
8:2 FTS	39108-34-4	ND	2.00		B9J0240	30-Oct-19	0.250 L	06-Nov-19 21:02	1
MeFOSAA	2355-31-9	ND	2.00		B9J0240	30-Oct-19	0.250 L	06-Nov-19 21:02	1
EtFOSAA	2991-50-6	ND	2.00		B9J0240	30-Oct-19	0.250 L	06-Nov-19 21:02	1
PFUnA	2058-94-8	ND	2.00		B9J0240	30-Oct-19	0.250 L	06-Nov-19 21:02	1
PFDS	335-77-3	ND	2.00		B9J0240	30-Oct-19	0.250 L	06-Nov-19 21:02	1
PFDoA	307-55-1	ND	2.00		B9J0240	30-Oct-19	0.250 L	06-Nov-19 21:02	1
PFTrDA	72629-94-8	ND	2.00		B9J0240	30-Oct-19	0.250 L	06-Nov-19 21:02	1
PFTeDA	376-06-7	ND	2.00		B9J0240	30-Oct-19	0.250 L	06-Nov-19 21:02	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	113	50 - 150		B9J0240	30-Oct-19	0.250 L	06-Nov-19 21:02	1
13C3-PFPeA	IS	110	50 - 150		B9J0240	30-Oct-19	0.250 L	06-Nov-19 21:02	1
13C3-PFBS	IS	127	50 - 150		B9J0240	30-Oct-19	0.250 L	06-Nov-19 21:02	1
13C2-4:2 FTS	IS	123	50 - 150		B9J0240	30-Oct-19	0.250 L	06-Nov-19 21:02	1
13C2-PFHxA	IS	106	50 - 150		B9J0240	30-Oct-19	0.250 L	06-Nov-19 21:02	1
13C4-PFHpA	IS	101	50 - 150		B9J0240	30-Oct-19	0.250 L	06-Nov-19 21:02	1
13C3-PFHxS	IS	112	50 - 150		B9J0240	30-Oct-19	0.250 L	06-Nov-19 21:02	1
13C2-6:2 FTS	IS	108	50 - 150		B9J0240	30-Oct-19	0.250 L	06-Nov-19 21:02	1
13C5-PFNA	IS	115	50 - 150		B9J0240	30-Oct-19	0.250 L	06-Nov-19 21:02	1
13C8-PFOSA	IS	31.2	50 - 150	H	B9J0240	30-Oct-19	0.250 L	06-Nov-19 21:02	1
13C2-PFOA	IS	122	50 - 150		B9J0240	30-Oct-19	0.250 L	06-Nov-19 21:02	1
13C8-PFOS	IS	110	50 - 150		B9J0240	30-Oct-19	0.250 L	06-Nov-19 21:02	1
13C2-PFDA	IS	106	50 - 150		B9J0240	30-Oct-19	0.250 L	06-Nov-19 21:02	1
13C2-8:2 FTS	IS	109	50 - 150		B9J0240	30-Oct-19	0.250 L	06-Nov-19 21:02	1

Sample ID: Method Blank

PFAS Isotope Dilution Method

Client Data				**Laboratory Data**			
Name:	Woodard & Curran	Matrix:	Aqueous	Lab Sample:	B9J0240-BLK1	Column:	BEH C18
Project:	SJC PFAS Investigation						

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
d3-MeFOSAA	IS	97.2	50 - 150		B9J0240	30-Oct-19	0.250 L	06-Nov-19 21:02	1
13C2-PFUnA	IS	93.8	50 - 150		B9J0240	30-Oct-19	0.250 L	06-Nov-19 21:02	1
d5-EtFOSAA	IS	98.7	50 - 150		B9J0240	30-Oct-19	0.250 L	06-Nov-19 21:02	1
13C2-PFDoA	IS	89.0	50 - 150		B9J0240	30-Oct-19	0.250 L	06-Nov-19 21:02	1
13C2-PFTeDA	IS	89.2	50 - 150		B9J0240	30-Oct-19	0.250 L	06-Nov-19 21:02	1

RL - Reporting limit

Results reported to RL.

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

Sample ID: LCSD **PFAS Isotope Dilution Method**

Name:	Woodard & Curran	Lab Sample:	B9J0240-BS1/B9J0240-BSD1		
Project:	SJC PFAS Investigation	QC Batch:	B9J0240	Date Extracted:	30-Oct-19
Matrix:	Aqueous	Samp Size:	0.250/0.250 L	Column:	BEH C18

Analyte	CAS Number	LCS (ng/L)	LCS Spike	LCS % Rec	LCS Quals	LCSD (ng/L)	LCSD Spike	LCSD % Rec	RPD	LCSD Quals	%Rec Limits	RPD Limits	LCS Analyzed	LCS Dil	LCSD Analyzed	LCSD Dil
PFBA	375-22-4	42.2	40.0	106		41.1	40.0	103	2.57		73-129	30	06-Nov-19 21:12	1	06-Nov-19 21:23	1
PFPeA	2706-90-3	41.6	40.0	104		43.1	40.0	108	3.75		72-129	30	06-Nov-19 21:12	1	06-Nov-19 21:23	1
PFBS	375-73-5	42.4	40.0	106		40.4	40.0	101	5.04		72-130	30	06-Nov-19 21:12	1	06-Nov-19 21:23	1
4:2 FTS	757124-72-4	36.6	40.0	91.5		36.1	40.0	90.2	1.47		63-143	30	06-Nov-19 21:12	1	06-Nov-19 21:23	1
PFHxA	307-24-4	45.8	40.0	114		45.4	40.0	113	0.867		72-129	30	06-Nov-19 21:12	1	06-Nov-19 21:23	1
PFPeS	2706-91-4	45.4	40.0	113		41.8	40.0	105	8.23		71-127	30	06-Nov-19 21:12	1	06-Nov-19 21:23	1
PFHpA	375-85-9	46.4	40.0	116		43.6	40.0	109	6.22		72-130	30	06-Nov-19 21:12	1	06-Nov-19 21:23	1
PFHxS	355-46-4	39.3	40.0	98.1		38.4	40.0	95.9	2.27		68-131	30	06-Nov-19 21:12	1	06-Nov-19 21:23	1
6:2 FTS	27619-97-2	36.9	40.0	92.2		39.6	40.0	99.0	7.11		64-140	30	06-Nov-19 21:12	1	06-Nov-19 21:23	1
PFOA	335-67-1	46.2	40.0	115		42.4	40.0	106	8.41		71-133	30	06-Nov-19 21:12	1	06-Nov-19 21:23	1
PFHpS	375-92-8	44.6	40.0	111		45.3	40.0	113	1.51		69-134	30	06-Nov-19 21:12	1	06-Nov-19 21:23	1
PFNA	375-95-1	39.6	40.0	98.9		39.9	40.0	99.7	0.766		69-130	30	06-Nov-19 21:12	1	06-Nov-19 21:23	1
PFOSA	754-91-6	48.7	40.0	122		47.2	40.0	118	3.14		67-137	30	06-Nov-19 21:12	1	06-Nov-19 21:23	1
PFOS	1763-23-1	40.4	40.0	101		41.0	40.0	103	1.61		65-140	30	06-Nov-19 21:12	1	06-Nov-19 21:23	1
PFDA	335-76-2	43.9	40.0	110		43.1	40.0	108	1.84		71-129	30	06-Nov-19 21:12	1	06-Nov-19 21:23	1
8:2 FTS	39108-34-4	43.9	40.0	110		41.4	40.0	103	6.00		67-138	30	06-Nov-19 21:12	1	06-Nov-19 21:23	1
MeFOSAA	2355-31-9	33.6	40.0	83.9		33.4	40.0	83.5	0.550		65-136	30	06-Nov-19 21:12	1	06-Nov-19 21:23	1
EtFOSAA	2991-50-6	42.4	40.0	106		40.8	40.0	102	3.91		61-135	30	06-Nov-19 21:12	1	06-Nov-19 21:23	1
PFUnA	2058-94-8	40.5	40.0	101		42.0	40.0	105	3.62		69-133	30	06-Nov-19 21:12	1	06-Nov-19 21:23	1
PFDS	335-77-3	34.2	40.0	85.4		36.7	40.0	91.7	7.10		53-142	30	06-Nov-19 21:12	1	06-Nov-19 21:23	1
PFDoA	307-55-1	43.6	40.0	109		44.0	40.0	110	0.879		72-134	30	06-Nov-19 21:12	1	06-Nov-19 21:23	1
PFTrDA	72629-94-8	37.5	40.0	93.8		37.5	40.0	93.8	0.00135		65-144	30	06-Nov-19 21:12	1	06-Nov-19 21:23	1
PFTeDA	376-06-7	42.4	40.0	106		42.8	40.0	107	0.985		71-132	30	06-Nov-19 21:12	1	06-Nov-19 21:23	1

Labeled Standards	Type	LCS % Rec	LCS Quals	LCSD % Rec	LCSD Quals	Limits	LCS Analyzed	LCS Dil	LCSD Analyzed	LCSD Dil
13C3-PFBA	IS	115		122		50-150	06-Nov-19 21:12	1	06-Nov-19 21:23	1
13C3-PFPeA	IS	117		117		50-150	06-Nov-19 21:12	1	06-Nov-19 21:23	1
13C3-PFBS	IS	123		135		50-150	06-Nov-19 21:12	1	06-Nov-19 21:23	1
13C2-4:2 FTS	IS	116		120		50-150	06-Nov-19 21:12	1	06-Nov-19 21:23	1
13C2-PFHxA	IS	117		121		50-150	06-Nov-19 21:12	1	06-Nov-19 21:23	1
13C4-PFHpA	IS	106		115		50-150	06-Nov-19 21:12	1	06-Nov-19 21:23	1
13C3-PFHxS	IS	120		122		50-150	06-Nov-19 21:12	1	06-Nov-19 21:23	1
13C2-6:2 FTS	IS	119		111		50-150	06-Nov-19 21:12	1	06-Nov-19 21:23	1

Sample ID: LCSD **PFAS Isotope Dilution Method**

Name:	Woodard & Curran	Lab Sample:	B9J0240-BS1/B9J0240-BSD1	Date Extracted:	30-Oct-19
Project:	SJC PFAS Investigation	QC Batch:	B9J0240	Column:	BEH C18
Matrix:	Aqueous	Samp Size:	0.250/0.250 L		

Labeled Standards	Type	LCS % Rec	LCS Quals	LCSD % Rec	LCSD Quals	Limits	LCS Analyzed	LCS Dil	LCSD Analyzed	LCSD Dil
13C5-PFNA	IS	118		121		50-150	06-Nov-19 21:12	1	06-Nov-19 21:23	1
13C8-PFOSA	IS	41.2	H	41.5	H	50-150	06-Nov-19 21:12	1	06-Nov-19 21:23	1
13C2-PFOA	IS	113		122		50-150	06-Nov-19 21:12	1	06-Nov-19 21:23	1
13C8-PFOS	IS	113		114		50-150	06-Nov-19 21:12	1	06-Nov-19 21:23	1
13C2-PFDA	IS	108		117		50-150	06-Nov-19 21:12	1	06-Nov-19 21:23	1
13C2-8:2 FTS	IS	103		115		50-150	06-Nov-19 21:12	1	06-Nov-19 21:23	1
d3-MeFOSAA	IS	104		112		50-150	06-Nov-19 21:12	1	06-Nov-19 21:23	1
13C2-PFUnA	IS	92.0		100		50-150	06-Nov-19 21:12	1	06-Nov-19 21:23	1
d5-EtFOSAA	IS	95.4		107		50-150	06-Nov-19 21:12	1	06-Nov-19 21:23	1
13C2-PFDoA	IS	94.4		98.6		50-150	06-Nov-19 21:12	1	06-Nov-19 21:23	1
13C2-PFTeDA	IS	88.9		91.2		50-150	06-Nov-19 21:12	1	06-Nov-19 21:23	1

Sample ID: FB-3 **PFAS Isotope Dilution Method**

Client Data

Name:	Woodard & Curran	Matrix:	Aqueous
Project:	SJC PFAS Investigation	Date Collected:	22-Oct-19 01:15
Location:	Loc. 4		

Laboratory Data

Lab Sample:	1903773-10	Column:	BEH C18
Date Received:	23-Oct-19 09:21		

Analyte	CAS Number	Conc. (ng/L)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	ND	2.05		B9J0240	30-Oct-19	0.244 L	06-Nov-19 22:58	1
PFPeA	2706-90-3	ND	2.05		B9J0240	30-Oct-19	0.244 L	06-Nov-19 22:58	1
PFBS	375-73-5	ND	2.05		B9J0240	30-Oct-19	0.244 L	06-Nov-19 22:58	1
4:2 FTS	757124-72-4	ND	2.05		B9J0240	30-Oct-19	0.244 L	06-Nov-19 22:58	1
PFHxA	307-24-4	ND	2.05		B9J0240	30-Oct-19	0.244 L	06-Nov-19 22:58	1
PFPeS	2706-91-4	ND	2.05		B9J0240	30-Oct-19	0.244 L	06-Nov-19 22:58	1
PFHpA	375-85-9	ND	2.05		B9J0240	30-Oct-19	0.244 L	06-Nov-19 22:58	1
PFHxS	355-46-4	ND	2.05		B9J0240	30-Oct-19	0.244 L	06-Nov-19 22:58	1
6:2 FTS	27619-97-2	ND	2.05		B9J0240	30-Oct-19	0.244 L	06-Nov-19 22:58	1
PFOA	335-67-1	ND	2.05		B9J0240	30-Oct-19	0.244 L	06-Nov-19 22:58	1
PFHpS	375-92-8	ND	2.05		B9J0240	30-Oct-19	0.244 L	06-Nov-19 22:58	1
PFNA	375-95-1	ND	2.05		B9J0240	30-Oct-19	0.244 L	06-Nov-19 22:58	1
PFOSA	754-91-6	ND	2.05		B9J0240	30-Oct-19	0.244 L	06-Nov-19 22:58	1
PFOS	1763-23-1	ND	2.05		B9J0240	30-Oct-19	0.244 L	06-Nov-19 22:58	1
PFDA	335-76-2	ND	2.05		B9J0240	30-Oct-19	0.244 L	06-Nov-19 22:58	1
8:2 FTS	39108-34-4	ND	2.05		B9J0240	30-Oct-19	0.244 L	06-Nov-19 22:58	1
MeFOSAA	2355-31-9	ND	2.05		B9J0240	30-Oct-19	0.244 L	06-Nov-19 22:58	1
EtFOSAA	2991-50-6	ND	2.05		B9J0240	30-Oct-19	0.244 L	06-Nov-19 22:58	1
PFUnA	2058-94-8	ND	2.05		B9J0240	30-Oct-19	0.244 L	06-Nov-19 22:58	1
PFDS	335-77-3	ND	2.05		B9J0240	30-Oct-19	0.244 L	06-Nov-19 22:58	1
PFDoA	307-55-1	ND	2.05		B9J0240	30-Oct-19	0.244 L	06-Nov-19 22:58	1
PFTrDA	72629-94-8	ND	2.05		B9J0240	30-Oct-19	0.244 L	06-Nov-19 22:58	1
PFTeDA	376-06-7	ND	2.05		B9J0240	30-Oct-19	0.244 L	06-Nov-19 22:58	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	119	50 - 150		B9J0240	30-Oct-19	0.244 L	06-Nov-19 22:58	1
13C3-PFPeA	IS	118	50 - 150		B9J0240	30-Oct-19	0.244 L	06-Nov-19 22:58	1
13C3-PFBS	IS	131	50 - 150		B9J0240	30-Oct-19	0.244 L	06-Nov-19 22:58	1
13C2-4:2 FTS	IS	129	50 - 150		B9J0240	30-Oct-19	0.244 L	06-Nov-19 22:58	1
13C2-PFHxA	IS	123	50 - 150		B9J0240	30-Oct-19	0.244 L	06-Nov-19 22:58	1
13C4-PFHpA	IS	116	50 - 150		B9J0240	30-Oct-19	0.244 L	06-Nov-19 22:58	1
13C3-PFHxS	IS	124	50 - 150		B9J0240	30-Oct-19	0.244 L	06-Nov-19 22:58	1
13C2-6:2 FTS	IS	122	50 - 150		B9J0240	30-Oct-19	0.244 L	06-Nov-19 22:58	1
13C5-PFNA	IS	126	50 - 150		B9J0240	30-Oct-19	0.244 L	06-Nov-19 22:58	1
13C8-PFOSA	IS	57.4	50 - 150		B9J0240	30-Oct-19	0.244 L	06-Nov-19 22:58	1
13C2-PFOA	IS	122	50 - 150		B9J0240	30-Oct-19	0.244 L	06-Nov-19 22:58	1
13C8-PFOS	IS	127	50 - 150		B9J0240	30-Oct-19	0.244 L	06-Nov-19 22:58	1
13C2-PFDA	IS	140	50 - 150		B9J0240	30-Oct-19	0.244 L	06-Nov-19 22:58	1
13C2-8:2 FTS	IS	148	50 - 150		B9J0240	30-Oct-19	0.244 L	06-Nov-19 22:58	1

Sample ID: FB-3 **PFAS Isotope Dilution Method**

Client Data				**Laboratory Data**			
Name:	Woodard & Curran	Matrix:	Aqueous	Lab Sample:	1903773-10	Column:	BEH C18
Project:	SJC PFAS Investigation	Date Collected:	22-Oct-19 01:15	Date Received:	23-Oct-19 09:21		
Location:	Loc. 4						

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
d3-MeFOSAA	IS	136	50 - 150		B9J0240	30-Oct-19	0.244 L	06-Nov-19 22:58	1
13C2-PFUnA	IS	127	50 - 150		B9J0240	30-Oct-19	0.244 L	06-Nov-19 22:58	1
d5-EtFOSAA	IS	124	50 - 150		B9J0240	30-Oct-19	0.244 L	06-Nov-19 22:58	1
13C2-PFDoA	IS	121	50 - 150		B9J0240	30-Oct-19	0.244 L	06-Nov-19 22:58	1
13C2-PFTeDA	IS	97.0	50 - 150		B9J0240	30-Oct-19	0.244 L	06-Nov-19 22:58	1

RL - Reporting limit

Results reported to RL.

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

Sample ID: L4-2-GW **PFAS Isotope Dilution Method**

Client Data

Name: Woodard & Curran
Project: SJC PFAS Investigation
Location: Loc. 4
Matrix: Aqueous
Date Collected: 22-Oct-19 04:30

Laboratory Data

Lab Sample: 1903773-11
Date Received: 23-Oct-19 09:21
Column: BEH C18

Analyte	CAS Number	Conc. (ng/L)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	31.4	2.16		B9J0240	30-Oct-19	0.232 L	06-Nov-19 23:09	1
PFPeA	2706-90-3	39.5	2.16		B9J0240	30-Oct-19	0.232 L	06-Nov-19 23:09	1
PFBS	375-73-5	152	2.16		B9J0240	30-Oct-19	0.232 L	06-Nov-19 23:09	1
4:2 FTS	757124-72-4	ND	2.16		B9J0240	30-Oct-19	0.232 L	06-Nov-19 23:09	1
PFHxA	307-24-4	168	2.16		B9J0240	30-Oct-19	0.232 L	06-Nov-19 23:09	1
PFPeS	2706-91-4	90.6	2.16		B9J0240	30-Oct-19	0.232 L	06-Nov-19 23:09	1
PFHpA	375-85-9	14.3	2.16		B9J0240	30-Oct-19	0.232 L	06-Nov-19 23:09	1
PFHxS	355-46-4	442	2.16		B9J0240	30-Oct-19	0.232 L	06-Nov-19 23:09	1
6:2 FTS	27619-97-2	12.4	2.16		B9J0240	30-Oct-19	0.232 L	06-Nov-19 23:09	1
PFOA	335-67-1	25.6	2.16		B9J0240	30-Oct-19	0.232 L	06-Nov-19 23:09	1
PFHpS	375-92-8	30.9	2.16		B9J0240	30-Oct-19	0.232 L	06-Nov-19 23:09	1
PFNA	375-95-1	21.8	2.16		B9J0240	30-Oct-19	0.232 L	06-Nov-19 23:09	1
PFOSA	754-91-6	ND	2.16		B9J0240	30-Oct-19	0.232 L	06-Nov-19 23:09	1
PFOS	1763-23-1	1740	2.16		B9J0240	30-Oct-19	0.232 L	06-Nov-19 23:09	1
PFDA	335-76-2	ND	2.16		B9J0240	30-Oct-19	0.232 L	06-Nov-19 23:09	1
8:2 FTS	39108-34-4	9.83	2.16		B9J0240	30-Oct-19	0.232 L	06-Nov-19 23:09	1
MeFOSAA	2355-31-9	ND	2.16		B9J0240	30-Oct-19	0.232 L	06-Nov-19 23:09	1
EtFOSAA	2991-50-6	ND	2.16		B9J0240	30-Oct-19	0.232 L	06-Nov-19 23:09	1
PFUnA	2058-94-8	ND	2.16		B9J0240	30-Oct-19	0.232 L	06-Nov-19 23:09	1
PFDS	335-77-3	ND	2.16		B9J0240	30-Oct-19	0.232 L	06-Nov-19 23:09	1
PFDoA	307-55-1	ND	2.16		B9J0240	30-Oct-19	0.232 L	06-Nov-19 23:09	1
PFTrDA	72629-94-8	ND	2.16		B9J0240	30-Oct-19	0.232 L	06-Nov-19 23:09	1
PFTeDA	376-06-7	ND	2.16		B9J0240	30-Oct-19	0.232 L	06-Nov-19 23:09	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	94.9	50 - 150		B9J0240	30-Oct-19	0.232 L	06-Nov-19 23:09	1
13C3-PFPeA	IS	125	50 - 150		B9J0240	30-Oct-19	0.232 L	06-Nov-19 23:09	1
13C3-PFBS	IS	124	50 - 150		B9J0240	30-Oct-19	0.232 L	06-Nov-19 23:09	1
13C2-4:2 FTS	IS	118	50 - 150		B9J0240	30-Oct-19	0.232 L	06-Nov-19 23:09	1
13C2-PFHxA	IS	117	50 - 150		B9J0240	30-Oct-19	0.232 L	06-Nov-19 23:09	1
13C4-PFHpA	IS	120	50 - 150		B9J0240	30-Oct-19	0.232 L	06-Nov-19 23:09	1
13C3-PFHxS	IS	114	50 - 150		B9J0240	30-Oct-19	0.232 L	06-Nov-19 23:09	1
13C2-6:2 FTS	IS	124	50 - 150		B9J0240	30-Oct-19	0.232 L	06-Nov-19 23:09	1
13C5-PFNA	IS	132	50 - 150		B9J0240	30-Oct-19	0.232 L	06-Nov-19 23:09	1
13C8-PFOSA	IS	83.5	50 - 150		B9J0240	30-Oct-19	0.232 L	06-Nov-19 23:09	1
13C2-PFOA	IS	133	50 - 150		B9J0240	30-Oct-19	0.232 L	06-Nov-19 23:09	1
13C8-PFOS	IS	108	50 - 150		B9J0240	30-Oct-19	0.232 L	06-Nov-19 23:09	1
13C2-PFDA	IS	131	50 - 150		B9J0240	30-Oct-19	0.232 L	06-Nov-19 23:09	1
13C2-8:2 FTS	IS	126	50 - 150		B9J0240	30-Oct-19	0.232 L	06-Nov-19 23:09	1

Sample ID: L4-2-GW **PFAS Isotope Dilution Method**

Client Data				**Laboratory Data**			
Name:	Woodard & Curran	Matrix:	Aqueous	Lab Sample:	1903773-11	Column:	BEH C18
Project:	SJC PFAS Investigation	Date Collected:	22-Oct-19 04:30	Date Received:	23-Oct-19 09:21		
Location:	Loc. 4						

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
d3-MeFOSAA	IS	121	50 - 150		B9J0240	30-Oct-19	0.232 L	06-Nov-19 23:09	1
13C2-PFUnA	IS	116	50 - 150		B9J0240	30-Oct-19	0.232 L	06-Nov-19 23:09	1
d5-EtFOSAA	IS	113	50 - 150		B9J0240	30-Oct-19	0.232 L	06-Nov-19 23:09	1
13C2-PFDoA	IS	102	50 - 150		B9J0240	30-Oct-19	0.232 L	06-Nov-19 23:09	1
13C2-PFTeDA	IS	88.2	50 - 150		B9J0240	30-Oct-19	0.232 L	06-Nov-19 23:09	1

RL - Reporting limit

Results reported to RL.

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

Sample ID: L4-20-GW **PFAS Isotope Dilution Method**

Client Data

Name:	Woodard & Curran	Matrix:	Aqueous
Project:	SJC PFAS Investigation	Date Collected:	22-Oct-19 04:30
Location:	Loc. 4		

Laboratory Data

Lab Sample:	1903773-12	Column:	BEH C18
Date Received:	23-Oct-19 09:21		

Analyte	CAS Number	Conc. (ng/L)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	32.1	2.12		B9J0240	30-Oct-19	0.236 L	06-Nov-19 23:19	1
PFPeA	2706-90-3	42.2	2.12		B9J0240	30-Oct-19	0.236 L	06-Nov-19 23:19	1
PFBS	375-73-5	149	2.12		B9J0240	30-Oct-19	0.236 L	06-Nov-19 23:19	1
4:2 FTS	757124-72-4	ND	2.12		B9J0240	30-Oct-19	0.236 L	06-Nov-19 23:19	1
PFHxA	307-24-4	170	2.12		B9J0240	30-Oct-19	0.236 L	06-Nov-19 23:19	1
PFPeS	2706-91-4	87.4	2.12		B9J0240	30-Oct-19	0.236 L	06-Nov-19 23:19	1
PFHpA	375-85-9	13.9	2.12		B9J0240	30-Oct-19	0.236 L	06-Nov-19 23:19	1
PFHxS	355-46-4	448	2.12		B9J0240	30-Oct-19	0.236 L	06-Nov-19 23:19	1
6:2 FTS	27619-97-2	11.7	2.12		B9J0240	30-Oct-19	0.236 L	06-Nov-19 23:19	1
PFOA	335-67-1	26.0	2.12		B9J0240	30-Oct-19	0.236 L	06-Nov-19 23:19	1
PFHpS	375-92-8	36.9	2.12		B9J0240	30-Oct-19	0.236 L	06-Nov-19 23:19	1
PFNA	375-95-1	23.2	2.12		B9J0240	30-Oct-19	0.236 L	06-Nov-19 23:19	1
PFOSA	754-91-6	ND	2.12		B9J0240	30-Oct-19	0.236 L	06-Nov-19 23:19	1
PFOS	1763-23-1	2190	10.6	D	B9J0240	30-Oct-19	0.236 L	07-Nov-19 19:03	5
PFDA	335-76-2	ND	2.12		B9J0240	30-Oct-19	0.236 L	06-Nov-19 23:19	1
8:2 FTS	39108-34-4	12.6	2.12		B9J0240	30-Oct-19	0.236 L	06-Nov-19 23:19	1
MeFOSAA	2355-31-9	ND	2.12		B9J0240	30-Oct-19	0.236 L	06-Nov-19 23:19	1
EtFOSAA	2991-50-6	ND	2.12		B9J0240	30-Oct-19	0.236 L	06-Nov-19 23:19	1
PFUnA	2058-94-8	ND	2.12		B9J0240	30-Oct-19	0.236 L	06-Nov-19 23:19	1
PFDS	335-77-3	ND	2.12		B9J0240	30-Oct-19	0.236 L	06-Nov-19 23:19	1
PFDoA	307-55-1	ND	2.12		B9J0240	30-Oct-19	0.236 L	06-Nov-19 23:19	1
PFTrDA	72629-94-8	ND	2.12		B9J0240	30-Oct-19	0.236 L	06-Nov-19 23:19	1
PFTeDA	376-06-7	ND	2.12		B9J0240	30-Oct-19	0.236 L	06-Nov-19 23:19	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	88.4	50 - 150		B9J0240	30-Oct-19	0.236 L	06-Nov-19 23:19	1
13C3-PFPeA	IS	120	50 - 150		B9J0240	30-Oct-19	0.236 L	06-Nov-19 23:19	1
13C3-PFBS	IS	133	50 - 150		B9J0240	30-Oct-19	0.236 L	06-Nov-19 23:19	1
13C2-4:2 FTS	IS	132	50 - 150		B9J0240	30-Oct-19	0.236 L	06-Nov-19 23:19	1
13C2-PFHxA	IS	111	50 - 150		B9J0240	30-Oct-19	0.236 L	06-Nov-19 23:19	1
13C4-PFHpA	IS	123	50 - 150		B9J0240	30-Oct-19	0.236 L	06-Nov-19 23:19	1
13C3-PFHxS	IS	122	50 - 150		B9J0240	30-Oct-19	0.236 L	06-Nov-19 23:19	1
13C2-6:2 FTS	IS	132	50 - 150		B9J0240	30-Oct-19	0.236 L	06-Nov-19 23:19	1
13C5-PFNA	IS	127	50 - 150		B9J0240	30-Oct-19	0.236 L	06-Nov-19 23:19	1
13C8-PFOSA	IS	58.1	50 - 150		B9J0240	30-Oct-19	0.236 L	06-Nov-19 23:19	1
13C2-PFOA	IS	146	50 - 150		B9J0240	30-Oct-19	0.236 L	06-Nov-19 23:19	1
13C8-PFOS	IS	229	50 - 150	D, H	B9J0240	30-Oct-19	0.236 L	07-Nov-19 19:03	5
13C2-PFDA	IS	119	50 - 150		B9J0240	30-Oct-19	0.236 L	06-Nov-19 23:19	1
13C2-8:2 FTS	IS	117	50 - 150		B9J0240	30-Oct-19	0.236 L	06-Nov-19 23:19	1

Sample ID: L4-20-GW **PFAS Isotope Dilution Method**

Client Data			
Name:	Woodard & Curran	Matrix:	Aqueous
Project:	SJC PFAS Investigation	Date Collected:	22-Oct-19 04:30
Location:	Loc. 4		

Laboratory Data			
Lab Sample:	1903773-12	Column:	BEH C18
Date Received:	23-Oct-19 09:21		

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
d3-MeFOSAA	IS	132	50 - 150		B9J0240	30-Oct-19	0.236 L	06-Nov-19 23:19	1
13C2-PFUnA	IS	110	50 - 150		B9J0240	30-Oct-19	0.236 L	06-Nov-19 23:19	1
d5-EtFOSAA	IS	121	50 - 150		B9J0240	30-Oct-19	0.236 L	06-Nov-19 23:19	1
13C2-PFDoA	IS	104	50 - 150		B9J0240	30-Oct-19	0.236 L	06-Nov-19 23:19	1
13C2-PFTeDA	IS	91.5	50 - 150		B9J0240	30-Oct-19	0.236 L	06-Nov-19 23:19	1

RL - Reporting limit

Results reported to RL.

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

Sample ID: EB-3 **PFAS Isotope Dilution Method**

Client Data

Name:	Woodard & Curran	Matrix:	Aqueous
Project:	SJC PFAS Investigation	Date Collected:	22-Oct-19 04:00
Location:	Loc. 4		

Laboratory Data

Lab Sample:	1903773-13	Column:	BEH C18
Date Received:	23-Oct-19 09:21		

Analyte	CAS Number	Conc. (ng/L)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	ND	2.11		B9J0240	30-Oct-19	0.237 L	06-Nov-19 23:30	1
PFPeA	2706-90-3	ND	2.11		B9J0240	30-Oct-19	0.237 L	06-Nov-19 23:30	1
PFBS	375-73-5	ND	2.11		B9J0240	30-Oct-19	0.237 L	06-Nov-19 23:30	1
4:2 FTS	757124-72-4	ND	2.11		B9J0240	30-Oct-19	0.237 L	06-Nov-19 23:30	1
PFHxA	307-24-4	ND	2.11		B9J0240	30-Oct-19	0.237 L	06-Nov-19 23:30	1
PFPeS	2706-91-4	ND	2.11		B9J0240	30-Oct-19	0.237 L	06-Nov-19 23:30	1
PFHpA	375-85-9	ND	2.11		B9J0240	30-Oct-19	0.237 L	06-Nov-19 23:30	1
PFHxS	355-46-4	ND	2.11		B9J0240	30-Oct-19	0.237 L	06-Nov-19 23:30	1
6:2 FTS	27619-97-2	ND	2.11		B9J0240	30-Oct-19	0.237 L	06-Nov-19 23:30	1
PFOA	335-67-1	ND	2.11		B9J0240	30-Oct-19	0.237 L	06-Nov-19 23:30	1
PFHpS	375-92-8	ND	2.11		B9J0240	30-Oct-19	0.237 L	06-Nov-19 23:30	1
PFNA	375-95-1	ND	2.11		B9J0240	30-Oct-19	0.237 L	06-Nov-19 23:30	1
PFOSA	754-91-6	ND	2.11		B9J0240	30-Oct-19	0.237 L	06-Nov-19 23:30	1
PFOS	1763-23-1	ND	2.11		B9J0240	30-Oct-19	0.237 L	06-Nov-19 23:30	1
PFDA	335-76-2	ND	2.11		B9J0240	30-Oct-19	0.237 L	06-Nov-19 23:30	1
8:2 FTS	39108-34-4	ND	2.11		B9J0240	30-Oct-19	0.237 L	06-Nov-19 23:30	1
MeFOSAA	2355-31-9	ND	2.11		B9J0240	30-Oct-19	0.237 L	06-Nov-19 23:30	1
EtFOSAA	2991-50-6	ND	2.11		B9J0240	30-Oct-19	0.237 L	06-Nov-19 23:30	1
PFUnA	2058-94-8	ND	2.11		B9J0240	30-Oct-19	0.237 L	06-Nov-19 23:30	1
PFDS	335-77-3	ND	2.11		B9J0240	30-Oct-19	0.237 L	06-Nov-19 23:30	1
PFDoA	307-55-1	ND	2.11		B9J0240	30-Oct-19	0.237 L	06-Nov-19 23:30	1
PFTrDA	72629-94-8	ND	2.11		B9J0240	30-Oct-19	0.237 L	06-Nov-19 23:30	1
PFTeDA	376-06-7	ND	2.11		B9J0240	30-Oct-19	0.237 L	06-Nov-19 23:30	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	116	50 - 150		B9J0240	30-Oct-19	0.237 L	06-Nov-19 23:30	1
13C3-PFPeA	IS	115	50 - 150		B9J0240	30-Oct-19	0.237 L	06-Nov-19 23:30	1
13C3-PFBS	IS	122	50 - 150		B9J0240	30-Oct-19	0.237 L	06-Nov-19 23:30	1
13C2-4:2 FTS	IS	124	50 - 150		B9J0240	30-Oct-19	0.237 L	06-Nov-19 23:30	1
13C2-PFHxA	IS	116	50 - 150		B9J0240	30-Oct-19	0.237 L	06-Nov-19 23:30	1
13C4-PFHpA	IS	115	50 - 150		B9J0240	30-Oct-19	0.237 L	06-Nov-19 23:30	1
13C3-PFHxS	IS	119	50 - 150		B9J0240	30-Oct-19	0.237 L	06-Nov-19 23:30	1
13C2-6:2 FTS	IS	109	50 - 150		B9J0240	30-Oct-19	0.237 L	06-Nov-19 23:30	1
13C5-PFNA	IS	130	50 - 150		B9J0240	30-Oct-19	0.237 L	06-Nov-19 23:30	1
13C8-PFOSA	IS	55.2	50 - 150		B9J0240	30-Oct-19	0.237 L	06-Nov-19 23:30	1
13C2-PFOA	IS	129	50 - 150		B9J0240	30-Oct-19	0.237 L	06-Nov-19 23:30	1
13C8-PFOS	IS	131	50 - 150		B9J0240	30-Oct-19	0.237 L	06-Nov-19 23:30	1
13C2-PFDA	IS	120	50 - 150		B9J0240	30-Oct-19	0.237 L	06-Nov-19 23:30	1
13C2-8:2 FTS	IS	127	50 - 150		B9J0240	30-Oct-19	0.237 L	06-Nov-19 23:30	1

Sample ID: EB-3 **PFAS Isotope Dilution Method**

Client Data				**Laboratory Data**			
Name:	Woodard & Curran	Matrix:	Aqueous	Lab Sample:	1903773-13	Column:	BEH C18
Project:	SJC PFAS Investigation	Date Collected:	22-Oct-19 04:00	Date Received:	23-Oct-19 09:21		
Location:	Loc. 4						

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
d3-MeFOSAA	IS	118	50 - 150		B9J0240	30-Oct-19	0.237 L	06-Nov-19 23:30	1
13C2-PFUnA	IS	115	50 - 150		B9J0240	30-Oct-19	0.237 L	06-Nov-19 23:30	1
d5-EtFOSAA	IS	113	50 - 150		B9J0240	30-Oct-19	0.237 L	06-Nov-19 23:30	1
13C2-PFDoA	IS	113	50 - 150		B9J0240	30-Oct-19	0.237 L	06-Nov-19 23:30	1
13C2-PFTeDA	IS	94.1	50 - 150		B9J0240	30-Oct-19	0.237 L	06-Nov-19 23:30	1

RL - Reporting limit

Results reported to RL.

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

Sample ID: Trip Blank **PFAS Isotope Dilution Method**

Client Data				**Laboratory Data**			
Name:	Woodard & Curran	Matrix:	Aqueous	Lab Sample:	1903773-14	Column:	BEH C18
Project:	SJC PFAS Investigation	Date Collected:	18-Oct-19 00:00	Date Received:	23-Oct-19 09:21		

Analyte	CAS Number	Conc. (ng/L)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	ND	2.09		B9J0240	30-Oct-19	0.239 L	06-Nov-19 23:41	1
PFPeA	2706-90-3	ND	2.09		B9J0240	30-Oct-19	0.239 L	06-Nov-19 23:41	1
PFBS	375-73-5	ND	2.09		B9J0240	30-Oct-19	0.239 L	06-Nov-19 23:41	1
4:2 FTS	757124-72-4	ND	2.09		B9J0240	30-Oct-19	0.239 L	06-Nov-19 23:41	1
PFHxA	307-24-4	ND	2.09		B9J0240	30-Oct-19	0.239 L	06-Nov-19 23:41	1
PFPeS	2706-91-4	ND	2.09		B9J0240	30-Oct-19	0.239 L	06-Nov-19 23:41	1
PFHpA	375-85-9	ND	2.09		B9J0240	30-Oct-19	0.239 L	06-Nov-19 23:41	1
PFHxS	355-46-4	ND	2.09		B9J0240	30-Oct-19	0.239 L	06-Nov-19 23:41	1
6:2 FTS	27619-97-2	ND	2.09		B9J0240	30-Oct-19	0.239 L	06-Nov-19 23:41	1
PFOA	335-67-1	ND	2.09		B9J0240	30-Oct-19	0.239 L	06-Nov-19 23:41	1
PFHpS	375-92-8	ND	2.09		B9J0240	30-Oct-19	0.239 L	06-Nov-19 23:41	1
PFNA	375-95-1	ND	2.09		B9J0240	30-Oct-19	0.239 L	06-Nov-19 23:41	1
PFOSA	754-91-6	ND	2.09		B9J0240	30-Oct-19	0.239 L	06-Nov-19 23:41	1
PFOS	1763-23-1	ND	2.09		B9J0240	30-Oct-19	0.239 L	06-Nov-19 23:41	1
PFDA	335-76-2	ND	2.09		B9J0240	30-Oct-19	0.239 L	06-Nov-19 23:41	1
8:2 FTS	39108-34-4	ND	2.09		B9J0240	30-Oct-19	0.239 L	06-Nov-19 23:41	1
MeFOSAA	2355-31-9	ND	2.09		B9J0240	30-Oct-19	0.239 L	06-Nov-19 23:41	1
EtFOSAA	2991-50-6	ND	2.09		B9J0240	30-Oct-19	0.239 L	06-Nov-19 23:41	1
PFUnA	2058-94-8	ND	2.09		B9J0240	30-Oct-19	0.239 L	06-Nov-19 23:41	1
PFDS	335-77-3	ND	2.09		B9J0240	30-Oct-19	0.239 L	06-Nov-19 23:41	1
PFDoA	307-55-1	ND	2.09		B9J0240	30-Oct-19	0.239 L	06-Nov-19 23:41	1
PFTrDA	72629-94-8	ND	2.09		B9J0240	30-Oct-19	0.239 L	06-Nov-19 23:41	1
PFTeDA	376-06-7	ND	2.09		B9J0240	30-Oct-19	0.239 L	06-Nov-19 23:41	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	112	50 - 150		B9J0240	30-Oct-19	0.239 L	06-Nov-19 23:41	1
13C3-PFPeA	IS	115	50 - 150		B9J0240	30-Oct-19	0.239 L	06-Nov-19 23:41	1
13C3-PFBS	IS	132	50 - 150		B9J0240	30-Oct-19	0.239 L	06-Nov-19 23:41	1
13C2-4:2 FTS	IS	125	50 - 150		B9J0240	30-Oct-19	0.239 L	06-Nov-19 23:41	1
13C2-PFHxA	IS	113	50 - 150		B9J0240	30-Oct-19	0.239 L	06-Nov-19 23:41	1
13C4-PFHpA	IS	108	50 - 150		B9J0240	30-Oct-19	0.239 L	06-Nov-19 23:41	1
13C3-PFHxS	IS	121	50 - 150		B9J0240	30-Oct-19	0.239 L	06-Nov-19 23:41	1
13C2-6:2 FTS	IS	121	50 - 150		B9J0240	30-Oct-19	0.239 L	06-Nov-19 23:41	1
13C5-PFNA	IS	124	50 - 150		B9J0240	30-Oct-19	0.239 L	06-Nov-19 23:41	1
13C8-PFOSA	IS	50.5	50 - 150		B9J0240	30-Oct-19	0.239 L	06-Nov-19 23:41	1
13C2-PFOA	IS	128	50 - 150		B9J0240	30-Oct-19	0.239 L	06-Nov-19 23:41	1
13C8-PFOS	IS	119	50 - 150		B9J0240	30-Oct-19	0.239 L	06-Nov-19 23:41	1
13C2-PFDA	IS	113	50 - 150		B9J0240	30-Oct-19	0.239 L	06-Nov-19 23:41	1
13C2-8:2 FTS	IS	114	50 - 150		B9J0240	30-Oct-19	0.239 L	06-Nov-19 23:41	1

Sample ID: Trip Blank

PFAS Isotope Dilution Method

Client Data				**Laboratory Data**			
Name:	Woodard & Curran	Matrix:	Aqueous	Lab Sample:	1903773-14	Column:	BEH C18
Project:	SJC PFAS Investigation	Date Collected:	18-Oct-19 00:00	Date Received:	23-Oct-19 09:21		

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
d3-MeFOSAA	IS	116	50 - 150		B9J0240	30-Oct-19	0.239 L	06-Nov-19 23:41	1
13C2-PFUnA	IS	105	50 - 150		B9J0240	30-Oct-19	0.239 L	06-Nov-19 23:41	1
d5-EtFOSAA	IS	113	50 - 150		B9J0240	30-Oct-19	0.239 L	06-Nov-19 23:41	1
13C2-PFDoA	IS	101	50 - 150		B9J0240	30-Oct-19	0.239 L	06-Nov-19 23:41	1
13C2-PFTeDA	IS	88.2	50 - 150		B9J0240	30-Oct-19	0.239 L	06-Nov-19 23:41	1

RL - Reporting limit

Results reported to RL.

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

DATA QUALIFIERS & ABBREVIATIONS

B	This compound was also detected in the method blank
Conc.	Concentration
CRS	Cleanup Recovery Standard
D	Dilution
DL	Detection limit
E	The associated compound concentration exceeded the calibration range of the instrument
H	Recovery and/or RPD was outside laboratory acceptance limits
I	Chemical Interference
IS	Internal Standard
J	The amount detected is below the Reporting Limit/LOQ
LOD	Limit of Detection
LOQ	Limit of Quantitation
M	Estimated Maximum Possible Concentration (CA Region 2 projects only)
NA	Not applicable
ND	Not Detected
OPR	Ongoing Precision and Recovery sample
P	The reported concentration may include contribution from chlorinated diphenyl ether(s).
Q	The ion transition ratio is outside of the acceptance criteria.
RL	Reporting Limit
TEQ	Toxic Equivalency
U	Not Detected (specific projects only)
*	See Cover Letter

Unless otherwise noted, solid sample results are reported in dry weight. Tissue samples are reported in wet weight.

Vista Analytical Laboratory Certifications

Accrediting Authority	Certificate Number
Alaska Department of Environmental Conservation	17-013
Arkansas Department of Environmental Quality	19-013-0
California Department of Health – ELAP	2892
DoD ELAP - A2LA Accredited - ISO/IEC 17025:2005	3091.01
Florida Department of Health	E87777-23
Hawaii Department of Health	N/A
Louisiana Department of Environmental Quality	01977
Maine Department of Health	2018017
Massachusetts Department of Environmental Protection	N/A
Michigan Department of Environmental Quality	9932
Minnesota Department of Health	1521520
New Hampshire Environmental Accreditation Program	207718-B
New Jersey Department of Environmental Protection	190001
New York Department of Health	11411
Oregon Laboratory Accreditation Program	4042-010
Pennsylvania Department of Environmental Protection	016
Texas Commission on Environmental Quality	T104704189-19-10
Vermont Department of Health	VT-4042
Virginia Department of General Services	10272
Washington Department of Ecology	C584-19
Wisconsin Department of Natural Resources	998036160

Current certificates and lists of licensed parameters are located in the Quality Assurance office and are available upon request.

NELAP Accredited Test Methods

MATRIX: Air	
Description of Test	**Method**
Determination of Polychlorinated p-Dioxins & Polychlorinated Dibenzofurans	EPA 23
Determination of Polychlorinated p-Dioxins & Polychlorinated Dibenzofurans	EPA TO-9A

MATRIX: Biological Tissue	
Description of Test	**Method**
Tetra- through Octa-Chlorinated Dioxins and Furans by Isotope Dilution GC/HRMS	EPA 1613B
Brominated Diphenyl Ethers by HRGC/HRMS	EPA 1614A
Chlorinated Biphenyl Congeners in Water, Soil, Sediment, and Tissue by GC/HRMS	EPA 1668A/C
Pesticides in Water, Soil, Sediment, Biosolids, and Tissue by HRGC/HRMS	EPA 1699
Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/MS/MS	EPA 537
Polychlorinated Dibenzo-p-Dioxins and Polychlorinated Dibenzofurans by GC/HRMS	EPA 8280A/B
Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by GC/HRMS	EPA 8290/8290A

MATRIX: Drinking Water	
Description of Test	**Method**
2,3,7,8-Tetrachlorodibenzo- p-dioxin (2,3,7,8-TCDD) GC/HRMS	EPA 1613/1613B
1,4-Dioxane (1,4-Diethyleneoxide) analysis by GC/HRMS	EPA 522
Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/MS/MS	EPA 537
Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/MS/MS	ISO 25101 2009

MATRIX: Non-Potable Water	
Description of Test	**Method**
Tetra- through Octa-Chlorinated Dioxins and Furans by Isotope Dilution GC/HRMS	EPA 1613B
Brominated Diphenyl Ethers by HRGC/HRMS	EPA 1614A
Chlorinated Biphenyl Congeners in Water, Soil, Sediment, and Tissue by GC/HRMS	EPA 1668A/C
Pesticides in Water, Soil, Sediment, Biosolids, and Tissue by HRGC/HRMS	EPA 1699
Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/MS/MS	EPA 537
Dioxin by GC/HRMS	EPA 613
Polychlorinated Dibenzo-p-Dioxins and Polychlorinated Dibenzofurans by GC/HRMS	EPA 8280A/B
Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by GC/HRMS	EPA 8290/8290A

MATRIX: Solids	
Description of Test	**Method**
Tetra-Octa Chlorinated Dioxins and Furans by Isotope Dilution GC/HRMS	EPA 1613
Tetra- through Octa-Chlorinated Dioxins and Furans by Isotope Dilution GC/HRMS	EPA 1613B
Brominated Diphenyl Ethers by HRGC/HRMS	EPA 1614A
Chlorinated Biphenyl Congeners in Water, Soil, Sediment, and Tissue by GC/HRMS	EPA 1668A/C
Pesticides in Water, Soil, Sediment, Biosolids, and Tissue by HRGC/HRMS	EPA 1699
Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/MS/MS	EPA 537
Polychlorinated Dibenzo-p-Dioxins and Polychlorinated Dibenzofurans by GC/HRMS	EPA 8280A/B
Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by GC/HRMS	EPA 8290/8290A

Rev. No.: 0
Rev. Date: 06/27/2017

ID: LR - 537COC

Vista
Analytical Laboratory

CHAIN OF CUSTODY

For Laboratory Use Only
Work Order #: 1903773 Temp: 2.4 °C
Storage ID: WR-2 / R-13 Storage Secured: Yes ☒ No ☐

Project ID: SJC PFAS Investigation PO#: 0232401.01 Sampler: Kevin Almestad (name)

TAT (check one): Standard: ☒ 21 days
Rush (surcharge may apply) ☐ 14 days ☐ 7 days Specify: ______

Invoice to: Name	Company	Address	City	State	Ph#	Fax#
Jim Strandberg	Woodard & Curran	2175 N California Blvd, Ste 315	Walnut Creek	CA	(925)-627-4122	

Relinquished by (printed name and signature)	Date	Time	Received by (printed name and signature)	Date	Time
Kevin Almestad /	10/22/19	17:15	Fedex /	10/22/19	17:15
FedEx	10/23/19	0921	Ashley Mason	10/23/19	0921

SHIP TO: Vista Analytical Laboratory
1104 Windfield Way
El Dorado Hills, CA 95762
(916) 673-1520 * Fax (916) 673-0106

ATTN: Jade White-Dobbs / Jennifer Miller

Method of Shipment: Fedex

Tracking No.: ______

Add Analysis(es) Requested

				Container(s)			Mod. EPA Method 537					EPA Method 537(DW only)			
Sample ID	Date	Time	Location/Sample Description	Quantity	Type	Matrix KA	PFOA/ PFOS	UCMR3 PFAS List:6	537 List: 14	Full List of 26	Other: Please List Below CA Airport PFAS L34 (23)	PFOA/ PFOS	UCMR3 PFAS List:6	PFAS List: 14	Comments
L4-2-1	10/22/19	0223	Loc. 4	1	SO	PJ					X				
L4-2-5	↓	0225	Loc. 4	1	↓	↓					↓				
L4-2-10	↓	0228	Loc. 4	1	↓	↓					↓				
L4-1-1	↓	0240	↓	1	↓	↓					↓				
L4-1-5	↓	0242	↓	1	↓	↓					↓				
L4-1-10	↓	0244	↓	1	↓	↓					↓				
L4-3-1	↓	0320	↓	1	↓	↓					↓				
L4-3-5	↓	0322	↓	1	↓	↓					↓				
L4-3-10	↓	0324	↓	1	↓	↓					↓				
FB-3	↓	0115	↓	2	AQ	P					↓				

Special Instructions/Comments: Geotracker EDF

SEND DOCUMENTATION AND RESULTS TO:
Name: Jim Strandberg
Company: Woodard & Curran, Inc.
Address: 2175 N California Blvd, Ste 315
City: Walnut Creek State: CA Zip: 94597
Phone: (925)-627-4122 Fax: (925)-627-4101
Email: JStrandberg@woodardcurran.com

Container Types: P= HDPE, PJ= HDPE Jar
O = Other: ______

Bottle Preservation Type: T = Thiosulfate,
TZ = Trizma: ______

Matrix Types: AQ = Aqueous, DW = Drinking Water, EF = Effluent, PP = Pulp/Paper, SD = Sediment, SL = Sludge, SO = Soil, WW = Wastewater, B = Blood/Serum, O = Other: ______

Page: 1 of 2

Rev. No.: 0
Rev. Date: 06/27/2017

ID: LR - 537COC

Vista
Analytical Laboratory

CHAIN OF CUSTODY

For Laboratory Use Only
Work Order #: 1903773 Temp: 2.4 °C
Storage ID: R-13/WR-2 Storage Secured: Yes ☒ No ☐

Project ID: SJC PFAS Investigation PO#: 0232401.01 Sampler: Kevin Alwestad (name)

TAT (check one): Standard: ☒ 21 days
Rush (surcharge may apply) ☐ 14 days ☐ 7 days Specify:

Invoice to: Name	Company	Address	City	State	Ph#	Fax#
Jim Strandberg	Woodard & Curran	2175 N California Blvd, Ste 315	Walnut Creek	CA	(925)-627-4122	

Relinquished by (printed name and signature)	Date	Time	Received by (printed name and signature)	Date	Time
Kevin Alwestad/	10/22/19	17:15	Fedex	10/22/19	17:15
Fedex	10/23/19	0921	Ashley Mason	10/23/19	0921

SHIP TO: Vista Analytical Laboratory
1104 Windfield Way
El Dorado Hills, CA 95762
(916) 673-1520 * Fax (916) 673-0106

ATTN: Jade White-Dobbs/
Jennifer Miller

Method of Shipment: Fedex

Tracking No.:

Add Analysis(es) Requested

				Container(s)			Mod. EPA Method 537					EPA Method 537(DW only)			
Sample ID	Date	Time	Location/Sample Description	Quantity	Type	Matrix	PFOA/ PFOS	UCMR3 PFAS List:6	537 List: 14	Full List of 26	Other: Please List Below CA Airport PFAS List (28)	PFOA/ PFOS	UCMR3 PFAS List:6	PFAS List: 14	Comments
L4-2-GW	10/22/19	0430	Loc. 4	2	P	AQ									
L4-20-GW	↓	0430	↓	2	P	AQ									
EB-3	↓	0400	↓	2	P	AQ									

Special Instructions/Comments: Geotracker EDF

SEND DOCUMENTATION AND RESULTS TO:

Name: Jim Strandberg
Company: Woodard & Curran, Inc.
Address: 2175 N California Blvd, Ste 315
City: Walnut Creek State: CA Zip: 94597
Phone: (925)-627-4122 Fax: (925)-627-4101
Email: Jstrandberg@woodardcurran.com

Container Types: P= HDPE, PJ= HDPE Jar
O = Other:

Bottle Preservation Type: T = Thiosulfate,
TZ = Trizma:

Matrix Types: AQ = Aqueous, DW = Drinking Water, EF = Effluent, PP = Pulp/Paper, SD = Sediment, SL = Sludge, SO = Soil, WW = Wastewater, B = Blood/Serum, O = Other:

Page: 2 of 2

Vista
Analytical Laboratory

Sample Log-In Checklist

Page # 1 of 1

Vista Work Order #: 1903773

TAT Std

Samples Arrival:	**Date/Time** 10/23/19 0921		**Initials:** ajm		**Location:** WR-2 **Shelf/Rack:** N/A	
Delivered By:	[✓ FedEx]	UPS	On Trac	GSO	DHL	Hand Delivered	Other
Preservation:	[✓ Ice]	Blue Ice		Dry Ice		None
Temp °C: 2.4 (uncorrected) **Temp °C:** 2.4 (corrected)		**Probe used:** Y / [✓ N]		**Thermometer ID:** IR-4		

	YES	NO	NA
Shipping Container(s) Intact?	✓		
Shipping Custody Seals Intact?	✓		
Airbill ✓ Trk # 7804 4325 9556	✓		
Shipping Documentation Present?	✓		
Shipping Container [✓ Vista] Client [✓ Retain] Return Dispose			
Chain of Custody / Sample Documentation Present?	✓		
Chain of Custody / Sample Documentation Complete?	✓		
Holding Time Acceptable?	✓		

Logged In:	**Date/Time** 10/23/19 1041	**Initials:** ajm	**Location:** R-13 / WR-2 ↓ ↓ **Shelf/Rack:** A-4 / E-6

	YES	NO	NA
COC Anomaly/Sample Acceptance Form completed?	✓		

Comments:

CoC/Label Reconciliation Report WO# 1903773

LabNumber	CoC Sample ID	Label ID matches COCID	Label ID doesn't match COCID	SampleAlias	Sampled	Label Sampled matches	Sampled doesn't match	Container	Container Correct	BaseMatrix	Sample Comments
1903773-01 A	L4-2-1	☑		Loc. 4	22-Oct-19 02:23	☑		HDPE Jar, 6 oz	☑	Solid	
1903773-02 A	L4-2-5	☑		Loc. 4	22-Oct-19 02:25	☑		HDPE Jar, 6 oz	☑	Solid	
1903773-03 A	L4-2-10	☑		Loc. 4	22-Oct-19 02:28	☑		HDPE Jar, 6 oz	☑	Solid	
1903773-04 A	L4-1-1	☑		Loc. 4	22-Oct-19 02:40	☑		HDPE Jar, 6 oz	☑	Solid	
1903773-05 A	L4-1-5	☑		Loc. 4	22-Oct-19 02:42	☑		HDPE Jar, 6 oz	☑	Solid	
1903773-06 A	L4-1-10	☑		Loc. 4	22-Oct-19 02:44	☑		HDPE Jar, 6 oz	☑	Solid	
1903773-07 A	L4-3-1	☑		Loc. 4	22-Oct-19 03:20	☑		HDPE Jar, 6 oz	☑	Solid	
1903773-08 A	L4-3-5	☑		Loc. 4	22-Oct-19 03:22	☑		HDPE Jar, 6 oz	☑	Solid	
1903773-09 A	L4-3-10	☑		Loc. 4	22-Oct-19 03:24	☑		HDPE Jar, 6 oz	☑	Solid	
1903773-10 A	FB-3	☑		Loc. 4	22-Oct-19 01:15	☑		HDPE Bottle, 250 mL	☑	Aqueous	
1903773-10 B	FB-3	☑		Loc. 4	22-Oct-19 01:15	☑		HDPE Bottle, 250 mL	☑	Aqueous	
1903773-11 A	L4-2-6W	☑		Loc. 4	22-Oct-19 04:30	☑		HDPE Bottle, 250 mL	☑	Aqueous	
1903773-11 B	L4-2-6W	☑		Loc. 4	22-Oct-19 04:30	☑		HDPE Bottle, 250 mL	☑	Aqueous	
1903773-12 A	L4-20-6W	☑		Loc. 4	22-Oct-19 04:30	☑		HDPE Bottle, 250 mL	☑	Aqueous	
1903773-12 B	L4-20-6W	☑		Loc. 4	22-Oct-19 04:30	☑		HDPE Bottle, 250 mL	☑	Aqueous	
1903773-13 A	EB-3	☑		Loc. 4	22-Oct-19 04:00	☑		HDPE Bottle, 250 mL	☑	Aqueous	
1903773-13 B	EB-3	☑		Loc. 4	22-Oct-19 04:00	☑		HDPE Bottle, 250 mL	☑	Aqueous	

	Yes	No	NA
Sample Container Intact?	✓		
Sample Custody Seals Intact?			✓
Adequate Sample Volume?	✓		
Preservation Documented: Na2S2O3 Trizma [✓ None] Other			✓
If Chlorinated or Drinking Water Samples, Acceptable Preservation?			✓

Comments:

Trip Blanks bottles X2
Sampled by BLB
Date: 10/18/19
Location: VUPW

Verifed by/Date: SC 10/23/19

Chain of Custody Anomaly/Sample Acceptance Form

Vista
Analytical Laboratory

Client: Woodard & Curran
Contact: Jim Strandberg
Email: JStrandberg@woodardcurran.com
Phone: (925) 627-4122

Workorder Number: 1903773
Date Received: 23-Oct-19 09:21
Documented by/date: A. Mason 23-Oct-19

Please review the following information and complete the Client Authorization section. To comply with NELAC regulations, we must receive authorization before proceeding with sample analysis.

☐ Sample Collection Date and/or Time not provided

☐ Temperature outside Method Requirement (WI-PHT)

Temperature ________°C Ice Present? Yes No Melted

☐ Sample ID Not Reconcilable

☐ Sample Holding Time Missed

☐ Insufficient Sample Size

☐ All Sample Container(s) Broken

☐ Drinking Water Incorrect Container Type

☐ Chain-of-Custody not received, illegible or destroyed

☒ Other: See comments.

Comments/Samples Affected:
Received two 250mL HDPE containers not listed on CoC:
Sample ID: Trip Blank
Sample Date: 10/18/19
Location: VUPW

Client Authorization

Proceed with Analysis: [✓ YES] NO Signature and Date 10/28/19

Client Comments/Instructions Per Kevin Almestead via phone on 10/28/19, okay to proceed.

November 25, 2019

Vista Work Order No. 1903822

Mr. Jim Strandberg
Woodard & Curran
2175 North California Boulevard, Suite 315
Walnut Creek, CA 94596

Dear Mr. Strandberg,

Enclosed are the results for the sample set received at Vista Analytical Laboratory on October 25, 2019 under your Project Name 'SJC PFAS Investigation'.

Vista Analytical Laboratory is committed to serving you effectively. If you require additional information, please contact me at 916-673-1520 or by email at mmaier@vista-analytical.com.

Thank you for choosing Vista as part of your analytical support team.

Sincerely,

Martha Maier
Laboratory Director

Vista Work Order No. 1903822
Case Narrative

Sample Condition on Receipt:

Nine sediment samples and one aqueous sample were received in good condition and within the method temperature requirements. The samples were received and stored securely in accordance with Vista standard operating procedures and EPA methodology.

Analytical Notes:

PFAS Isotope Dilution Method - Sediment

The sediment samples were extracted and analyzed for a selected list of PFAS. The results for PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Results for all other analytes include the linear isomers only.

Holding Times

The samples were extracted and analyzed within the hold times.

Quality Control

The Initial Calibration and Continuing Calibration Verifications met the method acceptance criteria.

A Method Blank and Ongoing Precision and Recovery (OPR) sample were extracted and analyzed with the preparation batch. No analytes were detected in the Method Blank above the Reporting Limit (RL). The OPR recoveries were within the method acceptance criteria.

The internal standard recoveries outside the acceptance criteria are flagged with an "H" qualifier.

PFAS Isotope Dilution Method - Aqueous

The sample contained particulate and was centrifuged prior to extraction.

The aqueous sample was extracted and analyzed for a selected list of PFAS. The results for PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Results for all other analytes include the linear isomers only.

Holding Times

The sample was extracted and analyzed within the hold times.

Quality Control

The Initial Calibration and Continuing Calibration Verifications met the method acceptance criteria.

A Method Blank and Laboratory Control Sample (LCS)/Laboratory Control Sample Duplicate (LCSD) were extracted and analyzed with the preparation batch. No analytes were detected in the Method Blank above the Reporting Limit (RL) concentrations. The LCS/LCSD recoveries were within the acceptance criteria.

The internal standard recoveries outside the acceptance criteria are flagged with an "H" qualifier.

TABLE OF CONTENTS

Sample Inventory Report

Vista Sample ID	Client Sample ID	Sampled	Received	Components/Containers
1903822-01	L14-1-1	23-Oct-19 07:45	25-Oct-19 08:40	HDPE Jar, 6 oz
1903822-02	L14-1-5	23-Oct-19 07:48	25-Oct-19 08:40	HDPE Jar, 6 oz
1903822-03	L14-1-10	23-Oct-19 07:50	25-Oct-19 08:40	HDPE Jar, 6 oz
1903822-04	L14-2-1	23-Oct-19 08:30	25-Oct-19 08:40	HDPE Jar, 6 oz
1903822-05	L14-2-5	23-Oct-19 08:32	25-Oct-19 08:40	HDPE Jar, 6 oz
1903822-06	L14-2-10	23-Oct-19 08:34	25-Oct-19 08:40	HDPE Jar, 6 oz
1903822-07	L14-4-1	23-Oct-19 09:50	25-Oct-19 08:40	HDPE Jar, 6 oz
1903822-08	L14-4-5	23-Oct-19 09:52	25-Oct-19 08:40	HDPE Jar, 6 oz
1903822-09	L14-4-10	23-Oct-19 09:54	25-Oct-19 08:40	HDPE Jar, 6 oz
1903822-10	L14-1-GW	23-Oct-19 08:38	25-Oct-19 08:40	HDPE Bottle, 250 mL HDPE Bottle, 250 mL

Vista Project: 1903822

Client Project: SJC PFAS Investigation

ANALYTICAL RESULTS

Sample ID: Method Blank **PFAS Isotope Dilution Method**

Client Data

Name: Woodard & Curran
Matrix: Solid
Project: SJC PFAS Investigation

Laboratory Data

Lab Sample: B9K0002-BLK1
Column: BEH C18

Analyte	CAS Number	Conc. (ng/g)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	ND	2.00		B9K0002	07-Nov-19	1.00 g	21-Nov-19 00:01	1
PFPeA	2706-90-3	ND	2.00		B9K0002	07-Nov-19	1.00 g	21-Nov-19 00:01	1
PFBS	375-73-5	ND	2.00		B9K0002	07-Nov-19	1.00 g	21-Nov-19 00:01	1
4:2 FTS	757124-72-4	ND	2.00		B9K0002	07-Nov-19	1.00 g	21-Nov-19 00:01	1
PFHxA	307-24-4	ND	2.00		B9K0002	07-Nov-19	1.00 g	21-Nov-19 00:01	1
PFPeS	2706-91-4	ND	2.00		B9K0002	07-Nov-19	1.00 g	21-Nov-19 00:01	1
PFHpA	375-85-9	ND	2.00		B9K0002	07-Nov-19	1.00 g	21-Nov-19 00:01	1
PFHxS	355-46-4	ND	2.00		B9K0002	07-Nov-19	1.00 g	21-Nov-19 00:01	1
6:2 FTS	27619-97-2	ND	2.00		B9K0002	07-Nov-19	1.00 g	21-Nov-19 00:01	1
PFOA	335-67-1	ND	2.00		B9K0002	07-Nov-19	1.00 g	21-Nov-19 00:01	1
PFHpS	375-92-8	ND	2.00		B9K0002	07-Nov-19	1.00 g	21-Nov-19 00:01	1
PFNA	375-95-1	ND	2.00		B9K0002	07-Nov-19	1.00 g	21-Nov-19 00:01	1
PFOSA	754-91-6	ND	2.00		B9K0002	07-Nov-19	1.00 g	21-Nov-19 00:01	1
PFOS	1763-23-1	ND	2.00		B9K0002	07-Nov-19	1.00 g	21-Nov-19 00:01	1
PFDA	335-76-2	ND	2.00		B9K0002	07-Nov-19	1.00 g	21-Nov-19 00:01	1
8:2 FTS	39108-34-4	ND	2.00		B9K0002	07-Nov-19	1.00 g	21-Nov-19 00:01	1
MeFOSAA	2355-31-9	ND	2.00		B9K0002	07-Nov-19	1.00 g	21-Nov-19 00:01	1
EtFOSAA	2991-50-6	ND	2.00		B9K0002	07-Nov-19	1.00 g	21-Nov-19 00:01	1
PFUnA	2058-94-8	ND	2.00		B9K0002	07-Nov-19	1.00 g	21-Nov-19 00:01	1
PFDS	335-77-3	ND	2.00		B9K0002	07-Nov-19	1.00 g	21-Nov-19 00:01	1
PFDoA	307-55-1	ND	2.00		B9K0002	07-Nov-19	1.00 g	21-Nov-19 00:01	1
PFTrDA	72629-94-8	ND	2.00		B9K0002	07-Nov-19	1.00 g	21-Nov-19 00:01	1
PFTeDA	376-06-7	ND	2.00		B9K0002	07-Nov-19	1.00 g	21-Nov-19 00:01	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	149	50 - 150		B9K0002	07-Nov-19	1.00 g	21-Nov-19 00:01	1
13C3-PFPeA	IS	75.7	50 - 150		B9K0002	07-Nov-19	1.00 g	21-Nov-19 00:01	1
13C3-PFBS	IS	85.2	50 - 150		B9K0002	07-Nov-19	1.00 g	21-Nov-19 00:01	1
13C2-4:2 FTS	IS	90.2	50 - 150		B9K0002	07-Nov-19	1.00 g	21-Nov-19 00:01	1
13C2-PFHxA	IS	68.6	50 - 150		B9K0002	07-Nov-19	1.00 g	21-Nov-19 00:01	1
13C4-PFHpA	IS	73.7	50 - 150		B9K0002	07-Nov-19	1.00 g	21-Nov-19 00:01	1
13C3-PFHxS	IS	83.5	50 - 150		B9K0002	07-Nov-19	1.00 g	21-Nov-19 00:01	1
13C2-6:2 FTS	IS	83.3	50 - 150		B9K0002	07-Nov-19	1.00 g	21-Nov-19 00:01	1
13C5-PFNA	IS	69.3	50 - 150		B9K0002	07-Nov-19	1.00 g	21-Nov-19 00:01	1
13C8-PFOSA	IS	39.2	50 - 150	H	B9K0002	07-Nov-19	1.00 g	21-Nov-19 00:01	1
13C2-PFOA	IS	73.7	50 - 150		B9K0002	07-Nov-19	1.00 g	21-Nov-19 00:01	1
13C8-PFOS	IS	77.1	50 - 150		B9K0002	07-Nov-19	1.00 g	21-Nov-19 00:01	1
13C2-PFDA	IS	61.5	50 - 150		B9K0002	07-Nov-19	1.00 g	21-Nov-19 00:01	1
13C2-8:2 FTS	IS	75.8	50 - 150		B9K0002	07-Nov-19	1.00 g	21-Nov-19 00:01	1

Sample ID: Method Blank **PFAS Isotope Dilution Method**

Client Data

Name: Woodard & Curran

Matrix: Solid

Project: SJC PFAS Investigation

Laboratory Data

Lab Sample: B9K0002-BLK1

Column: BEH C18

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
d3-MeFOSAA	IS	54.6	50 - 150		B9K0002	07-Nov-19	1.00 g	21-Nov-19 00:01	1
13C2-PFUnA	IS	51.1	50 - 150		B9K0002	07-Nov-19	1.00 g	21-Nov-19 00:01	1
d5-EtFOSAA	IS	57.5	50 - 150		B9K0002	07-Nov-19	1.00 g	21-Nov-19 00:01	1
13C2-PFDoA	IS	42.8	50 - 150	H	B9K0002	07-Nov-19	1.00 g	21-Nov-19 00:01	1
13C2-PFTeDA	IS	48.3	50 - 150	H	B9K0002	07-Nov-19	1.00 g	21-Nov-19 00:01	1

RL - Reporting limit

The results are reported in dry weight.
The sample size is reported in wet weight.
Results reported to RL.

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

Sample ID: OPR **PFAS Isotope Dilution Method**

Client Data				**Laboratory Data**			
Name:	Woodard & Curran	Matrix:	Solid	Lab Sample:	B9K0002-BS1	Column:	BEH C18
Project:	SJC PFAS Investigation						

Analyte	CAS Number	Amt Found (ng/g)	Spike Amt	% Rec	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	10.1	10.0	101	71 - 135		B9K0002	07-Nov-19	1.00 g	21-Nov-19 00:12	1
PFPeA	2706-90-3	10.6	10.0	106	69 - 132		B9K0002	07-Nov-19	1.00 g	21-Nov-19 00:12	1
PFBS	375-73-5	10.4	10.0	104	72 - 128		B9K0002	07-Nov-19	1.00 g	21-Nov-19 00:12	1
4:2 FTS	757124-72-4	11.3	10.0	113	62 - 145		B9K0002	07-Nov-19	1.00 g	21-Nov-19 00:12	1
PFHxA	307-24-4	10.0	10.0	100	70 - 132	Q	B9K0002	07-Nov-19	1.00 g	21-Nov-19 00:12	1
PFPeS	2706-91-4	9.93	10.0	99.3	73 - 123		B9K0002	07-Nov-19	1.00 g	21-Nov-19 00:12	1
PFHpA	375-85-9	10.3	10.0	103	71 - 131	Q	B9K0002	07-Nov-19	1.00 g	21-Nov-19 00:12	1
PFHxS	355-46-4	9.78	10.0	97.8	67 - 130		B9K0002	07-Nov-19	1.00 g	21-Nov-19 00:12	1
6:2 FTS	27619-97-2	8.52	10.0	85.2	64 - 140		B9K0002	07-Nov-19	1.00 g	21-Nov-19 00:12	1
PFOA	335-67-1	11.0	10.0	110	69 - 133		B9K0002	07-Nov-19	1.00 g	21-Nov-19 00:12	1
PFHpS	375-92-8	12.4	10.0	124	70 - 132		B9K0002	07-Nov-19	1.00 g	21-Nov-19 00:12	1
PFNA	375-95-1	11.0	10.0	110	72 - 129		B9K0002	07-Nov-19	1.00 g	21-Nov-19 00:12	1
PFOSA	754-91-6	10.8	10.0	108	67 - 137		B9K0002	07-Nov-19	1.00 g	21-Nov-19 00:12	1
PFOS	1763-23-1	12.9	10.0	129	68 - 136		B9K0002	07-Nov-19	1.00 g	21-Nov-19 00:12	1
PFDA	335-76-2	10.6	10.0	106	69 - 133		B9K0002	07-Nov-19	1.00 g	21-Nov-19 00:12	1
8:2 FTS	39108-34-4	10.3	10.0	103	65 - 137	Q	B9K0002	07-Nov-19	1.00 g	21-Nov-19 00:12	1
MeFOSAA	2355-31-9	11.4	10.0	114	63 - 144	Q	B9K0002	07-Nov-19	1.00 g	21-Nov-19 00:12	1
EtFOSAA	2991-50-6	9.44	10.0	94.4	61 - 139		B9K0002	07-Nov-19	1.00 g	21-Nov-19 00:12	1
PFUnA	2058-94-8	9.57	10.0	95.7	64 - 136	Q	B9K0002	07-Nov-19	1.00 g	21-Nov-19 00:12	1
PFDS	335-77-3	9.38	10.0	93.6	59 - 134		B9K0002	07-Nov-19	1.00 g	21-Nov-19 00:12	1
PFDoA	307-55-1	10.5	10.0	105	69 - 135	Q	B9K0002	07-Nov-19	1.00 g	21-Nov-19 00:12	1
PFTrDA	72629-94-8	10.7	10.0	107	66 - 139		B9K0002	07-Nov-19	1.00 g	21-Nov-19 00:12	1
PFTeDA	376-06-7	10.4	10.0	104	69 - 133		B9K0002	07-Nov-19	1.00 g	21-Nov-19 00:12	1

Labeled Standards	Type	% Rec	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	149	50- 150		B9K0002	07-Nov-19	1.00 g	21-Nov-19 00:12	1
13C3-PFPeA	IS	75.4	50- 150		B9K0002	07-Nov-19	1.00 g	21-Nov-19 00:12	1
13C3-PFBS	IS	98.5	50- 150		B9K0002	07-Nov-19	1.00 g	21-Nov-19 00:12	1
13C2-4:2 FTS	IS	88.1	50- 150		B9K0002	07-Nov-19	1.00 g	21-Nov-19 00:12	1
13C2-PFHxA	IS	73.7	50- 150		B9K0002	07-Nov-19	1.00 g	21-Nov-19 00:12	1
13C4-PFHpA	IS	75.0	50- 150		B9K0002	07-Nov-19	1.00 g	21-Nov-19 00:12	1
13C3-PFHxS	IS	90.4	50- 150		B9K0002	07-Nov-19	1.00 g	21-Nov-19 00:12	1
13C2-6:2 FTS	IS	100	50- 150		B9K0002	07-Nov-19	1.00 g	21-Nov-19 00:12	1
13C5-PFNA	IS	70.7	50- 150		B9K0002	07-Nov-19	1.00 g	21-Nov-19 00:12	1
13C8-PFOSA	IS	35.1	50- 150	H	B9K0002	07-Nov-19	1.00 g	21-Nov-19 00:12	1
13C2-PFOA	IS	76.0	50- 150		B9K0002	07-Nov-19	1.00 g	21-Nov-19 00:12	1

Sample ID: OPR **PFAS Isotope Dilution Method**

Client Data

Name: Woodard & Curran
Project: SJC PFAS Investigation
Matrix: Solid

Laboratory Data

Lab Sample: B9K0002-BS1
Column: BEH C18

Labeled Standards	Type	% Rec	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C8-PFOS	IS	77.6	50- 150		B9K0002	07-Nov-19	1.00 g	21-Nov-19 00:12	1
13C2-PFDA	IS	61.9	50- 150		B9K0002	07-Nov-19	1.00 g	21-Nov-19 00:12	1
13C2-8:2 FTS	IS	73.1	50- 150		B9K0002	07-Nov-19	1.00 g	21-Nov-19 00:12	1
d3-MeFOSAA	IS	53.0	50- 150		B9K0002	07-Nov-19	1.00 g	21-Nov-19 00:12	1
13C2-PFUnA	IS	54.6	50- 150		B9K0002	07-Nov-19	1.00 g	21-Nov-19 00:12	1
d5-EtFOSAA	IS	53.9	50- 150		B9K0002	07-Nov-19	1.00 g	21-Nov-19 00:12	1
13C2-PFDoA	IS	51.9	50- 150		B9K0002	07-Nov-19	1.00 g	21-Nov-19 00:12	1
13C2-PFTeDA	IS	57.6	50- 150		B9K0002	07-Nov-19	1.00 g	21-Nov-19 00:12	1

Sample ID: L14-1-1 **PFAS Isotope Dilution Method**

Client Data				**Laboratory Data**	
Name:	Woodard & Curran	Matrix:	Soil	Lab Sample:	1903822-01
Project:	SJC PFAS Investigation	Date Collected:	23-Oct-19 07:45	Date Received:	25-Oct-19 08:40
Location:	14			% Solids:	76.1
				Column:	BEH C18

Analyte	CAS Number	Conc. (ng/g)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	ND	2.01		B9K0002	07-Nov-19	1.31 g	21-Nov-19 02:39	1
PFPeA	2706-90-3	ND	2.01		B9K0002	07-Nov-19	1.31 g	21-Nov-19 02:39	1
PFBS	375-73-5	ND	2.01		B9K0002	07-Nov-19	1.31 g	21-Nov-19 02:39	1
4:2 FTS	757124-72-4	ND	2.01		B9K0002	07-Nov-19	1.31 g	21-Nov-19 02:39	1
PFHxA	307-24-4	ND	2.01		B9K0002	07-Nov-19	1.31 g	21-Nov-19 02:39	1
PFPeS	2706-91-4	ND	2.01		B9K0002	07-Nov-19	1.31 g	21-Nov-19 02:39	1
PFHpA	375-85-9	ND	2.01		B9K0002	07-Nov-19	1.31 g	21-Nov-19 02:39	1
PFHxS	355-46-4	ND	2.01		B9K0002	07-Nov-19	1.31 g	21-Nov-19 02:39	1
6:2 FTS	27619-97-2	ND	2.01		B9K0002	07-Nov-19	1.31 g	21-Nov-19 02:39	1
PFOA	335-67-1	ND	2.01		B9K0002	07-Nov-19	1.31 g	21-Nov-19 02:39	1
PFHpS	375-92-8	ND	2.01		B9K0002	07-Nov-19	1.31 g	21-Nov-19 02:39	1
PFNA	375-95-1	ND	2.01		B9K0002	07-Nov-19	1.31 g	21-Nov-19 02:39	1
PFOSA	754-91-6	ND	2.01		B9K0002	07-Nov-19	1.31 g	21-Nov-19 02:39	1
PFOS	1763-23-1	ND	2.01		B9K0002	07-Nov-19	1.31 g	21-Nov-19 02:39	1
PFDA	335-76-2	ND	2.01		B9K0002	07-Nov-19	1.31 g	21-Nov-19 02:39	1
8:2 FTS	39108-34-4	ND	2.01		B9K0002	07-Nov-19	1.31 g	21-Nov-19 02:39	1
MeFOSAA	2355-31-9	ND	2.01		B9K0002	07-Nov-19	1.31 g	21-Nov-19 02:39	1
EtFOSAA	2991-50-6	ND	2.01		B9K0002	07-Nov-19	1.31 g	21-Nov-19 02:39	1
PFUnA	2058-94-8	ND	2.01		B9K0002	07-Nov-19	1.31 g	21-Nov-19 02:39	1
PFDS	335-77-3	ND	2.01		B9K0002	07-Nov-19	1.31 g	21-Nov-19 02:39	1
PFDoA	307-55-1	ND	2.01		B9K0002	07-Nov-19	1.31 g	21-Nov-19 02:39	1
PFTrDA	72629-94-8	ND	2.01		B9K0002	07-Nov-19	1.31 g	21-Nov-19 02:39	1
PFTeDA	376-06-7	ND	2.01		B9K0002	07-Nov-19	1.31 g	21-Nov-19 02:39	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	157	50 - 150	H	B9K0002	07-Nov-19	1.31 g	21-Nov-19 02:39	1
13C3-PFPeA	IS	79.9	50 - 150		B9K0002	07-Nov-19	1.31 g	21-Nov-19 02:39	1
13C3-PFBS	IS	82.0	50 - 150		B9K0002	07-Nov-19	1.31 g	21-Nov-19 02:39	1
13C2-4:2 FTS	IS	83.1	50 - 150		B9K0002	07-Nov-19	1.31 g	21-Nov-19 02:39	1
13C2-PFHxA	IS	77.7	50 - 150		B9K0002	07-Nov-19	1.31 g	21-Nov-19 02:39	1
13C4-PFHpA	IS	76.1	50 - 150		B9K0002	07-Nov-19	1.31 g	21-Nov-19 02:39	1
13C3-PFHxS	IS	74.1	50 - 150		B9K0002	07-Nov-19	1.31 g	21-Nov-19 02:39	1
13C2-6:2 FTS	IS	73.0	50 - 150		B9K0002	07-Nov-19	1.31 g	21-Nov-19 02:39	1
13C5-PFNA	IS	64.7	50 - 150		B9K0002	07-Nov-19	1.31 g	21-Nov-19 02:39	1
13C8-PFOSA	IS	56.8	50 - 150		B9K0002	07-Nov-19	1.31 g	21-Nov-19 02:39	1
13C2-PFOA	IS	74.3	50 - 150		B9K0002	07-Nov-19	1.31 g	21-Nov-19 02:39	1
13C8-PFOS	IS	73.1	50 - 150		B9K0002	07-Nov-19	1.31 g	21-Nov-19 02:39	1
13C2-PFDA	IS	55.3	50 - 150		B9K0002	07-Nov-19	1.31 g	21-Nov-19 02:39	1
13C2-8:2 FTS	IS	70.4	50 - 150		B9K0002	07-Nov-19	1.31 g	21-Nov-19 02:39	1

Sample ID: L14-1-1

PFAS Isotope Dilution Method

Client Data				**Laboratory Data**			
Name:	Woodard & Curran	Matrix:	Soil	Lab Sample:	1903822-01	Column:	BEH C18
Project:	SJC PFAS Investigation	Date Collected:	23-Oct-19 07:45	Date Received:	25-Oct-19 08:40		
Location:	14			% Solids:	76.1		

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
d3-MeFOSAA	IS	66.4	50 - 150		B9K0002	07-Nov-19	1.31 g	21-Nov-19 02:39	1
13C2-PFUnA	IS	62.1	50 - 150		B9K0002	07-Nov-19	1.31 g	21-Nov-19 02:39	1
d5-EtFOSAA	IS	67.1	50 - 150		B9K0002	07-Nov-19	1.31 g	21-Nov-19 02:39	1
13C2-PFDoA	IS	53.9	50 - 150		B9K0002	07-Nov-19	1.31 g	21-Nov-19 02:39	1
13C2-PFTeDA	IS	26.3	50 - 150	H	B9K0002	07-Nov-19	1.31 g	21-Nov-19 02:39	1

RL - Reporting limit

The results are reported in dry weight.
The sample size is reported in wet weight.
Results reported to RL.

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

Sample ID: L14-1-5 **PFAS Isotope Dilution Method**

Client Data				**Laboratory Data**			
Name:	Woodard & Curran	Matrix:	Soil	Lab Sample:	1903822-02	Column:	BEH C18
Project:	SJC PFAS Investigation	Date Collected:	23-Oct-19 07:48	Date Received:	25-Oct-19 08:40		
Location:	14			% Solids:	61.8		

Analyte	CAS Number	Conc. (ng/g)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	ND	1.97		B9K0002	07-Nov-19	1.64 g	21-Nov-19 02:49	1
PFPeA	2706-90-3	ND	1.97		B9K0002	07-Nov-19	1.64 g	21-Nov-19 02:49	1
PFBS	375-73-5	ND	1.97		B9K0002	07-Nov-19	1.64 g	21-Nov-19 02:49	1
4:2 FTS	757124-72-4	ND	1.97		B9K0002	07-Nov-19	1.64 g	21-Nov-19 02:49	1
PFHxA	307-24-4	ND	1.97		B9K0002	07-Nov-19	1.64 g	21-Nov-19 02:49	1
PFPeS	2706-91-4	ND	1.97		B9K0002	07-Nov-19	1.64 g	21-Nov-19 02:49	1
PFHpA	375-85-9	ND	1.97		B9K0002	07-Nov-19	1.64 g	21-Nov-19 02:49	1
PFHxS	355-46-4	ND	1.97		B9K0002	07-Nov-19	1.64 g	21-Nov-19 02:49	1
6:2 FTS	27619-97-2	ND	1.97		B9K0002	07-Nov-19	1.64 g	21-Nov-19 02:49	1
PFOA	335-67-1	ND	1.97		B9K0002	07-Nov-19	1.64 g	21-Nov-19 02:49	1
PFHpS	375-92-8	ND	1.97		B9K0002	07-Nov-19	1.64 g	21-Nov-19 02:49	1
PFNA	375-95-1	ND	1.97		B9K0002	07-Nov-19	1.64 g	21-Nov-19 02:49	1
PFOSA	754-91-6	ND	1.97		B9K0002	07-Nov-19	1.64 g	21-Nov-19 02:49	1
PFOS	1763-23-1	ND	1.97		B9K0002	07-Nov-19	1.64 g	21-Nov-19 02:49	1
PFDA	335-76-2	ND	1.97		B9K0002	07-Nov-19	1.64 g	21-Nov-19 02:49	1
8:2 FTS	39108-34-4	ND	1.97		B9K0002	07-Nov-19	1.64 g	21-Nov-19 02:49	1
MeFOSAA	2355-31-9	ND	1.97		B9K0002	07-Nov-19	1.64 g	21-Nov-19 02:49	1
EtFOSAA	2991-50-6	ND	1.97		B9K0002	07-Nov-19	1.64 g	21-Nov-19 02:49	1
PFUnA	2058-94-8	ND	1.97		B9K0002	07-Nov-19	1.64 g	21-Nov-19 02:49	1
PFDS	335-77-3	ND	1.97		B9K0002	07-Nov-19	1.64 g	21-Nov-19 02:49	1
PFDoA	307-55-1	ND	1.97		B9K0002	07-Nov-19	1.64 g	21-Nov-19 02:49	1
PFTrDA	72629-94-8	ND	1.97		B9K0002	07-Nov-19	1.64 g	21-Nov-19 02:49	1
PFTeDA	376-06-7	ND	1.97		B9K0002	07-Nov-19	1.64 g	21-Nov-19 02:49	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	131	50 - 150		B9K0002	07-Nov-19	1.64 g	21-Nov-19 02:49	1
13C3-PFPeA	IS	67.3	50 - 150		B9K0002	07-Nov-19	1.64 g	21-Nov-19 02:49	1
13C3-PFBS	IS	81.0	50 - 150		B9K0002	07-Nov-19	1.64 g	21-Nov-19 02:49	1
13C2-4:2 FTS	IS	73.1	50 - 150		B9K0002	07-Nov-19	1.64 g	21-Nov-19 02:49	1
13C2-PFHxA	IS	64.8	50 - 150		B9K0002	07-Nov-19	1.64 g	21-Nov-19 02:49	1
13C4-PFHpA	IS	65.2	50 - 150		B9K0002	07-Nov-19	1.64 g	21-Nov-19 02:49	1
13C3-PFHxS	IS	71.5	50 - 150		B9K0002	07-Nov-19	1.64 g	21-Nov-19 02:49	1
13C2-6:2 FTS	IS	70.8	50 - 150		B9K0002	07-Nov-19	1.64 g	21-Nov-19 02:49	1
13C5-PFNA	IS	53.6	50 - 150		B9K0002	07-Nov-19	1.64 g	21-Nov-19 02:49	1
13C8-PFOSA	IS	48.4	50 - 150	H	B9K0002	07-Nov-19	1.64 g	21-Nov-19 02:49	1
13C2-PFOA	IS	63.3	50 - 150		B9K0002	07-Nov-19	1.64 g	21-Nov-19 02:49	1
13C8-PFOS	IS	69.5	50 - 150		B9K0002	07-Nov-19	1.64 g	21-Nov-19 02:49	1
13C2-PFDA	IS	49.0	50 - 150	H	B9K0002	07-Nov-19	1.64 g	21-Nov-19 02:49	1
13C2-8:2 FTS	IS	58.6	50 - 150		B9K0002	07-Nov-19	1.64 g	21-Nov-19 02:49	1

Sample ID: L14-1-5

PFAS Isotope Dilution Method

Client Data				**Laboratory Data**			
Name:	Woodard & Curran	Matrix:	Soil	Lab Sample:	1903822-02	Column:	BEH C18
Project:	SJC PFAS Investigation	Date Collected:	23-Oct-19 07:48	Date Received:	25-Oct-19 08:40		
Location:	14			% Solids:	61.8		

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
d3-MeFOSAA	IS	56.7	50 - 150		B9K0002	07-Nov-19	1.64 g	21-Nov-19 02:49	1
13C2-PFUnA	IS	52.5	50 - 150		B9K0002	07-Nov-19	1.64 g	21-Nov-19 02:49	1
d5-EtFOSAA	IS	60.9	50 - 150		B9K0002	07-Nov-19	1.64 g	21-Nov-19 02:49	1
13C2-PFDoA	IS	51.8	50 - 150		B9K0002	07-Nov-19	1.64 g	21-Nov-19 02:49	1
13C2-PFTeDA	IS	61.3	50 - 150		B9K0002	07-Nov-19	1.64 g	21-Nov-19 02:49	1

RL - Reporting limit

The results are reported in dry weight.
The sample size is reported in wet weight.
Results reported to RL.

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

Sample ID: L14-1-10 **PFAS Isotope Dilution Method**

Client Data				**Laboratory Data**			
Name:	Woodard & Curran	Matrix:	Soil	Lab Sample:	1903822-03	Column:	BEH C18
Project:	SJC PFAS Investigation	Date Collected:	23-Oct-19 07:50	Date Received:	25-Oct-19 08:40		
Location:	14			% Solids:	82.2		

Analyte	CAS Number	Conc. (ng/g)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	ND	1.93		B9K0002	07-Nov-19	1.26 g	21-Nov-19 03:00	1
PFPeA	2706-90-3	ND	1.93		B9K0002	07-Nov-19	1.26 g	21-Nov-19 03:00	1
PFBS	375-73-5	ND	1.93		B9K0002	07-Nov-19	1.26 g	21-Nov-19 03:00	1
4:2 FTS	757124-72-4	ND	1.93		B9K0002	07-Nov-19	1.26 g	21-Nov-19 03:00	1
PFHxA	307-24-4	ND	1.93		B9K0002	07-Nov-19	1.26 g	21-Nov-19 03:00	1
PFPeS	2706-91-4	ND	1.93		B9K0002	07-Nov-19	1.26 g	21-Nov-19 03:00	1
PFHpA	375-85-9	ND	1.93		B9K0002	07-Nov-19	1.26 g	21-Nov-19 03:00	1
PFHxS	355-46-4	ND	1.93		B9K0002	07-Nov-19	1.26 g	21-Nov-19 03:00	1
6:2 FTS	27619-97-2	ND	1.93		B9K0002	07-Nov-19	1.26 g	21-Nov-19 03:00	1
PFOA	335-67-1	ND	1.93		B9K0002	07-Nov-19	1.26 g	21-Nov-19 03:00	1
PFHpS	375-92-8	ND	1.93		B9K0002	07-Nov-19	1.26 g	21-Nov-19 03:00	1
PFNA	375-95-1	ND	1.93		B9K0002	07-Nov-19	1.26 g	21-Nov-19 03:00	1
PFOSA	754-91-6	ND	1.93		B9K0002	07-Nov-19	1.26 g	21-Nov-19 03:00	1
PFOS	1763-23-1	ND	1.93		B9K0002	07-Nov-19	1.26 g	21-Nov-19 03:00	1
PFDA	335-76-2	ND	1.93		B9K0002	07-Nov-19	1.26 g	21-Nov-19 03:00	1
8:2 FTS	39108-34-4	ND	1.93		B9K0002	07-Nov-19	1.26 g	21-Nov-19 03:00	1
MeFOSAA	2355-31-9	ND	1.93		B9K0002	07-Nov-19	1.26 g	21-Nov-19 03:00	1
EtFOSAA	2991-50-6	ND	1.93		B9K0002	07-Nov-19	1.26 g	21-Nov-19 03:00	1
PFUnA	2058-94-8	ND	1.93		B9K0002	07-Nov-19	1.26 g	21-Nov-19 03:00	1
PFDS	335-77-3	ND	1.93		B9K0002	07-Nov-19	1.26 g	21-Nov-19 03:00	1
PFDoA	307-55-1	ND	1.93		B9K0002	07-Nov-19	1.26 g	21-Nov-19 03:00	1
PFTrDA	72629-94-8	ND	1.93		B9K0002	07-Nov-19	1.26 g	21-Nov-19 03:00	1
PFTeDA	376-06-7	ND	1.93		B9K0002	07-Nov-19	1.26 g	21-Nov-19 03:00	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	139	50 - 150		B9K0002	07-Nov-19	1.26 g	21-Nov-19 03:00	1
13C3-PFPeA	IS	70.9	50 - 150		B9K0002	07-Nov-19	1.26 g	21-Nov-19 03:00	1
13C3-PFBS	IS	90.5	50 - 150		B9K0002	07-Nov-19	1.26 g	21-Nov-19 03:00	1
13C2-4:2 FTS	IS	81.9	50 - 150		B9K0002	07-Nov-19	1.26 g	21-Nov-19 03:00	1
13C2-PFHxA	IS	69.5	50 - 150		B9K0002	07-Nov-19	1.26 g	21-Nov-19 03:00	1
13C4-PFHpA	IS	65.5	50 - 150		B9K0002	07-Nov-19	1.26 g	21-Nov-19 03:00	1
13C3-PFHxS	IS	78.6	50 - 150		B9K0002	07-Nov-19	1.26 g	21-Nov-19 03:00	1
13C2-6:2 FTS	IS	81.9	50 - 150		B9K0002	07-Nov-19	1.26 g	21-Nov-19 03:00	1
13C5-PFNA	IS	62.7	50 - 150		B9K0002	07-Nov-19	1.26 g	21-Nov-19 03:00	1
13C8-PFOSA	IS	50.0	50 - 150		B9K0002	07-Nov-19	1.26 g	21-Nov-19 03:00	1
13C2-PFOA	IS	72.8	50 - 150		B9K0002	07-Nov-19	1.26 g	21-Nov-19 03:00	1
13C8-PFOS	IS	69.5	50 - 150		B9K0002	07-Nov-19	1.26 g	21-Nov-19 03:00	1
13C2-PFDA	IS	54.7	50 - 150		B9K0002	07-Nov-19	1.26 g	21-Nov-19 03:00	1
13C2-8:2 FTS	IS	76.6	50 - 150		B9K0002	07-Nov-19	1.26 g	21-Nov-19 03:00	1

Sample ID: L14-1-10

PFAS Isotope Dilution Method

Client Data			
Name:	Woodard & Curran	Matrix:	Soil
Project:	SJC PFAS Investigation	Date Collected:	23-Oct-19 07:50
Location:	14		

Laboratory Data			
Lab Sample:	1903822-03	Column:	BEH C18
Date Received:	25-Oct-19 08:40		
% Solids:	82.2		

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
d3-MeFOSAA	IS	56.4	50 - 150		B9K0002	07-Nov-19	1.26 g	21-Nov-19 03:00	1
13C2-PFUnA	IS	57.1	50 - 150		B9K0002	07-Nov-19	1.26 g	21-Nov-19 03:00	1
d5-EtFOSAA	IS	64.0	50 - 150		B9K0002	07-Nov-19	1.26 g	21-Nov-19 03:00	1
13C2-PFDoA	IS	55.3	50 - 150		B9K0002	07-Nov-19	1.26 g	21-Nov-19 03:00	1
13C2-PFTeDA	IS	52.2	50 - 150		B9K0002	07-Nov-19	1.26 g	21-Nov-19 03:00	1

RL - Reporting limit

The results are reported in dry weight.
The sample size is reported in wet weight.
Results reported to RL.

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

Sample ID: L14-2-1 **PFAS Isotope Dilution Method**

Client Data				**Laboratory Data**			
Name:	Woodard & Curran	Matrix:	Soil	Lab Sample:	1903822-04	Column:	BEH C18
Project:	SJC PFAS Investigation	Date Collected:	23-Oct-19 08:30	Date Received:	25-Oct-19 08:40		
Location:	14			% Solids:	74.3		

Analyte	CAS Number	Conc. (ng/g)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	ND	1.95		B9K0002	07-Nov-19	1.38 g	21-Nov-19 03:10	1
PFPeA	2706-90-3	ND	1.95		B9K0002	07-Nov-19	1.38 g	21-Nov-19 03:10	1
PFBS	375-73-5	ND	1.95		B9K0002	07-Nov-19	1.38 g	21-Nov-19 03:10	1
4:2 FTS	757124-72-4	ND	1.95		B9K0002	07-Nov-19	1.38 g	21-Nov-19 03:10	1
PFHxA	307-24-4	ND	1.95		B9K0002	07-Nov-19	1.38 g	21-Nov-19 03:10	1
PFPeS	2706-91-4	ND	1.95		B9K0002	07-Nov-19	1.38 g	21-Nov-19 03:10	1
PFHpA	375-85-9	ND	1.95		B9K0002	07-Nov-19	1.38 g	21-Nov-19 03:10	1
PFHxS	355-46-4	ND	1.95		B9K0002	07-Nov-19	1.38 g	21-Nov-19 03:10	1
6:2 FTS	27619-97-2	ND	1.95		B9K0002	07-Nov-19	1.38 g	21-Nov-19 03:10	1
PFOA	335-67-1	ND	1.95		B9K0002	07-Nov-19	1.38 g	21-Nov-19 03:10	1
PFHpS	375-92-8	ND	1.95		B9K0002	07-Nov-19	1.38 g	21-Nov-19 03:10	1
PFNA	375-95-1	ND	1.95		B9K0002	07-Nov-19	1.38 g	21-Nov-19 03:10	1
PFOSA	754-91-6	ND	1.95		B9K0002	07-Nov-19	1.38 g	21-Nov-19 03:10	1
PFOS	1763-23-1	3.91	1.95	Q	B9K0002	07-Nov-19	1.38 g	21-Nov-19 03:10	1
PFDA	335-76-2	ND	1.95		B9K0002	07-Nov-19	1.38 g	21-Nov-19 03:10	1
8:2 FTS	39108-34-4	ND	1.95		B9K0002	07-Nov-19	1.38 g	21-Nov-19 03:10	1
MeFOSAA	2355-31-9	ND	1.95		B9K0002	07-Nov-19	1.38 g	21-Nov-19 03:10	1
EtFOSAA	2991-50-6	ND	1.95		B9K0002	07-Nov-19	1.38 g	21-Nov-19 03:10	1
PFUnA	2058-94-8	ND	1.95		B9K0002	07-Nov-19	1.38 g	21-Nov-19 03:10	1
PFDS	335-77-3	ND	1.95		B9K0002	07-Nov-19	1.38 g	21-Nov-19 03:10	1
PFDoA	307-55-1	ND	1.95		B9K0002	07-Nov-19	1.38 g	21-Nov-19 03:10	1
PFTrDA	72629-94-8	ND	1.95		B9K0002	07-Nov-19	1.38 g	21-Nov-19 03:10	1
PFTeDA	376-06-7	ND	1.95		B9K0002	07-Nov-19	1.38 g	21-Nov-19 03:10	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	160	50 - 150	H	B9K0002	07-Nov-19	1.38 g	21-Nov-19 03:10	1
13C3-PFPeA	IS	85.5	50 - 150		B9K0002	07-Nov-19	1.38 g	21-Nov-19 03:10	1
13C3-PFBS	IS	79.5	50 - 150		B9K0002	07-Nov-19	1.38 g	21-Nov-19 03:10	1
13C2-4:2 FTS	IS	78.5	50 - 150		B9K0002	07-Nov-19	1.38 g	21-Nov-19 03:10	1
13C2-PFHxA	IS	78.3	50 - 150		B9K0002	07-Nov-19	1.38 g	21-Nov-19 03:10	1
13C4-PFHpA	IS	80.1	50 - 150		B9K0002	07-Nov-19	1.38 g	21-Nov-19 03:10	1
13C3-PFHxS	IS	72.9	50 - 150		B9K0002	07-Nov-19	1.38 g	21-Nov-19 03:10	1
13C2-6:2 FTS	IS	82.4	50 - 150		B9K0002	07-Nov-19	1.38 g	21-Nov-19 03:10	1
13C5-PFNA	IS	65.2	50 - 150		B9K0002	07-Nov-19	1.38 g	21-Nov-19 03:10	1
13C8-PFOSA	IS	58.8	50 - 150		B9K0002	07-Nov-19	1.38 g	21-Nov-19 03:10	1
13C2-PFOA	IS	72.5	50 - 150		B9K0002	07-Nov-19	1.38 g	21-Nov-19 03:10	1
13C8-PFOS	IS	77.7	50 - 150		B9K0002	07-Nov-19	1.38 g	21-Nov-19 03:10	1
13C2-PFDA	IS	63.0	50 - 150		B9K0002	07-Nov-19	1.38 g	21-Nov-19 03:10	1
13C2-8:2 FTS	IS	76.6	50 - 150		B9K0002	07-Nov-19	1.38 g	21-Nov-19 03:10	1

Sample ID: L14-2-1 **PFAS Isotope Dilution Method**

Client Data				**Laboratory Data**			
Name:	Woodard & Curran	Matrix:	Soil	Lab Sample:	1903822-04	Column:	BEH C18
Project:	SJC PFAS Investigation	Date Collected:	23-Oct-19 08:30	Date Received:	25-Oct-19 08:40		
Location:	14			% Solids:	74.3		

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
d3-MeFOSAA	IS	70.1	50 - 150		B9K0002	07-Nov-19	1.38 g	21-Nov-19 03:10	1
13C2-PFUnA	IS	57.7	50 - 150		B9K0002	07-Nov-19	1.38 g	21-Nov-19 03:10	1
d5-EtFOSAA	IS	67.0	50 - 150		B9K0002	07-Nov-19	1.38 g	21-Nov-19 03:10	1
13C2-PFDoA	IS	55.0	50 - 150		B9K0002	07-Nov-19	1.38 g	21-Nov-19 03:10	1
13C2-PFTeDA	IS	54.8	50 - 150		B9K0002	07-Nov-19	1.38 g	21-Nov-19 03:10	1

RL - Reporting limit

The results are reported in dry weight.
The sample size is reported in wet weight.
Results reported to RL.

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

Sample ID: L14-2-5 **PFAS Isotope Dilution Method**

Client Data				**Laboratory Data**			
Name:	Woodard & Curran	Matrix:	Soil	Lab Sample:	1903822-05	Column:	BEH C18
Project:	SJC PFAS Investigation	Date Collected:	23-Oct-19 08:32	Date Received:	25-Oct-19 08:40		
Location:	14			% Solids:	72.8		

Analyte	CAS Number	Conc. (ng/g)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	ND	1.99		B9K0002	07-Nov-19	1.38 g	21-Nov-19 03:42	1
PFPeA	2706-90-3	ND	1.99		B9K0002	07-Nov-19	1.38 g	21-Nov-19 03:42	1
PFBS	375-73-5	ND	1.99		B9K0002	07-Nov-19	1.38 g	21-Nov-19 03:42	1
4:2 FTS	757124-72-4	ND	1.99		B9K0002	07-Nov-19	1.38 g	21-Nov-19 03:42	1
PFHxA	307-24-4	ND	1.99		B9K0002	07-Nov-19	1.38 g	21-Nov-19 03:42	1
PFPeS	2706-91-4	ND	1.99		B9K0002	07-Nov-19	1.38 g	21-Nov-19 03:42	1
PFHpA	375-85-9	ND	1.99		B9K0002	07-Nov-19	1.38 g	21-Nov-19 03:42	1
PFHxS	355-46-4	ND	1.99		B9K0002	07-Nov-19	1.38 g	21-Nov-19 03:42	1
6:2 FTS	27619-97-2	ND	1.99		B9K0002	07-Nov-19	1.38 g	21-Nov-19 03:42	1
PFOA	335-67-1	ND	1.99		B9K0002	07-Nov-19	1.38 g	21-Nov-19 03:42	1
PFHpS	375-92-8	ND	1.99		B9K0002	07-Nov-19	1.38 g	21-Nov-19 03:42	1
PFNA	375-95-1	ND	1.99		B9K0002	07-Nov-19	1.38 g	21-Nov-19 03:42	1
PFOSA	754-91-6	ND	1.99		B9K0002	07-Nov-19	1.38 g	21-Nov-19 03:42	1
PFOS	1763-23-1	ND	1.99		B9K0002	07-Nov-19	1.38 g	21-Nov-19 03:42	1
PFDA	335-76-2	ND	1.99		B9K0002	07-Nov-19	1.38 g	21-Nov-19 03:42	1
8:2 FTS	39108-34-4	ND	1.99		B9K0002	07-Nov-19	1.38 g	21-Nov-19 03:42	1
MeFOSAA	2355-31-9	ND	1.99		B9K0002	07-Nov-19	1.38 g	21-Nov-19 03:42	1
EtFOSAA	2991-50-6	ND	1.99		B9K0002	07-Nov-19	1.38 g	21-Nov-19 03:42	1
PFUnA	2058-94-8	ND	1.99		B9K0002	07-Nov-19	1.38 g	21-Nov-19 03:42	1
PFDS	335-77-3	ND	1.99		B9K0002	07-Nov-19	1.38 g	21-Nov-19 03:42	1
PFDoA	307-55-1	ND	1.99		B9K0002	07-Nov-19	1.38 g	21-Nov-19 03:42	1
PFTrDA	72629-94-8	ND	1.99		B9K0002	07-Nov-19	1.38 g	21-Nov-19 03:42	1
PFTeDA	376-06-7	ND	1.99		B9K0002	07-Nov-19	1.38 g	21-Nov-19 03:42	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	163	50 - 150	H	B9K0002	07-Nov-19	1.38 g	21-Nov-19 03:42	1
13C3-PFPeA	IS	83.2	50 - 150		B9K0002	07-Nov-19	1.38 g	21-Nov-19 03:42	1
13C3-PFBS	IS	88.9	50 - 150		B9K0002	07-Nov-19	1.38 g	21-Nov-19 03:42	1
13C2-4:2 FTS	IS	88.1	50 - 150		B9K0002	07-Nov-19	1.38 g	21-Nov-19 03:42	1
13C2-PFHxA	IS	81.5	50 - 150		B9K0002	07-Nov-19	1.38 g	21-Nov-19 03:42	1
13C4-PFHpA	IS	80.6	50 - 150		B9K0002	07-Nov-19	1.38 g	21-Nov-19 03:42	1
13C3-PFHxS	IS	80.0	50 - 150		B9K0002	07-Nov-19	1.38 g	21-Nov-19 03:42	1
13C2-6:2 FTS	IS	71.2	50 - 150		B9K0002	07-Nov-19	1.38 g	21-Nov-19 03:42	1
13C5-PFNA	IS	68.7	50 - 150		B9K0002	07-Nov-19	1.38 g	21-Nov-19 03:42	1
13C8-PFOSA	IS	56.5	50 - 150		B9K0002	07-Nov-19	1.38 g	21-Nov-19 03:42	1
13C2-PFOA	IS	78.6	50 - 150		B9K0002	07-Nov-19	1.38 g	21-Nov-19 03:42	1
13C8-PFOS	IS	82.2	50 - 150		B9K0002	07-Nov-19	1.38 g	21-Nov-19 03:42	1
13C2-PFDA	IS	58.6	50 - 150		B9K0002	07-Nov-19	1.38 g	21-Nov-19 03:42	1
13C2-8:2 FTS	IS	84.6	50 - 150		B9K0002	07-Nov-19	1.38 g	21-Nov-19 03:42	1

Sample ID: L14-2-5 **PFAS Isotope Dilution Method**

Client Data

Name:	Woodard & Curran	Matrix:	Soil
Project:	SJC PFAS Investigation	Date Collected:	23-Oct-19 08:32
Location:	14		

Laboratory Data

Lab Sample:	1903822-05	Column:	BEH C18
Date Received:	25-Oct-19 08:40		
% Solids:	72.8		

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
d3-MeFOSAA	IS	79.8	50 - 150		B9K0002	07-Nov-19	1.38 g	21-Nov-19 03:42	1
13C2-PFUnA	IS	58.4	50 - 150		B9K0002	07-Nov-19	1.38 g	21-Nov-19 03:42	1
d5-EtFOSAA	IS	66.4	50 - 150		B9K0002	07-Nov-19	1.38 g	21-Nov-19 03:42	1
13C2-PFDoA	IS	52.7	50 - 150		B9K0002	07-Nov-19	1.38 g	21-Nov-19 03:42	1
13C2-PFTeDA	IS	62.9	50 - 150		B9K0002	07-Nov-19	1.38 g	21-Nov-19 03:42	1

RL - Reporting limit

The results are reported in dry weight.
The sample size is reported in wet weight.
Results reported to RL.

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

Sample ID: L14-2-10 **PFAS Isotope Dilution Method**

Client Data				**Laboratory Data**			
Name:	Woodard & Curran	Matrix:	Soil	Lab Sample:	1903822-06	Column:	BEH C18
Project:	SJC PFAS Investigation	Date Collected:	23-Oct-19 08:34	Date Received:	25-Oct-19 08:40		
Location:	14			% Solids:	81.2		

Analyte	CAS Number	Conc. (ng/g)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	ND	2.00		B9K0002	07-Nov-19	1.23 g	21-Nov-19 03:52	1
PFPeA	2706-90-3	ND	2.00		B9K0002	07-Nov-19	1.23 g	21-Nov-19 03:52	1
PFBS	375-73-5	ND	2.00		B9K0002	07-Nov-19	1.23 g	21-Nov-19 03:52	1
4:2 FTS	757124-72-4	ND	2.00		B9K0002	07-Nov-19	1.23 g	21-Nov-19 03:52	1
PFHxA	307-24-4	ND	2.00		B9K0002	07-Nov-19	1.23 g	21-Nov-19 03:52	1
PFPeS	2706-91-4	ND	2.00		B9K0002	07-Nov-19	1.23 g	21-Nov-19 03:52	1
PFHpA	375-85-9	ND	2.00		B9K0002	07-Nov-19	1.23 g	21-Nov-19 03:52	1
PFHxS	355-46-4	ND	2.00		B9K0002	07-Nov-19	1.23 g	21-Nov-19 03:52	1
6:2 FTS	27619-97-2	ND	2.00		B9K0002	07-Nov-19	1.23 g	21-Nov-19 03:52	1
PFOA	335-67-1	ND	2.00		B9K0002	07-Nov-19	1.23 g	21-Nov-19 03:52	1
PFHpS	375-92-8	ND	2.00		B9K0002	07-Nov-19	1.23 g	21-Nov-19 03:52	1
PFNA	375-95-1	ND	2.00		B9K0002	07-Nov-19	1.23 g	21-Nov-19 03:52	1
PFOSA	754-91-6	ND	2.00		B9K0002	07-Nov-19	1.23 g	21-Nov-19 03:52	1
PFOS	1763-23-1	ND	2.00		B9K0002	07-Nov-19	1.23 g	21-Nov-19 03:52	1
PFDA	335-76-2	ND	2.00		B9K0002	07-Nov-19	1.23 g	21-Nov-19 03:52	1
8:2 FTS	39108-34-4	ND	2.00		B9K0002	07-Nov-19	1.23 g	21-Nov-19 03:52	1
MeFOSAA	2355-31-9	ND	2.00		B9K0002	07-Nov-19	1.23 g	21-Nov-19 03:52	1
EtFOSAA	2991-50-6	ND	2.00		B9K0002	07-Nov-19	1.23 g	21-Nov-19 03:52	1
PFUnA	2058-94-8	ND	2.00		B9K0002	07-Nov-19	1.23 g	21-Nov-19 03:52	1
PFDS	335-77-3	ND	2.00		B9K0002	07-Nov-19	1.23 g	21-Nov-19 03:52	1
PFDoA	307-55-1	ND	2.00		B9K0002	07-Nov-19	1.23 g	21-Nov-19 03:52	1
PFTrDA	72629-94-8	ND	2.00		B9K0002	07-Nov-19	1.23 g	21-Nov-19 03:52	1
PFTeDA	376-06-7	ND	2.00		B9K0002	07-Nov-19	1.23 g	21-Nov-19 03:52	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	155	50 - 150	H	B9K0002	07-Nov-19	1.23 g	21-Nov-19 03:52	1
13C3-PFPeA	IS	79.5	50 - 150		B9K0002	07-Nov-19	1.23 g	21-Nov-19 03:52	1
13C3-PFBS	IS	88.9	50 - 150		B9K0002	07-Nov-19	1.23 g	21-Nov-19 03:52	1
13C2-4:2 FTS	IS	88.4	50 - 150		B9K0002	07-Nov-19	1.23 g	21-Nov-19 03:52	1
13C2-PFHxA	IS	77.5	50 - 150		B9K0002	07-Nov-19	1.23 g	21-Nov-19 03:52	1
13C4-PFHpA	IS	75.9	50 - 150		B9K0002	07-Nov-19	1.23 g	21-Nov-19 03:52	1
13C3-PFHxS	IS	80.3	50 - 150		B9K0002	07-Nov-19	1.23 g	21-Nov-19 03:52	1
13C2-6:2 FTS	IS	81.7	50 - 150		B9K0002	07-Nov-19	1.23 g	21-Nov-19 03:52	1
13C5-PFNA	IS	71.2	50 - 150		B9K0002	07-Nov-19	1.23 g	21-Nov-19 03:52	1
13C8-PFOSA	IS	47.4	50 - 150	H	B9K0002	07-Nov-19	1.23 g	21-Nov-19 03:52	1
13C2-PFOA	IS	77.0	50 - 150		B9K0002	07-Nov-19	1.23 g	21-Nov-19 03:52	1
13C8-PFOS	IS	73.6	50 - 150		B9K0002	07-Nov-19	1.23 g	21-Nov-19 03:52	1
13C2-PFDA	IS	61.0	50 - 150		B9K0002	07-Nov-19	1.23 g	21-Nov-19 03:52	1
13C2-8:2 FTS	IS	74.4	50 - 150		B9K0002	07-Nov-19	1.23 g	21-Nov-19 03:52	1

Sample ID: L14-2-10 **PFAS Isotope Dilution Method**

Client Data				**Laboratory Data**			
Name:	Woodard & Curran	Matrix:	Soil	Lab Sample:	1903822-06	Column:	BEH C18
Project:	SJC PFAS Investigation	Date Collected:	23-Oct-19 08:34	Date Received:	25-Oct-19 08:40		
Location:	14			% Solids:	81.2		

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
d3-MeFOSAA	IS	70.0	50 - 150		B9K0002	07-Nov-19	1.23 g	21-Nov-19 03:52	1
13C2-PFUnA	IS	59.6	50 - 150		B9K0002	07-Nov-19	1.23 g	21-Nov-19 03:52	1
d5-EtFOSAA	IS	60.6	50 - 150		B9K0002	07-Nov-19	1.23 g	21-Nov-19 03:52	1
13C2-PFDoA	IS	60.1	50 - 150		B9K0002	07-Nov-19	1.23 g	21-Nov-19 03:52	1
13C2-PFTeDA	IS	56.2	50 - 150		B9K0002	07-Nov-19	1.23 g	21-Nov-19 03:52	1

RL - Reporting limit

The results are reported in dry weight.
The sample size is reported in wet weight.
Results reported to RL.

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

Sample ID: L14-4-1 **PFAS Isotope Dilution Method**

Client Data				**Laboratory Data**			
Name:	Woodard & Curran	Matrix:	Soil	Lab Sample:	1903822-07	Column:	BEH C18
Project:	SJC PFAS Investigation	Date Collected:	23-Oct-19 09:50	Date Received:	25-Oct-19 08:40		
Location:	14			% Solids:	62.0		

Analyte	CAS Number	Conc. (ng/g)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	ND	1.95		B9K0002	07-Nov-19	1.65 g	21-Nov-19 04:03	1
PFPeA	2706-90-3	ND	1.95		B9K0002	07-Nov-19	1.65 g	21-Nov-19 04:03	1
PFBS	375-73-5	ND	1.95		B9K0002	07-Nov-19	1.65 g	21-Nov-19 04:03	1
4:2 FTS	757124-72-4	ND	1.95		B9K0002	07-Nov-19	1.65 g	21-Nov-19 04:03	1
PFHxA	307-24-4	ND	1.95		B9K0002	07-Nov-19	1.65 g	21-Nov-19 04:03	1
PFPeS	2706-91-4	ND	1.95		B9K0002	07-Nov-19	1.65 g	21-Nov-19 04:03	1
PFHpA	375-85-9	ND	1.95		B9K0002	07-Nov-19	1.65 g	21-Nov-19 04:03	1
PFHxS	355-46-4	ND	1.95		B9K0002	07-Nov-19	1.65 g	21-Nov-19 04:03	1
6:2 FTS	27619-97-2	ND	1.95		B9K0002	07-Nov-19	1.65 g	21-Nov-19 04:03	1
PFOA	335-67-1	ND	1.95		B9K0002	07-Nov-19	1.65 g	21-Nov-19 04:03	1
PFHpS	375-92-8	ND	1.95		B9K0002	07-Nov-19	1.65 g	21-Nov-19 04:03	1
PFNA	375-95-1	ND	1.95		B9K0002	07-Nov-19	1.65 g	21-Nov-19 04:03	1
PFOSA	754-91-6	ND	1.95		B9K0002	07-Nov-19	1.65 g	21-Nov-19 04:03	1
PFOS	1763-23-1	5.57	1.95	Q	B9K0002	07-Nov-19	1.65 g	21-Nov-19 04:03	1
PFDA	335-76-2	ND	1.95		B9K0002	07-Nov-19	1.65 g	21-Nov-19 04:03	1
8:2 FTS	39108-34-4	ND	1.95		B9K0002	07-Nov-19	1.65 g	21-Nov-19 04:03	1
MeFOSAA	2355-31-9	ND	1.95		B9K0002	07-Nov-19	1.65 g	21-Nov-19 04:03	1
EtFOSAA	2991-50-6	ND	1.95		B9K0002	07-Nov-19	1.65 g	21-Nov-19 04:03	1
PFUnA	2058-94-8	ND	1.95		B9K0002	07-Nov-19	1.65 g	21-Nov-19 04:03	1
PFDS	335-77-3	ND	1.95		B9K0002	07-Nov-19	1.65 g	21-Nov-19 04:03	1
PFDoA	307-55-1	ND	1.95		B9K0002	07-Nov-19	1.65 g	21-Nov-19 04:03	1
PFTrDA	72629-94-8	ND	1.95		B9K0002	07-Nov-19	1.65 g	21-Nov-19 04:03	1
PFTeDA	376-06-7	ND	1.95		B9K0002	07-Nov-19	1.65 g	21-Nov-19 04:03	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	150	50 - 150		B9K0002	07-Nov-19	1.65 g	21-Nov-19 04:03	1
13C3-PFPeA	IS	76.7	50 - 150		B9K0002	07-Nov-19	1.65 g	21-Nov-19 04:03	1
13C3-PFBS	IS	87.6	50 - 150		B9K0002	07-Nov-19	1.65 g	21-Nov-19 04:03	1
13C2-4:2 FTS	IS	78.5	50 - 150		B9K0002	07-Nov-19	1.65 g	21-Nov-19 04:03	1
13C2-PFHxA	IS	73.3	50 - 150		B9K0002	07-Nov-19	1.65 g	21-Nov-19 04:03	1
13C4-PFHpA	IS	70.7	50 - 150		B9K0002	07-Nov-19	1.65 g	21-Nov-19 04:03	1
13C3-PFHxS	IS	78.8	50 - 150		B9K0002	07-Nov-19	1.65 g	21-Nov-19 04:03	1
13C2-6:2 FTS	IS	98.7	50 - 150		B9K0002	07-Nov-19	1.65 g	21-Nov-19 04:03	1
13C5-PFNA	IS	64.2	50 - 150		B9K0002	07-Nov-19	1.65 g	21-Nov-19 04:03	1
13C8-PFOSA	IS	58.3	50 - 150		B9K0002	07-Nov-19	1.65 g	21-Nov-19 04:03	1
13C2-PFOA	IS	71.4	50 - 150		B9K0002	07-Nov-19	1.65 g	21-Nov-19 04:03	1
13C8-PFOS	IS	73.3	50 - 150		B9K0002	07-Nov-19	1.65 g	21-Nov-19 04:03	1
13C2-PFDA	IS	61.3	50 - 150		B9K0002	07-Nov-19	1.65 g	21-Nov-19 04:03	1
13C2-8:2 FTS	IS	74.7	50 - 150		B9K0002	07-Nov-19	1.65 g	21-Nov-19 04:03	1

Sample ID: L14-4-1

PFAS Isotope Dilution Method

Client Data			
Name:	Woodard & Curran	Matrix:	Soil
Project:	SJC PFAS Investigation	Date Collected:	23-Oct-19 09:50
Location:	14		

Laboratory Data			
Lab Sample:	1903822-07	Column:	BEH C18
Date Received:	25-Oct-19 08:40		
% Solids:	62.0		

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
d3-MeFOSAA	IS	71.0	50 - 150		B9K0002	07-Nov-19	1.65 g	21-Nov-19 04:03	1
13C2-PFUnA	IS	60.6	50 - 150		B9K0002	07-Nov-19	1.65 g	21-Nov-19 04:03	1
d5-EtFOSAA	IS	67.0	50 - 150		B9K0002	07-Nov-19	1.65 g	21-Nov-19 04:03	1
13C2-PFDoA	IS	60.1	50 - 150		B9K0002	07-Nov-19	1.65 g	21-Nov-19 04:03	1
13C2-PFTeDA	IS	65.4	50 - 150		B9K0002	07-Nov-19	1.65 g	21-Nov-19 04:03	1

RL - Reporting limit

The results are reported in dry weight.
The sample size is reported in wet weight.
Results reported to RL.

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

Sample ID: L14-4-5 **PFAS Isotope Dilution Method**

Client Data				**Laboratory Data**			
Name:	Woodard & Curran	Matrix:	Soil	Lab Sample:	1903822-08	Column:	BEH C18
Project:	SJC PFAS Investigation	Date Collected:	23-Oct-19 09:52	Date Received:	25-Oct-19 08:40		
Location:	14			% Solids:	74.7		

Analyte	CAS Number	Conc. (ng/g)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	ND	1.94		B9K0002	07-Nov-19	1.38 g	21-Nov-19 04:13	1
PFPeA	2706-90-3	ND	1.94		B9K0002	07-Nov-19	1.38 g	21-Nov-19 04:13	1
PFBS	375-73-5	ND	1.94		B9K0002	07-Nov-19	1.38 g	21-Nov-19 04:13	1
4:2 FTS	757124-72-4	ND	1.94		B9K0002	07-Nov-19	1.38 g	21-Nov-19 04:13	1
PFHxA	307-24-4	ND	1.94		B9K0002	07-Nov-19	1.38 g	21-Nov-19 04:13	1
PFPeS	2706-91-4	ND	1.94		B9K0002	07-Nov-19	1.38 g	21-Nov-19 04:13	1
PFHpA	375-85-9	ND	1.94		B9K0002	07-Nov-19	1.38 g	21-Nov-19 04:13	1
PFHxS	355-46-4	ND	1.94		B9K0002	07-Nov-19	1.38 g	21-Nov-19 04:13	1
6:2 FTS	27619-97-2	ND	1.94		B9K0002	07-Nov-19	1.38 g	21-Nov-19 04:13	1
PFOA	335-67-1	ND	1.94		B9K0002	07-Nov-19	1.38 g	21-Nov-19 04:13	1
PFHpS	375-92-8	ND	1.94		B9K0002	07-Nov-19	1.38 g	21-Nov-19 04:13	1
PFNA	375-95-1	ND	1.94		B9K0002	07-Nov-19	1.38 g	21-Nov-19 04:13	1
PFOSA	754-91-6	ND	1.94		B9K0002	07-Nov-19	1.38 g	21-Nov-19 04:13	1
PFOS	1763-23-1	ND	1.94		B9K0002	07-Nov-19	1.38 g	21-Nov-19 04:13	1
PFDA	335-76-2	ND	1.94		B9K0002	07-Nov-19	1.38 g	21-Nov-19 04:13	1
8:2 FTS	39108-34-4	ND	1.94		B9K0002	07-Nov-19	1.38 g	21-Nov-19 04:13	1
MeFOSAA	2355-31-9	ND	1.94		B9K0002	07-Nov-19	1.38 g	21-Nov-19 04:13	1
EtFOSAA	2991-50-6	ND	1.94		B9K0002	07-Nov-19	1.38 g	21-Nov-19 04:13	1
PFUnA	2058-94-8	ND	1.94		B9K0002	07-Nov-19	1.38 g	21-Nov-19 04:13	1
PFDS	335-77-3	ND	1.94		B9K0002	07-Nov-19	1.38 g	21-Nov-19 04:13	1
PFDoA	307-55-1	ND	1.94		B9K0002	07-Nov-19	1.38 g	21-Nov-19 04:13	1
PFTrDA	72629-94-8	ND	1.94		B9K0002	07-Nov-19	1.38 g	21-Nov-19 04:13	1
PFTeDA	376-06-7	ND	1.94		B9K0002	07-Nov-19	1.38 g	21-Nov-19 04:13	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	138	50 - 150		B9K0002	07-Nov-19	1.38 g	21-Nov-19 04:13	1
13C3-PFPeA	IS	73.3	50 - 150		B9K0002	07-Nov-19	1.38 g	21-Nov-19 04:13	1
13C3-PFBS	IS	79.7	50 - 150		B9K0002	07-Nov-19	1.38 g	21-Nov-19 04:13	1
13C2-4:2 FTS	IS	78.9	50 - 150		B9K0002	07-Nov-19	1.38 g	21-Nov-19 04:13	1
13C2-PFHxA	IS	71.3	50 - 150		B9K0002	07-Nov-19	1.38 g	21-Nov-19 04:13	1
13C4-PFHpA	IS	68.0	50 - 150		B9K0002	07-Nov-19	1.38 g	21-Nov-19 04:13	1
13C3-PFHxS	IS	70.4	50 - 150		B9K0002	07-Nov-19	1.38 g	21-Nov-19 04:13	1
13C2-6:2 FTS	IS	71.6	50 - 150		B9K0002	07-Nov-19	1.38 g	21-Nov-19 04:13	1
13C5-PFNA	IS	59.2	50 - 150		B9K0002	07-Nov-19	1.38 g	21-Nov-19 04:13	1
13C8-PFOSA	IS	55.2	50 - 150		B9K0002	07-Nov-19	1.38 g	21-Nov-19 04:13	1
13C2-PFOA	IS	66.9	50 - 150		B9K0002	07-Nov-19	1.38 g	21-Nov-19 04:13	1
13C8-PFOS	IS	67.2	50 - 150		B9K0002	07-Nov-19	1.38 g	21-Nov-19 04:13	1
13C2-PFDA	IS	50.3	50 - 150		B9K0002	07-Nov-19	1.38 g	21-Nov-19 04:13	1
13C2-8:2 FTS	IS	69.3	50 - 150		B9K0002	07-Nov-19	1.38 g	21-Nov-19 04:13	1

Sample ID: L14-4-5

PFAS Isotope Dilution Method

Client Data				**Laboratory Data**			
Name:	Woodard & Curran	Matrix:	Soil	Lab Sample:	1903822-08	Column:	BEH C18
Project:	SJC PFAS Investigation	Date Collected:	23-Oct-19 09:52	Date Received:	25-Oct-19 08:40		
Location:	14			% Solids:	74.7		

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
d3-MeFOSAA	IS	58.9	50 - 150		B9K0002	07-Nov-19	1.38 g	21-Nov-19 04:13	1
13C2-PFUnA	IS	58.6	50 - 150		B9K0002	07-Nov-19	1.38 g	21-Nov-19 04:13	1
d5-EtFOSAA	IS	58.7	50 - 150		B9K0002	07-Nov-19	1.38 g	21-Nov-19 04:13	1
13C2-PFDoA	IS	51.2	50 - 150		B9K0002	07-Nov-19	1.38 g	21-Nov-19 04:13	1
13C2-PFTeDA	IS	55.4	50 - 150		B9K0002	07-Nov-19	1.38 g	21-Nov-19 04:13	1

RL - Reporting limit

The results are reported in dry weight.
The sample size is reported in wet weight.
Results reported to RL.

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

Sample ID: L14-4-10 **PFAS Isotope Dilution Method**

Client Data				**Laboratory Data**	
Name:	Woodard & Curran	Matrix:	Soil	Lab Sample:	1903822-09
Project:	SJC PFAS Investigation	Date Collected:	23-Oct-19 09:54	Date Received:	25-Oct-19 08:40
Location:	14			% Solids:	82.9
				Column:	BEH C18

Analyte	CAS Number	Conc. (ng/g)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	ND	1.93		B9K0002	07-Nov-19	1.25 g	21-Nov-19 04:24	1
PFPeA	2706-90-3	ND	1.93		B9K0002	07-Nov-19	1.25 g	21-Nov-19 04:24	1
PFBS	375-73-5	ND	1.93		B9K0002	07-Nov-19	1.25 g	21-Nov-19 04:24	1
4:2 FTS	757124-72-4	ND	1.93		B9K0002	07-Nov-19	1.25 g	21-Nov-19 04:24	1
PFHxA	307-24-4	ND	1.93		B9K0002	07-Nov-19	1.25 g	21-Nov-19 04:24	1
PFPeS	2706-91-4	ND	1.93		B9K0002	07-Nov-19	1.25 g	21-Nov-19 04:24	1
PFHpA	375-85-9	ND	1.93		B9K0002	07-Nov-19	1.25 g	21-Nov-19 04:24	1
PFHxS	355-46-4	ND	1.93		B9K0002	07-Nov-19	1.25 g	21-Nov-19 04:24	1
6:2 FTS	27619-97-2	ND	1.93		B9K0002	07-Nov-19	1.25 g	21-Nov-19 04:24	1
PFOA	335-67-1	ND	1.93		B9K0002	07-Nov-19	1.25 g	21-Nov-19 04:24	1
PFHpS	375-92-8	ND	1.93		B9K0002	07-Nov-19	1.25 g	21-Nov-19 04:24	1
PFNA	375-95-1	ND	1.93		B9K0002	07-Nov-19	1.25 g	21-Nov-19 04:24	1
PFOSA	754-91-6	ND	1.93		B9K0002	07-Nov-19	1.25 g	21-Nov-19 04:24	1
PFOS	1763-23-1	ND	1.93		B9K0002	07-Nov-19	1.25 g	21-Nov-19 04:24	1
PFDA	335-76-2	ND	1.93		B9K0002	07-Nov-19	1.25 g	21-Nov-19 04:24	1
8:2 FTS	39108-34-4	ND	1.93		B9K0002	07-Nov-19	1.25 g	21-Nov-19 04:24	1
MeFOSAA	2355-31-9	ND	1.93		B9K0002	07-Nov-19	1.25 g	21-Nov-19 04:24	1
EtFOSAA	2991-50-6	ND	1.93		B9K0002	07-Nov-19	1.25 g	21-Nov-19 04:24	1
PFUnA	2058-94-8	ND	1.93		B9K0002	07-Nov-19	1.25 g	21-Nov-19 04:24	1
PFDS	335-77-3	ND	1.93		B9K0002	07-Nov-19	1.25 g	21-Nov-19 04:24	1
PFDoA	307-55-1	ND	1.93		B9K0002	07-Nov-19	1.25 g	21-Nov-19 04:24	1
PFTrDA	72629-94-8	ND	1.93		B9K0002	07-Nov-19	1.25 g	21-Nov-19 04:24	1
PFTeDA	376-06-7	ND	1.93		B9K0002	07-Nov-19	1.25 g	21-Nov-19 04:24	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	134	50 - 150		B9K0002	07-Nov-19	1.25 g	21-Nov-19 04:24	1
13C3-PFPeA	IS	67.4	50 - 150		B9K0002	07-Nov-19	1.25 g	21-Nov-19 04:24	1
13C3-PFBS	IS	84.5	50 - 150		B9K0002	07-Nov-19	1.25 g	21-Nov-19 04:24	1
13C2-4:2 FTS	IS	84.3	50 - 150		B9K0002	07-Nov-19	1.25 g	21-Nov-19 04:24	1
13C2-PFHxA	IS	63.2	50 - 150		B9K0002	07-Nov-19	1.25 g	21-Nov-19 04:24	1
13C4-PFHpA	IS	65.3	50 - 150		B9K0002	07-Nov-19	1.25 g	21-Nov-19 04:24	1
13C3-PFHxS	IS	80.4	50 - 150		B9K0002	07-Nov-19	1.25 g	21-Nov-19 04:24	1
13C2-6:2 FTS	IS	85.0	50 - 150		B9K0002	07-Nov-19	1.25 g	21-Nov-19 04:24	1
13C5-PFNA	IS	59.1	50 - 150		B9K0002	07-Nov-19	1.25 g	21-Nov-19 04:24	1
13C8-PFOSA	IS	41.9	50 - 150	H	B9K0002	07-Nov-19	1.25 g	21-Nov-19 04:24	1
13C2-PFOA	IS	66.4	50 - 150		B9K0002	07-Nov-19	1.25 g	21-Nov-19 04:24	1
13C8-PFOS	IS	70.6	50 - 150		B9K0002	07-Nov-19	1.25 g	21-Nov-19 04:24	1
13C2-PFDA	IS	52.6	50 - 150		B9K0002	07-Nov-19	1.25 g	21-Nov-19 04:24	1
13C2-8:2 FTS	IS	72.0	50 - 150		B9K0002	07-Nov-19	1.25 g	21-Nov-19 04:24	1

Sample ID: L14-4-10 **PFAS Isotope Dilution Method**

Client Data				**Laboratory Data**			
Name:	Woodard & Curran	Matrix:	Soil	Lab Sample:	1903822-09	Column:	BEH C18
Project:	SJC PFAS Investigation	Date Collected:	23-Oct-19 09:54	Date Received:	25-Oct-19 08:40		
Location:	14			% Solids:	82.9		

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
d3-MeFOSAA	IS	54.5	50 - 150		B9K0002	07-Nov-19	1.25 g	21-Nov-19 04:24	1
13C2-PFUnA	IS	49.0	50 - 150	H	B9K0002	07-Nov-19	1.25 g	21-Nov-19 04:24	1
d5-EtFOSAA	IS	58.8	50 - 150		B9K0002	07-Nov-19	1.25 g	21-Nov-19 04:24	1
13C2-PFDoA	IS	51.2	50 - 150		B9K0002	07-Nov-19	1.25 g	21-Nov-19 04:24	1
13C2-PFTeDA	IS	45.0	50 - 150	H	B9K0002	07-Nov-19	1.25 g	21-Nov-19 04:24	1

RL - Reporting limit

The results are reported in dry weight.
The sample size is reported in wet weight.
Results reported to RL.

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

Sample ID: Method Blank

PFAS Isotope Dilution Method

Client Data				**Laboratory Data**			
Name:	Woodard & Curran	Matrix:	Aqueous	Lab Sample:	B9J0302-BLK1	Column:	BEH C18
Project:	SJC PFAS Investigation						

Analyte	CAS Number	Conc. (ng/L)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	ND	2.00		B9J0302	01-Nov-19	0.250 L	11-Nov-19 22:28	1
PFPeA	2706-90-3	ND	2.00		B9J0302	01-Nov-19	0.250 L	11-Nov-19 22:28	1
PFBS	375-73-5	ND	2.00		B9J0302	01-Nov-19	0.250 L	11-Nov-19 22:28	1
4:2 FTS	757124-72-4	ND	2.00		B9J0302	01-Nov-19	0.250 L	11-Nov-19 22:28	1
PFHxA	307-24-4	ND	2.00		B9J0302	01-Nov-19	0.250 L	11-Nov-19 22:28	1
PFPeS	2706-91-4	ND	2.00		B9J0302	01-Nov-19	0.250 L	11-Nov-19 22:28	1
PFHpA	375-85-9	ND	2.00		B9J0302	01-Nov-19	0.250 L	11-Nov-19 22:28	1
PFHxS	355-46-4	ND	2.00		B9J0302	01-Nov-19	0.250 L	11-Nov-19 22:28	1
6:2 FTS	27619-97-2	ND	2.00		B9J0302	01-Nov-19	0.250 L	11-Nov-19 22:28	1
PFOA	335-67-1	ND	2.00		B9J0302	01-Nov-19	0.250 L	11-Nov-19 22:28	1
PFHpS	375-92-8	ND	2.00		B9J0302	01-Nov-19	0.250 L	11-Nov-19 22:28	1
PFNA	375-95-1	ND	2.00		B9J0302	01-Nov-19	0.250 L	11-Nov-19 22:28	1
PFOSA	754-91-6	ND	2.00		B9J0302	01-Nov-19	0.250 L	11-Nov-19 22:28	1
PFOS	1763-23-1	ND	2.00		B9J0302	01-Nov-19	0.250 L	11-Nov-19 22:28	1
PFDA	335-76-2	ND	2.00		B9J0302	01-Nov-19	0.250 L	11-Nov-19 22:28	1
8:2 FTS	39108-34-4	ND	2.00		B9J0302	01-Nov-19	0.250 L	11-Nov-19 22:28	1
MeFOSAA	2355-31-9	ND	2.00		B9J0302	01-Nov-19	0.250 L	11-Nov-19 22:28	1
EtFOSAA	2991-50-6	ND	2.00		B9J0302	01-Nov-19	0.250 L	11-Nov-19 22:28	1
PFUnA	2058-94-8	ND	2.00		B9J0302	01-Nov-19	0.250 L	11-Nov-19 22:28	1
PFDS	335-77-3	ND	2.00		B9J0302	01-Nov-19	0.250 L	11-Nov-19 22:28	1
PFDoA	307-55-1	ND	2.00		B9J0302	01-Nov-19	0.250 L	11-Nov-19 22:28	1
PFTrDA	72629-94-8	ND	2.00		B9J0302	01-Nov-19	0.250 L	11-Nov-19 22:28	1
PFTeDA	376-06-7	ND	2.00		B9J0302	01-Nov-19	0.250 L	11-Nov-19 22:28	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	115	50 - 150		B9J0302	01-Nov-19	0.250 L	11-Nov-19 22:28	1
13C3-PFPeA	IS	86.7	50 - 150		B9J0302	01-Nov-19	0.250 L	11-Nov-19 22:28	1
13C3-PFBS	IS	95.0	50 - 150		B9J0302	01-Nov-19	0.250 L	11-Nov-19 22:28	1
13C2-4:2 FTS	IS	98.0	50 - 150		B9J0302	01-Nov-19	0.250 L	11-Nov-19 22:28	1
13C2-PFHxA	IS	83.5	50 - 150		B9J0302	01-Nov-19	0.250 L	11-Nov-19 22:28	1
13C4-PFHpA	IS	89.2	50 - 150		B9J0302	01-Nov-19	0.250 L	11-Nov-19 22:28	1
13C3-PFHxS	IS	93.5	50 - 150		B9J0302	01-Nov-19	0.250 L	11-Nov-19 22:28	1
13C2-6:2 FTS	IS	88.9	50 - 150		B9J0302	01-Nov-19	0.250 L	11-Nov-19 22:28	1
13C5-PFNA	IS	94.2	50 - 150		B9J0302	01-Nov-19	0.250 L	11-Nov-19 22:28	1
13C8-PFOSA	IS	41.5	50 - 150	H	B9J0302	01-Nov-19	0.250 L	11-Nov-19 22:28	1
13C2-PFOA	IS	84.7	50 - 150		B9J0302	01-Nov-19	0.250 L	11-Nov-19 22:28	1
13C8-PFOS	IS	91.3	50 - 150		B9J0302	01-Nov-19	0.250 L	11-Nov-19 22:28	1
13C2-PFDA	IS	89.9	50 - 150		B9J0302	01-Nov-19	0.250 L	11-Nov-19 22:28	1
13C2-8:2 FTS	IS	97.5	50 - 150		B9J0302	01-Nov-19	0.250 L	11-Nov-19 22:28	1

Sample ID: Method Blank

PFAS Isotope Dilution Method

Client Data				**Laboratory Data**			
Name:	Woodard & Curran	Matrix:	Aqueous	Lab Sample:	B9J0302-BLK1	Column:	BEH C18
Project:	SJC PFAS Investigation						

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
d3-MeFOSAA	IS	77.2	50 - 150		B9J0302	01-Nov-19	0.250 L	11-Nov-19 22:28	1
13C2-PFUnA	IS	79.9	50 - 150		B9J0302	01-Nov-19	0.250 L	11-Nov-19 22:28	1
d5-EtFOSAA	IS	76.6	50 - 150		B9J0302	01-Nov-19	0.250 L	11-Nov-19 22:28	1
13C2-PFDoA	IS	72.0	50 - 150		B9J0302	01-Nov-19	0.250 L	11-Nov-19 22:28	1
13C2-PFTeDA	IS	72.2	50 - 150		B9J0302	01-Nov-19	0.250 L	11-Nov-19 22:28	1

RL - Reporting limit

Results reported to RL.

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

Sample ID: LCSD **PFAS Isotope Dilution Method**

Name:	Woodard & Curran	Lab Sample:	B9J0302-BS1/B9J0302-BSD1		
Project:	SJC PFAS Investigation	QC Batch:	B9J0302	Date Extracted:	01-Nov-19
Matrix:	Aqueous	Samp Size:	0.250/0.250 L	Column:	BEH C18

Analyte	CAS Number	LCS (ng/L)	LCS Spike	LCS % Rec	LCS Quals	LCSD (ng/L)	LCSD Spike	LCSD % Rec	RPD	LCSD Quals	%Rec Limits	RPD Limits	LCS Analyzed	LCS Dil	LCSD Analyzed	LCSD Dil
PFBA	375-22-4	40.9	40.0	102		38.7	40.0	96.6	5.67		73-129	30	11-Nov-19 22:39	1	11-Nov-19 22:50	1
PFPeA	2706-90-3	42.5	40.0	106		40.8	40.0	102	4.11		72-129	30	11-Nov-19 22:39	1	11-Nov-19 22:50	1
PFBS	375-73-5	42.4	40.0	106		38.1	40.0	95.2	10.7		72-130	30	11-Nov-19 22:39	1	11-Nov-19 22:50	1
4:2 FTS	757124-72-4	35.5	40.0	88.8		34.9	40.0	87.3	1.63		63-143	30	11-Nov-19 22:39	1	11-Nov-19 22:50	1
PFHxA	307-24-4	41.2	40.0	103		42.3	40.0	106	2.82		72-129	30	11-Nov-19 22:39	1	11-Nov-19 22:50	1
PFPeS	2706-91-4	37.5	40.0	93.8		34.0	40.0	84.9	9.94		71-127	30	11-Nov-19 22:39	1	11-Nov-19 22:50	1
PFHpA	375-85-9	43.7	40.0	109		41.7	40.0	104	4.60		72-130	30	11-Nov-19 22:39	1	11-Nov-19 22:50	1
PFHxS	355-46-4	35.0	40.0	87.4		34.5	40.0	86.4	1.18		68-131	30	11-Nov-19 22:39	1	11-Nov-19 22:50	1
6:2 FTS	27619-97-2	43.6	40.0	109		40.7	40.0	102	6.87		64-140	30	11-Nov-19 22:39	1	11-Nov-19 22:50	1
PFOA	335-67-1	36.0	40.0	90.0		36.6	40.0	91.6	1.67		71-133	30	11-Nov-19 22:39	1	11-Nov-19 22:50	1
PFHpS	375-92-8	44.5	40.0	111		43.1	40.0	108	3.19		69-134	30	11-Nov-19 22:39	1	11-Nov-19 22:50	1
PFNA	375-95-1	43.7	40.0	109		42.2	40.0	105	3.59		69-130	30	11-Nov-19 22:39	1	11-Nov-19 22:50	1
PFOSA	754-91-6	37.8	40.0	94.5		39.5	40.0	98.7	4.33		67-137	30	11-Nov-19 22:39	1	11-Nov-19 22:50	1
PFOS	1763-23-1	41.9	40.0	105		40.5	40.0	101	3.41		65-140	30	11-Nov-19 22:39	1	11-Nov-19 22:50	1
PFDA	335-76-2	40.7	40.0	102		41.0	40.0	103	0.785		71-129	30	11-Nov-19 22:39	1	11-Nov-19 22:50	1
8:2 FTS	39108-34-4	33.8	40.0	84.5		32.2	40.0	80.6	4.73		67-138	30	11-Nov-19 22:39	1	11-Nov-19 22:50	1
MeFOSAA	2355-31-9	35.3	40.0	88.1		35.5	40.0	88.8	0.794		65-136	30	11-Nov-19 22:39	1	11-Nov-19 22:50	1
EtFOSAA	2991-50-6	36.3	40.0	90.9		33.0	40.0	82.6	9.50		61-135	30	11-Nov-19 22:39	1	11-Nov-19 22:50	1
PFUnA	2058-94-8	42.1	40.0	105		42.2	40.0	106	0.426		69-133	30	11-Nov-19 22:39	1	11-Nov-19 22:50	1
PFDS	335-77-3	34.9	40.0	87.3		30.7	40.0	76.8	12.8		53-142	30	11-Nov-19 22:39	1	11-Nov-19 22:50	1
PFDoA	307-55-1	44.2	40.0	110		43.2	40.0	108	2.17		72-134	30	11-Nov-19 22:39	1	11-Nov-19 22:50	1
PFTrDA	72629-94-8	37.8	40.0	94.4		34.8	40.0	86.9	8.23		65-144	30	11-Nov-19 22:39	1	11-Nov-19 22:50	1
PFTeDA	376-06-7	42.6	40.0	106		41.9	40.0	105	1.56		71-132	30	11-Nov-19 22:39	1	11-Nov-19 22:50	1

Labeled Standards	Type	LCS % Rec	LCS Quals	LCSD % Rec	LCSD Quals	Limits	LCS Analyzed	LCS Dil	LCSD Analyzed	LCSD Dil
13C3-PFBA	IS	101		121		50-150	11-Nov-19 22:39	1	11-Nov-19 22:50	1
13C3-PFPeA	IS	77.3		91.3		50-150	11-Nov-19 22:39	1	11-Nov-19 22:50	1
13C3-PFBS	IS	85.8		110		50-150	11-Nov-19 22:39	1	11-Nov-19 22:50	1
13C2-4:2 FTS	IS	86.8		97.8		50-150	11-Nov-19 22:39	1	11-Nov-19 22:50	1
13C2-PFHxA	IS	78.8		86.5		50-150	11-Nov-19 22:39	1	11-Nov-19 22:50	1
13C4-PFHpA	IS	82.3		90.9		50-150	11-Nov-19 22:39	1	11-Nov-19 22:50	1
13C3-PFHxS	IS	92.0		103		50-150	11-Nov-19 22:39	1	11-Nov-19 22:50	1
13C2-6:2 FTS	IS	79.8		97.8		50-150	11-Nov-19 22:39	1	11-Nov-19 22:50	1

Sample ID: LCSD **PFAS Isotope Dilution Method**

Name:	Woodard & Curran	Lab Sample:	B9J0302-BS1/B9J0302-BSD1	Date Extracted:	01-Nov-19
Project:	SJC PFAS Investigation	QC Batch:	B9J0302	Column:	BEH C18
Matrix:	Aqueous	Samp Size:	0.250/0.250 L		

Labeled Standards	Type	LCS % Rec	LCS Quals	LCSD % Rec	LCSD Quals	Limits	LCS Analyzed	LCS Dil	LCSD Analyzed	LCSD Dil
13C5-PFNA	IS	88.3		102		50-150	11-Nov-19 22:39	1	11-Nov-19 22:50	1
13C8-PFOSA	IS	35.5	H	39.8	H	50-150	11-Nov-19 22:39	1	11-Nov-19 22:50	1
13C2-PFOA	IS	80.9		90.9		50-150	11-Nov-19 22:39	1	11-Nov-19 22:50	1
13C8-PFOS	IS	88.8		104		50-150	11-Nov-19 22:39	1	11-Nov-19 22:50	1
13C2-PFDA	IS	87.7		99.2		50-150	11-Nov-19 22:39	1	11-Nov-19 22:50	1
13C2-8:2 FTS	IS	91.0		104		50-150	11-Nov-19 22:39	1	11-Nov-19 22:50	1
d3-MeFOSAA	IS	69.4		74.9		50-150	11-Nov-19 22:39	1	11-Nov-19 22:50	1
13C2-PFUnA	IS	80.7		84.4		50-150	11-Nov-19 22:39	1	11-Nov-19 22:50	1
d5-EtFOSAA	IS	70.8		85.2		50-150	11-Nov-19 22:39	1	11-Nov-19 22:50	1
13C2-PFDoA	IS	66.9		71.6		50-150	11-Nov-19 22:39	1	11-Nov-19 22:50	1
13C2-PFTeDA	IS	73.0		60.4		50-150	11-Nov-19 22:39	1	11-Nov-19 22:50	1

Sample ID: L14-1-GW **PFAS Isotope Dilution Method**

Client Data				**Laboratory Data**			
Name:	Woodard & Curran	Matrix:	Aqueous	Lab Sample:	1903822-10	Column:	BEH C18
Project:	SJC PFAS Investigation	Date Collected:	23-Oct-19 08:38	Date Received:	25-Oct-19 08:40		
Location:	14						

Analyte	CAS Number	Conc. (ng/L)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	ND	2.09		B9J0302	01-Nov-19	0.239 L	11-Nov-19 23:00	1
PFPeA	2706-90-3	ND	2.09		B9J0302	01-Nov-19	0.239 L	11-Nov-19 23:00	1
PFBS	375-73-5	ND	2.09		B9J0302	01-Nov-19	0.239 L	11-Nov-19 23:00	1
4:2 FTS	757124-72-4	ND	2.09		B9J0302	01-Nov-19	0.239 L	11-Nov-19 23:00	1
PFHxA	307-24-4	ND	2.09		B9J0302	01-Nov-19	0.239 L	11-Nov-19 23:00	1
PFPeS	2706-91-4	ND	2.09		B9J0302	01-Nov-19	0.239 L	11-Nov-19 23:00	1
PFHpA	375-85-9	ND	2.09		B9J0302	01-Nov-19	0.239 L	11-Nov-19 23:00	1
PFHxS	355-46-4	ND	2.09		B9J0302	01-Nov-19	0.239 L	11-Nov-19 23:00	1
6:2 FTS	27619-97-2	ND	2.09		B9J0302	01-Nov-19	0.239 L	11-Nov-19 23:00	1
PFOA	335-67-1	ND	2.09		B9J0302	01-Nov-19	0.239 L	11-Nov-19 23:00	1
PFHpS	375-92-8	ND	2.09		B9J0302	01-Nov-19	0.239 L	11-Nov-19 23:00	1
PFNA	375-95-1	ND	2.09		B9J0302	01-Nov-19	0.239 L	11-Nov-19 23:00	1
PFOSA	754-91-6	ND	2.09		B9J0302	01-Nov-19	0.239 L	11-Nov-19 23:00	1
PFOS	1763-23-1	ND	2.09		B9J0302	01-Nov-19	0.239 L	11-Nov-19 23:00	1
PFDA	335-76-2	ND	2.09		B9J0302	01-Nov-19	0.239 L	11-Nov-19 23:00	1
8:2 FTS	39108-34-4	ND	2.09		B9J0302	01-Nov-19	0.239 L	11-Nov-19 23:00	1
MeFOSAA	2355-31-9	ND	2.09		B9J0302	01-Nov-19	0.239 L	11-Nov-19 23:00	1
EtFOSAA	2991-50-6	ND	2.09		B9J0302	01-Nov-19	0.239 L	11-Nov-19 23:00	1
PFUnA	2058-94-8	ND	2.09		B9J0302	01-Nov-19	0.239 L	11-Nov-19 23:00	1
PFDS	335-77-3	ND	2.09		B9J0302	01-Nov-19	0.239 L	11-Nov-19 23:00	1
PFDoA	307-55-1	ND	2.09		B9J0302	01-Nov-19	0.239 L	11-Nov-19 23:00	1
PFTrDA	72629-94-8	ND	2.09		B9J0302	01-Nov-19	0.239 L	11-Nov-19 23:00	1
PFTeDA	376-06-7	ND	2.09		B9J0302	01-Nov-19	0.239 L	11-Nov-19 23:00	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	132	50 - 150		B9J0302	01-Nov-19	0.239 L	11-Nov-19 23:00	1
13C3-PFPeA	IS	111	50 - 150		B9J0302	01-Nov-19	0.239 L	11-Nov-19 23:00	1
13C3-PFBS	IS	120	50 - 150		B9J0302	01-Nov-19	0.239 L	11-Nov-19 23:00	1
13C2-4:2 FTS	IS	115	50 - 150		B9J0302	01-Nov-19	0.239 L	11-Nov-19 23:00	1
13C2-PFHxA	IS	106	50 - 150		B9J0302	01-Nov-19	0.239 L	11-Nov-19 23:00	1
13C4-PFHpA	IS	113	50 - 150		B9J0302	01-Nov-19	0.239 L	11-Nov-19 23:00	1
13C3-PFHxS	IS	121	50 - 150		B9J0302	01-Nov-19	0.239 L	11-Nov-19 23:00	1
13C2-6:2 FTS	IS	105	50 - 150		B9J0302	01-Nov-19	0.239 L	11-Nov-19 23:00	1
13C5-PFNA	IS	111	50 - 150		B9J0302	01-Nov-19	0.239 L	11-Nov-19 23:00	1
13C8-PFOSA	IS	53.8	50 - 150		B9J0302	01-Nov-19	0.239 L	11-Nov-19 23:00	1
13C2-PFOA	IS	112	50 - 150		B9J0302	01-Nov-19	0.239 L	11-Nov-19 23:00	1
13C8-PFOS	IS	110	50 - 150		B9J0302	01-Nov-19	0.239 L	11-Nov-19 23:00	1
13C2-PFDA	IS	104	50 - 150		B9J0302	01-Nov-19	0.239 L	11-Nov-19 23:00	1
13C2-8:2 FTS	IS	114	50 - 150		B9J0302	01-Nov-19	0.239 L	11-Nov-19 23:00	1

Sample ID: L14-1-GW

PFAS Isotope Dilution Method

Client Data				**Laboratory Data**			
Name:	Woodard & Curran	Matrix:	Aqueous	Lab Sample:	1903822-10	Column:	BEH C18
Project:	SJC PFAS Investigation	Date Collected:	23-Oct-19 08:38	Date Received:	25-Oct-19 08:40		
Location:	14						

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
d3-MeFOSAA	IS	89.7	50 - 150		B9J0302	01-Nov-19	0.239 L	11-Nov-19 23:00	1
13C2-PFUnA	IS	90.3	50 - 150		B9J0302	01-Nov-19	0.239 L	11-Nov-19 23:00	1
d5-EtFOSAA	IS	91.6	50 - 150		B9J0302	01-Nov-19	0.239 L	11-Nov-19 23:00	1
13C2-PFDoA	IS	65.2	50 - 150		B9J0302	01-Nov-19	0.239 L	11-Nov-19 23:00	1
13C2-PFTeDA	IS	14.0	50 - 150	H	B9J0302	01-Nov-19	0.239 L	11-Nov-19 23:00	1

RL - Reporting limit

Results reported to RL.

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

DATA QUALIFIERS & ABBREVIATIONS

B	This compound was also detected in the method blank
Conc.	Concentration
CRS	Cleanup Recovery Standard
D	Dilution
DL	Detection limit
E	The associated compound concentration exceeded the calibration range of the instrument
H	Recovery and/or RPD was outside laboratory acceptance limits
I	Chemical Interference
IS	Internal Standard
J	The amount detected is below the Reporting Limit/LOQ
LOD	Limit of Detection
LOQ	Limit of Quantitation
M	Estimated Maximum Possible Concentration (CA Region 2 projects only)
NA	Not applicable
ND	Not Detected
OPR	Ongoing Precision and Recovery sample
P	The reported concentration may include contribution from chlorinated diphenyl ether(s).
Q	The ion transition ratio is outside of the acceptance criteria.
RL	Reporting Limit
TEQ	Toxic Equivalency
U	Not Detected (specific projects only)
*	See Cover Letter

Unless otherwise noted, solid sample results are reported in dry weight. Tissue samples are reported in wet weight.

Vista Analytical Laboratory Certifications

Accrediting Authority	Certificate Number
Alaska Department of Environmental Conservation	17-013
Arkansas Department of Environmental Quality	19-013-0
California Department of Health – ELAP	2892
DoD ELAP - A2LA Accredited - ISO/IEC 17025:2005	3091.01
Florida Department of Health	E87777-23
Hawaii Department of Health	N/A
Louisiana Department of Environmental Quality	01977
Maine Department of Health	2018017
Massachusetts Department of Environmental Protection	N/A
Michigan Department of Environmental Quality	9932
Minnesota Department of Health	1521520
New Hampshire Environmental Accreditation Program	207718-B
New Jersey Department of Environmental Protection	190001
New York Department of Health	11411
Oregon Laboratory Accreditation Program	4042-010
Pennsylvania Department of Environmental Protection	016
Texas Commission on Environmental Quality	T104704189-19-10
Vermont Department of Health	VT-4042
Virginia Department of General Services	10272
Washington Department of Ecology	C584-19
Wisconsin Department of Natural Resources	998036160

Current certificates and lists of licensed parameters are located in the Quality Assurance office and are available upon request.

NELAP Accredited Test Methods

MATRIX: Air	
Description of Test	**Method**
Determination of Polychlorinated p-Dioxins & Polychlorinated Dibenzofurans	EPA 23
Determination of Polychlorinated p-Dioxins & Polychlorinated Dibenzofurans	EPA TO-9A

MATRIX: Biological Tissue	
Description of Test	**Method**
Tetra- through Octa-Chlorinated Dioxins and Furans by Isotope Dilution GC/HRMS	EPA 1613B
Brominated Diphenyl Ethers by HRGC/HRMS	EPA 1614A
Chlorinated Biphenyl Congeners in Water, Soil, Sediment, and Tissue by GC/HRMS	EPA 1668A/C
Pesticides in Water, Soil, Sediment, Biosolids, and Tissue by HRGC/HRMS	EPA 1699
Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/MS/MS	EPA 537
Polychlorinated Dibenzo-p-Dioxins and Polychlorinated Dibenzofurans by GC/HRMS	EPA 8280A/B
Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by GC/HRMS	EPA 8290/8290A

MATRIX: Drinking Water	
Description of Test	**Method**
2,3,7,8-Tetrachlorodibenzo- p-dioxin (2,3,7,8-TCDD) GC/HRMS	EPA 1613/1613B
1,4-Dioxane (1,4-Diethyleneoxide) analysis by GC/HRMS	EPA 522
Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/MS/MS	EPA 537
Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/MS/MS	ISO 25101 2009

MATRIX: Non-Potable Water	
Description of Test	**Method**
Tetra- through Octa-Chlorinated Dioxins and Furans by Isotope Dilution GC/HRMS	EPA 1613B
Brominated Diphenyl Ethers by HRGC/HRMS	EPA 1614A
Chlorinated Biphenyl Congeners in Water, Soil, Sediment, and Tissue by GC/HRMS	EPA 1668A/C
Pesticides in Water, Soil, Sediment, Biosolids, and Tissue by HRGC/HRMS	EPA 1699
Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/MS/MS	EPA 537
Dioxin by GC/HRMS	EPA 613
Polychlorinated Dibenzo-p-Dioxins and Polychlorinated Dibenzofurans by GC/HRMS	EPA 8280A/B
Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by GC/HRMS	EPA 8290/8290A

MATRIX: Solids	
Description of Test	**Method**
Tetra-Octa Chlorinated Dioxins and Furans by Isotope Dilution GC/HRMS	EPA 1613
Tetra- through Octa-Chlorinated Dioxins and Furans by Isotope Dilution GC/HRMS	EPA 1613B
Brominated Diphenyl Ethers by HRGC/HRMS	EPA 1614A
Chlorinated Biphenyl Congeners in Water, Soil, Sediment, and Tissue by GC/HRMS	EPA 1668A/C
Pesticides in Water, Soil, Sediment, Biosolids, and Tissue by HRGC/HRMS	EPA 1699
Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/MS/MS	EPA 537
Polychlorinated Dibenzo-p-Dioxins and Polychlorinated Dibenzofurans by GC/HRMS	EPA 8280A/B
Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by GC/HRMS	EPA 8290/8290A

Vista
Analytical Laboratory

CHAIN OF COUNTY

For Laboratory Use Only
Work Order #: 1903822 Temp: 6.6 °C
Storage ID: WR-2, R-13 Storage Secured: Yes ☑ No ☐

Project ID: SJC PFAS Investigation PO#: 0232401.01 Sampler: KA/CL (name)

TAT (check one): Standard: ☒ 21 days
Rush (surcharge may apply) ☐ 14 days ☐ 7 days Specify:

Relinquished by (printed name and signature)	Date	Time	Received by (printed name and signature)	Date	Time
Kevin Almestad	10/24/19	17:30	Fedex	10/24/19	
FedEx			Marissa Sparks MSparks	10/25/19	0840

SHIP TO: Vista Analytical Laboratory
1104 Windfield Way
El Dorado Hills, CA 95762
(916) 673-1520 * Fax (916) 673-0106

ATTN:

Method of Shipment: Fedex
Tracking No.:

Add Analysis(es) Requested

				Container(s)			PFAS by Isotope Dilution					EPA Method 537 (DW only)				
Sample ID	Date	Time	Location/ Sample Description	Quantity	Type	Matrix	PFOA/ PFOS	UCMR3 PFAS List:6	537.1 List: 14 or 18 (Circle One)	EPA Draft List of 24	OTHER: Please attach analyte list: CA AirPort PFAS List (23)	PFOA/ PFOS	UCMR3 PFAS List:6	537.1 List of 14	537.1 List of 18	Comments
L14-1-1	10/23/19	0745	14	1	PJ	SD					X					
L14-1-5	↓	0748	14	1	PJ	↓					↓					
L14-1-10	↓	0750	14	1	↓	↓					↓					
L14-2-1	↓	0830	14	1	↓	↓					↓					
L14-2-5	↓	0832	14	1	↓	↓					↓					
L14-2-10	↓	0834	14	1	↓	↓					↓					
L14-4-1	↓	0950	↓	1	↓	↓					↓					
L14-4-5	↓	0952	↓	1	↓	↓					↓					
L14-4-10	↓	0954	↓	1	↓	↓					↓					
L14-1-GW	↓	0838	↓	2	P	AQ					↓					

Special Instructions/Comments: Geotracker EDF

SEND DOCUMENTATION AND RESULTS TO:

Name: Jim Strandberg
Company: Woodard & Curran, Inc.
Address: 2175 N California Blvd, Ste 315
City: Walnut Creek CA 94597
Phone: (510) 310-3776 (925) 627-4101
Email: Jstrandberg@woodardcurran.com

Container Types: P= HDPE, PJ= HDPE Jar
PY= Polypropylene, O = Other:

Bottle Preservation Type:
TZ = Trizma:

Matrix Types: AQ = Aqueous, DW = Drinking Water, EF = Effluent, PP = Pulp/Paper, SD = Sediment, SL = Sludge, SO = Soil, WW = Wastewater, B = Blood/Serum, O = Other:

ID: LR-537COC Rev. No. 1 Rev. Date: 8/16/2019 Page: 1 of 3

Vista
Analytical Laboratory

Sample Log-In Checklist

Page # 1 of 1

Vista Work Order #: 1903822 TAT Std

Samples Arrival:	**Date/Time** 10/25/19 0840	**Initials:** WWS	**Location:** WR-2 **Shelf/Rack:** N/a

Delivered By:	[✓ FedEx]	UPS	On Trac	GSO	DHL	Hand Delivered	Other
Preservation:	[✓ Ice]	Blue Ice	Dry Ice	None			

Temp °C: 0.6 **(uncorrected)**	**Probe used:** Y / [✓ N]	**Thermometer ID:** IR-4
Temp °C: 0.6 **(corrected)**		

						YES	NO	NA
Shipping Container(s) Intact?						✓		
Shipping Custody Seals Intact?								✓
Airbill #1	Trk # 7804 9905 8237					✓		
Shipping Documentation Present?						✓		
Shipping Container	Vista	[✓ Client]	Retain	[✓ Return]	Dispose			
Chain of Custody / Sample Documentation Present?						✓		
Chain of Custody / Sample Documentation Complete?						✓		
Holding Time Acceptable?						✓		

Logged In:	**Date/Time** 10/27/19 1428	**Initials:** KE	**Location:** WR-2 | R-13 **Shelf/Rack:** ~~D7~~ KE 10/27 F7 | A4

	YES	NO	NA
COC Anomaly/Sample Acceptance Form completed?		✓	✓

Comments:

ID.: LR – SLC *Rev No.: 4* *Rev Date: 10/08/2019* *Page: 1 of 1*

CoC/Label Reconciliation Report WO# 1903822

LabNumber	CoC Sample ID	Label ID matches COCID	Label ID doesn't match COCID	SampleAlias	Sampled	Label Sampled matches	Sampled doesn't match	Container	Container Correct	BaseMatrix	Sample Comments
1903822-01 A	L14-1-1	☑		14 ✓	23-Oct-19 07:45	☑		HDPE Jar, 6 oz	☑	Solid	✓
1903822-02 A	L14-1-5	☑		14	23-Oct-19 07:48	☑		HDPE Jar, 6 oz	☑	Solid	
1903822-03 A	L14-1-10	☑		14	23-Oct-19 07:50	☑		HDPE Jar, 6 oz	☑	Solid	
1903822-04 A	L14-2-1	☑		14	23-Oct-19 08:30	☑		HDPE Jar, 6 oz	☑	Solid	
1903822-05 A	L14-2-5	☑		14 no location on label	23-Oct-19 08:32	☑		HDPE Jar, 6 oz	☑	Solid	
1903822-06 A	L14-2-10	☑		14 ✓	23-Oct-19 08:34	☑		HDPE Jar, 6 oz	☑	Solid	
1903822-07 A	L14-4-1	☑		14	23-Oct-19 09:50	☑		HDPE Jar, 6 oz	☑	Solid	
1903822-08 A	L14-4-5	☑		14	23-Oct-19 09:52	☑		HDPE Jar, 6 oz	☑	Solid	
1903822-09 A	L14-4-10	☑		14	23-Oct-19 09:54	☑		HDPE Jar, 6 oz	☑	Solid	
1903822-10 A	L14-1-GW	☑		14	23-Oct-19 08:38	☑		HDPE Bottle, 250 mL	☑	Aqueous	✓
1903822-10 B	L14-1-GW	☑		14	23-Oct-19 08:38	☑		HDPE Bottle, 250 mL	☑	Aqueous	

	Yes	No	NA
Sample Container Intact?	✓		
Sample Custody Seals Intact?			✓
Adequate Sample Volume?	✓		
Preservation Documented: Na2S2O3 Trizma [✓ None] Other		✓	✓
If Chlorinated or Drinking Water Samples, Acceptable Preservation?			✓

Comments: all samples received in cooler 1 of 2.

~~all sa~~

MWS 10/28/19

Verifed by/Date: MWS 10/28/19

December 11, 2019

Vista Work Order No. 1903823

Mr. Jim Strandberg
Woodard & Curran
2175 North California Boulevard, Suite 315
Walnut Creek, CA 94596

Dear Mr. Strandberg,

Enclosed are the additional results for the sample set received at Vista Analytical Laboratory on October 25, 2019 under your Project Name 'SJC PFAS Investigation'.

Vista Analytical Laboratory is committed to serving you effectively. If you require additional information, please contact me at 916-673-1520 or by email at mmaier@vista-analytical.com.

Thank you for choosing Vista as part of your analytical support team.

Sincerely,

Martha Maier
Laboratory Director

Vista Work Order No. 1903823
Case Narrative

Sample Condition on Receipt:

Three aqueous samples and nine soil samples were received in good condition and within the method temperature requirements. The samples were received and stored securely in accordance with Vista standard operating procedures and EPA methodology.

Analytical Notes:

PFAS Isotope Dilution Method-Aqueous

The aqueous samples were extracted and analyzed for a selected list of PFAS using Vista's PFAS Isotope Dilution Method. This method is listed on Vista's NELAP certificate as Modified EPA Method 537. The results for PFHxS, PFOA, PFOS, MeFOSAA, and EtFOSAA include both linear and branched isomers. Results for all other analytes include the linear isomers only.

Samples "L14-2-GW" and "L14-20-GW" contained particulate and were centrifuged prior to extraction.

Holding Times

The samples were extracted and analyzed within the method hold times.

Quality Control

The Initial Calibration and Continuing Calibration Verifications met the method acceptance criteria.

A Method Blank and Laboratory Control Sample (LCS)/Laboratory Control Sample Duplicate (LCSD) were extracted and analyzed with the preparation batch. No analytes were detected in the Method Blank above the Reporting Limit. The LCS/LCSD recoveries were within the acceptance criteria.

The labeled standard recoveries outside the acceptance criteria are flagged with an "H" qualifier.

PFAS Isotope Dilution Method-Soil

The soil samples were extracted and analyzed for a selected list of PFAS using Vista's PFAS Isotope Dilution Method. This method is listed on Vista's NELAP certificate as Modified EPA Method 537. The results for PFHxS, PFOA, PFOS, MeFOSAA, and EtFOSAA include both linear and branched isomers. Results for all other analytes include the linear isomers only.

Holding Times

The samples were extracted and analyzed within the hold times.

Quality Control

The Initial Calibration and Continuing Calibration Verifications met the method acceptance criteria.

A Method Blank and Ongoing Precision and Recovery (OPR) sample were extracted and analyzed with each of the preparation batches. No analytes were detected in the Method Blanks above the Reporting Limit. The OPR recoveries were within the method acceptance criteria.

The labeled standard recoveries outside the acceptance criteria are flagged with an "H" qualifier.

TABLE OF CONTENTS

Sample Inventory Report

Vista Sample ID	Client Sample ID	Sampled	Received	Components/Containers
1903823-01	L14-2-GW	23-Oct-19 09:51	25-Oct-19 08:40	HDPE Bottle, 250 mL
				HDPE Bottle, 250 mL
1903823-02	L14-20-GW	23-Oct-19 09:51	25-Oct-19 08:40	HDPE Bottle, 250 mL
				HDPE Bottle, 250 mL
1903823-03	L14-4-GW	23-Oct-19 15:21	25-Oct-19 08:40	HDPE Bottle, 250 mL
				HDPE Bottle, 250 mL
1903823-04	L14-3-1	24-Oct-19 13:56	25-Oct-19 08:40	HDPE Jar, 6 oz
1903823-05	L14-3-5	24-Oct-19 14:01	25-Oct-19 08:40	HDPE Jar, 6 oz
1903823-06	L14-3-10	24-Oct-19 14:06	25-Oct-19 08:40	HDPE Jar, 6 oz
1903823-07	L14-5-1	24-Oct-19 14:16	25-Oct-19 08:40	HDPE Jar, 6 oz
1903823-08	L14-5-5	24-Oct-19 14:19	25-Oct-19 08:40	HDPE Jar, 6 oz
1903823-09	L14-5-10	24-Oct-19 14:23	25-Oct-19 08:40	HDPE Jar, 6 oz
1903823-10	L14-6-1	24-Oct-19 14:29	25-Oct-19 08:40	HDPE Jar, 6 oz
1903823-11	L14-6-5	24-Oct-19 14:34	25-Oct-19 08:40	HDPE Jar, 6 oz
1903823-12	L14-6-10	24-Oct-19 14:37	25-Oct-19 08:40	HDPE Jar, 6 oz

Vista Project: 1903823

Client Project: SJC PFAS Investigation

ANALYTICAL RESULTS

Sample ID: Method Blank **PFAS Isotope Dilution Method**

Client Data

Name:	Woodard & Curran	Matrix:	Aqueous
Project:	SJC PFAS Investigation		

Laboratory Data

Lab Sample:	B9J0302-BLK1	Column:	BEH C18

Analyte	CAS Number	Conc. (ng/L)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	ND	2.00		B9J0302	01-Nov-19	0.250 L	11-Nov-19 22:28	1
PFPeA	2706-90-3	ND	2.00		B9J0302	01-Nov-19	0.250 L	11-Nov-19 22:28	1
PFBS	375-73-5	ND	2.00		B9J0302	01-Nov-19	0.250 L	11-Nov-19 22:28	1
4:2 FTS	757124-72-4	ND	2.00		B9J0302	01-Nov-19	0.250 L	11-Nov-19 22:28	1
PFHxA	307-24-4	ND	2.00		B9J0302	01-Nov-19	0.250 L	11-Nov-19 22:28	1
PFPeS	2706-91-4	ND	2.00		B9J0302	01-Nov-19	0.250 L	11-Nov-19 22:28	1
PFHpA	375-85-9	ND	2.00		B9J0302	01-Nov-19	0.250 L	11-Nov-19 22:28	1
PFHxS	355-46-4	ND	2.00		B9J0302	01-Nov-19	0.250 L	11-Nov-19 22:28	1
6:2 FTS	27619-97-2	ND	2.00		B9J0302	01-Nov-19	0.250 L	11-Nov-19 22:28	1
PFOA	335-67-1	ND	2.00		B9J0302	01-Nov-19	0.250 L	11-Nov-19 22:28	1
PFHpS	375-92-8	ND	2.00		B9J0302	01-Nov-19	0.250 L	11-Nov-19 22:28	1
PFNA	375-95-1	ND	2.00		B9J0302	01-Nov-19	0.250 L	11-Nov-19 22:28	1
PFOSA	754-91-6	ND	2.00		B9J0302	01-Nov-19	0.250 L	11-Nov-19 22:28	1
PFOS	1763-23-1	ND	2.00		B9J0302	01-Nov-19	0.250 L	11-Nov-19 22:28	1
PFDA	335-76-2	ND	2.00		B9J0302	01-Nov-19	0.250 L	11-Nov-19 22:28	1
8:2 FTS	39108-34-4	ND	2.00		B9J0302	01-Nov-19	0.250 L	11-Nov-19 22:28	1
MeFOSAA	2355-31-9	ND	2.00		B9J0302	01-Nov-19	0.250 L	11-Nov-19 22:28	1
EtFOSAA	2991-50-6	ND	2.00		B9J0302	01-Nov-19	0.250 L	11-Nov-19 22:28	1
PFUnA	2058-94-8	ND	2.00		B9J0302	01-Nov-19	0.250 L	11-Nov-19 22:28	1
PFDS	335-77-3	ND	2.00		B9J0302	01-Nov-19	0.250 L	11-Nov-19 22:28	1
PFDoA	307-55-1	ND	2.00		B9J0302	01-Nov-19	0.250 L	11-Nov-19 22:28	1
PFTrDA	72629-94-8	ND	2.00		B9J0302	01-Nov-19	0.250 L	11-Nov-19 22:28	1
PFTeDA	376-06-7	ND	2.00		B9J0302	01-Nov-19	0.250 L	11-Nov-19 22:28	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	115	50 - 150		B9J0302	01-Nov-19	0.250 L	11-Nov-19 22:28	1
13C3-PFPeA	IS	86.7	50 - 150		B9J0302	01-Nov-19	0.250 L	11-Nov-19 22:28	1
13C3-PFBS	IS	95.0	50 - 150		B9J0302	01-Nov-19	0.250 L	11-Nov-19 22:28	1
13C2-4:2 FTS	IS	98.0	50 - 150		B9J0302	01-Nov-19	0.250 L	11-Nov-19 22:28	1
13C2-PFHxA	IS	83.5	50 - 150		B9J0302	01-Nov-19	0.250 L	11-Nov-19 22:28	1
13C4-PFHpA	IS	89.2	50 - 150		B9J0302	01-Nov-19	0.250 L	11-Nov-19 22:28	1
13C3-PFHxS	IS	93.5	50 - 150		B9J0302	01-Nov-19	0.250 L	11-Nov-19 22:28	1
13C2-6:2 FTS	IS	88.9	50 - 150		B9J0302	01-Nov-19	0.250 L	11-Nov-19 22:28	1
13C5-PFNA	IS	94.2	50 - 150		B9J0302	01-Nov-19	0.250 L	11-Nov-19 22:28	1
13C8-PFOSA	IS	41.5	50 - 150	H	B9J0302	01-Nov-19	0.250 L	11-Nov-19 22:28	1
13C2-PFOA	IS	84.7	50 - 150		B9J0302	01-Nov-19	0.250 L	11-Nov-19 22:28	1
13C8-PFOS	IS	91.3	50 - 150		B9J0302	01-Nov-19	0.250 L	11-Nov-19 22:28	1
13C2-PFDA	IS	89.9	50 - 150		B9J0302	01-Nov-19	0.250 L	11-Nov-19 22:28	1
13C2-8:2 FTS	IS	97.5	50 - 150		B9J0302	01-Nov-19	0.250 L	11-Nov-19 22:28	1

Sample ID: Method Blank

PFAS Isotope Dilution Method

Client Data				**Laboratory Data**			
Name:	Woodard & Curran	Matrix:	Aqueous	Lab Sample:	B9J0302-BLK1	Column:	BEH C18
Project:	SJC PFAS Investigation						

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
d3-MeFOSAA	IS	77.2	50 - 150		B9J0302	01-Nov-19	0.250 L	11-Nov-19 22:28	1
13C2-PFUnA	IS	79.9	50 - 150		B9J0302	01-Nov-19	0.250 L	11-Nov-19 22:28	1
d5-EtFOSAA	IS	76.6	50 - 150		B9J0302	01-Nov-19	0.250 L	11-Nov-19 22:28	1
13C2-PFDoA	IS	72.0	50 - 150		B9J0302	01-Nov-19	0.250 L	11-Nov-19 22:28	1
13C2-PFTeDA	IS	72.2	50 - 150		B9J0302	01-Nov-19	0.250 L	11-Nov-19 22:28	1

RL - Reporting limit

Results reported to RL.

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

Sample ID: LCSD **PFAS Isotope Dilution Method**

Name:	Woodard & Curran	Lab Sample:	B9J0302-BS1/B9J0302-BSD1	Date Extracted:	01-Nov-19
Project:	SJC PFAS Investigation	QC Batch:	B9J0302	Column:	BEH C18
Matrix:	Aqueous	Samp Size:	0.250/0.250 L		

Analyte	CAS Number	LCS (ng/L)	LCS Spike	LCS % Rec	LCS Quals	LCSD (ng/L)	LCSD Spike	LCSD % Rec	RPD	LCSD Quals	%Rec Limits	RPD Limits	LCS Analyzed	LCS Dil	LCSD Analyzed	LCSD Dil
PFBA	375-22-4	40.9	40.0	102		38.7	40.0	96.6	5.67		73-129	30	11-Nov-19 22:39	1	11-Nov-19 22:50	1
PFPeA	2706-90-3	42.5	40.0	106		40.8	40.0	102	4.11		72-129	30	11-Nov-19 22:39	1	11-Nov-19 22:50	1
PFBS	375-73-5	42.4	40.0	106		38.1	40.0	95.2	10.7		72-130	30	11-Nov-19 22:39	1	11-Nov-19 22:50	1
4:2 FTS	757124-72-4	35.5	40.0	88.8		34.9	40.0	87.3	1.63		63-143	30	11-Nov-19 22:39	1	11-Nov-19 22:50	1
PFHxA	307-24-4	41.2	40.0	103		42.3	40.0	106	2.82		72-129	30	11-Nov-19 22:39	1	11-Nov-19 22:50	1
PFPeS	2706-91-4	37.5	40.0	93.8		34.0	40.0	84.9	9.94		71-127	30	11-Nov-19 22:39	1	11-Nov-19 22:50	1
PFHpA	375-85-9	43.7	40.0	109		41.7	40.0	104	4.60		72-130	30	11-Nov-19 22:39	1	11-Nov-19 22:50	1
PFHxS	355-46-4	35.0	40.0	87.4		34.5	40.0	86.4	1.18		68-131	30	11-Nov-19 22:39	1	11-Nov-19 22:50	1
6:2 FTS	27619-97-2	43.6	40.0	109		40.7	40.0	102	6.87		64-140	30	11-Nov-19 22:39	1	11-Nov-19 22:50	1
PFOA	335-67-1	36.0	40.0	90.0		36.6	40.0	91.6	1.67		71-133	30	11-Nov-19 22:39	1	11-Nov-19 22:50	1
PFHpS	375-92-8	44.5	40.0	111		43.1	40.0	108	3.19		69-134	30	11-Nov-19 22:39	1	11-Nov-19 22:50	1
PFNA	375-95-1	43.7	40.0	109		42.2	40.0	105	3.59		69-130	30	11-Nov-19 22:39	1	11-Nov-19 22:50	1
PFOSA	754-91-6	37.8	40.0	94.5		39.5	40.0	98.7	4.33		67-137	30	11-Nov-19 22:39	1	11-Nov-19 22:50	1
PFOS	1763-23-1	41.9	40.0	105		40.5	40.0	101	3.41		65-140	30	11-Nov-19 22:39	1	11-Nov-19 22:50	1
PFDA	335-76-2	40.7	40.0	102		41.0	40.0	103	0.785		71-129	30	11-Nov-19 22:39	1	11-Nov-19 22:50	1
8:2 FTS	39108-34-4	33.8	40.0	84.5		32.2	40.0	80.6	4.73		67-138	30	11-Nov-19 22:39	1	11-Nov-19 22:50	1
MeFOSAA	2355-31-9	35.3	40.0	88.1		35.5	40.0	88.8	0.794		65-136	30	11-Nov-19 22:39	1	11-Nov-19 22:50	1
EtFOSAA	2991-50-6	36.3	40.0	90.9		33.0	40.0	82.6	9.50		61-135	30	11-Nov-19 22:39	1	11-Nov-19 22:50	1
PFUnA	2058-94-8	42.1	40.0	105		42.2	40.0	106	0.426		69-133	30	11-Nov-19 22:39	1	11-Nov-19 22:50	1
PFDS	335-77-3	34.9	40.0	87.3		30.7	40.0	76.8	12.8		53-142	30	11-Nov-19 22:39	1	11-Nov-19 22:50	1
PFDoA	307-55-1	44.2	40.0	110		43.2	40.0	108	2.17		72-134	30	11-Nov-19 22:39	1	11-Nov-19 22:50	1
PFTrDA	72629-94-8	37.8	40.0	94.4		34.8	40.0	86.9	8.23		65-144	30	11-Nov-19 22:39	1	11-Nov-19 22:50	1
PFTeDA	376-06-7	42.6	40.0	106		41.9	40.0	105	1.56		71-132	30	11-Nov-19 22:39	1	11-Nov-19 22:50	1

Labeled Standards	Type	LCS % Rec	LCS Quals	LCSD % Rec	LCSD Quals	Limits	LCS Analyzed	LCS Dil	LCSD Analyzed	LCSD Dil
13C3-PFBA	IS	101		121		50-150	11-Nov-19 22:39	1	11-Nov-19 22:50	1
13C3-PFPeA	IS	77.3		91.3		50-150	11-Nov-19 22:39	1	11-Nov-19 22:50	1
13C3-PFBS	IS	85.8		110		50-150	11-Nov-19 22:39	1	11-Nov-19 22:50	1
13C2-4:2 FTS	IS	86.8		97.8		50-150	11-Nov-19 22:39	1	11-Nov-19 22:50	1
13C2-PFHxA	IS	78.8		86.5		50-150	11-Nov-19 22:39	1	11-Nov-19 22:50	1
13C4-PFHpA	IS	82.3		90.9		50-150	11-Nov-19 22:39	1	11-Nov-19 22:50	1
13C3-PFHxS	IS	92.0		103		50-150	11-Nov-19 22:39	1	11-Nov-19 22:50	1
13C2-6:2 FTS	IS	79.8		97.8		50-150	11-Nov-19 22:39	1	11-Nov-19 22:50	1

Sample ID: LCSD

PFAS Isotope Dilution Method

Name:	Woodard & Curran	Lab Sample:	B9J0302-BS1/B9J0302-BSD1	Date Extracted:	01-Nov-19
Project:	SJC PFAS Investigation	QC Batch:	B9J0302	Column:	BEH C18
Matrix:	Aqueous	Samp Size:	0.250/0.250 L		

Labeled Standards	Type	LCS % Rec	LCS Quals	LCSD % Rec	LCSD Quals	Limits	LCS Analyzed	LCS Dil	LCSD Analyzed	LCSD Dil
13C5-PFNA	IS	88.3		102		50 - 150	11-Nov-19 22:39	1	11-Nov-19 22:50	1
13C8-PFOSA	IS	35.5	H	39.8	H	50 - 150	11-Nov-19 22:39	1	11-Nov-19 22:50	1
13C2-PFOA	IS	80.9		90.9		50 - 150	11-Nov-19 22:39	1	11-Nov-19 22:50	1
13C8-PFOS	IS	88.8		104		50 - 150	11-Nov-19 22:39	1	11-Nov-19 22:50	1
13C2-PFDA	IS	87.7		99.2		50 - 150	11-Nov-19 22:39	1	11-Nov-19 22:50	1
13C2-8:2 FTS	IS	91.0		104		50 - 150	11-Nov-19 22:39	1	11-Nov-19 22:50	1
d3-MeFOSAA	IS	69.4		74.9		50 - 150	11-Nov-19 22:39	1	11-Nov-19 22:50	1
13C2-PFUnA	IS	80.7		84.4		50 - 150	11-Nov-19 22:39	1	11-Nov-19 22:50	1
d5-EtFOSAA	IS	70.8		85.2		50 - 150	11-Nov-19 22:39	1	11-Nov-19 22:50	1
13C2-PFDoA	IS	66.9		71.6		50 - 150	11-Nov-19 22:39	1	11-Nov-19 22:50	1
13C2-PFTeDA	IS	73.0		60.4		50 - 150	11-Nov-19 22:39	1	11-Nov-19 22:50	1

Sample ID: L14-2-GW

PFAS Isotope Dilution Method

Client Data

Name:	Woodard & Curran	Matrix:	Aqueous
Project:	SJC PFAS Investigation	Date Collected:	23-Oct-19 09:51
Location:	14		

Laboratory Data

Lab Sample:	1903823-01	Column:	BEH C18
Date Received:	25-Oct-19 08:40		

Analyte	CAS Number	Conc. (ng/L)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	ND	2.15		B9J0302	01-Nov-19	0.233 L	11-Nov-19 23:11	1
PFPeA	2706-90-3	ND	2.15		B9J0302	01-Nov-19	0.233 L	11-Nov-19 23:11	1
PFBS	375-73-5	ND	2.15		B9J0302	01-Nov-19	0.233 L	11-Nov-19 23:11	1
4:2 FTS	757124-72-4	ND	2.15		B9J0302	01-Nov-19	0.233 L	11-Nov-19 23:11	1
PFHxA	307-24-4	ND	2.15		B9J0302	01-Nov-19	0.233 L	11-Nov-19 23:11	1
PFPeS	2706-91-4	ND	2.15		B9J0302	01-Nov-19	0.233 L	11-Nov-19 23:11	1
PFHpA	375-85-9	ND	2.15		B9J0302	01-Nov-19	0.233 L	11-Nov-19 23:11	1
PFHxS	355-46-4	ND	2.15		B9J0302	01-Nov-19	0.233 L	11-Nov-19 23:11	1
6:2 FTS	27619-97-2	ND	2.15		B9J0302	01-Nov-19	0.233 L	11-Nov-19 23:11	1
PFOA	335-67-1	ND	2.15		B9J0302	01-Nov-19	0.233 L	11-Nov-19 23:11	1
PFHpS	375-92-8	ND	2.15		B9J0302	01-Nov-19	0.233 L	11-Nov-19 23:11	1
PFNA	375-95-1	ND	2.15		B9J0302	01-Nov-19	0.233 L	11-Nov-19 23:11	1
PFOSA	754-91-6	ND	2.15		B9J0302	01-Nov-19	0.233 L	11-Nov-19 23:11	1
PFOS	1763-23-1	ND	2.15		B9J0302	01-Nov-19	0.233 L	11-Nov-19 23:11	1
PFDA	335-76-2	ND	2.15		B9J0302	01-Nov-19	0.233 L	11-Nov-19 23:11	1
8:2 FTS	39108-34-4	ND	2.15		B9J0302	01-Nov-19	0.233 L	11-Nov-19 23:11	1
MeFOSAA	2355-31-9	ND	2.15		B9J0302	01-Nov-19	0.233 L	11-Nov-19 23:11	1
EtFOSAA	2991-50-6	ND	2.15		B9J0302	01-Nov-19	0.233 L	11-Nov-19 23:11	1
PFUnA	2058-94-8	ND	2.15		B9J0302	01-Nov-19	0.233 L	11-Nov-19 23:11	1
PFDS	335-77-3	ND	2.15		B9J0302	01-Nov-19	0.233 L	11-Nov-19 23:11	1
PFDoA	307-55-1	ND	2.15		B9J0302	01-Nov-19	0.233 L	11-Nov-19 23:11	1
PFTrDA	72629-94-8	ND	2.15		B9J0302	01-Nov-19	0.233 L	11-Nov-19 23:11	1
PFTeDA	376-06-7	ND	2.15		B9J0302	01-Nov-19	0.233 L	11-Nov-19 23:11	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	116	50 - 150		B9J0302	01-Nov-19	0.233 L	11-Nov-19 23:11	1
13C3-PFPeA	IS	102	50 - 150		B9J0302	01-Nov-19	0.233 L	11-Nov-19 23:11	1
13C3-PFBS	IS	111	50 - 150		B9J0302	01-Nov-19	0.233 L	11-Nov-19 23:11	1
13C2-4:2 FTS	IS	102	50 - 150		B9J0302	01-Nov-19	0.233 L	11-Nov-19 23:11	1
13C2-PFHxA	IS	105	50 - 150		B9J0302	01-Nov-19	0.233 L	11-Nov-19 23:11	1
13C4-PFHpA	IS	101	50 - 150		B9J0302	01-Nov-19	0.233 L	11-Nov-19 23:11	1
13C3-PFHxS	IS	95.5	50 - 150		B9J0302	01-Nov-19	0.233 L	11-Nov-19 23:11	1
13C2-6:2 FTS	IS	98.6	50 - 150		B9J0302	01-Nov-19	0.233 L	11-Nov-19 23:11	1
13C5-PFNA	IS	107	50 - 150		B9J0302	01-Nov-19	0.233 L	11-Nov-19 23:11	1
13C8-PFOSA	IS	48.4	50 - 150	H	B9J0302	01-Nov-19	0.233 L	11-Nov-19 23:11	1
13C2-PFOA	IS	99.4	50 - 150		B9J0302	01-Nov-19	0.233 L	11-Nov-19 23:11	1
13C8-PFOS	IS	104	50 - 150		B9J0302	01-Nov-19	0.233 L	11-Nov-19 23:11	1
13C2-PFDA	IS	102	50 - 150		B9J0302	01-Nov-19	0.233 L	11-Nov-19 23:11	1
13C2-8:2 FTS	IS	97.7	50 - 150		B9J0302	01-Nov-19	0.233 L	11-Nov-19 23:11	1

Sample ID: L14-2-GW	**PFAS Isotope Dilution Method**

Client Data

Name:	Woodard & Curran	Matrix:	Aqueous
Project:	SJC PFAS Investigation	Date Collected:	23-Oct-19 09:51
Location:	14		

Laboratory Data

Lab Sample:	1903823-01	Column:	BEH C18
Date Received:	25-Oct-19 08:40		

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
d3-MeFOSAA	IS	90.9	50 - 150		B9J0302	01-Nov-19	0.233 L	11-Nov-19 23:11	1
13C2-PFUnA	IS	91.0	50 - 150		B9J0302	01-Nov-19	0.233 L	11-Nov-19 23:11	1
d5-EtFOSAA	IS	90.1	50 - 150		B9J0302	01-Nov-19	0.233 L	11-Nov-19 23:11	1
13C2-PFDoA	IS	72.8	50 - 150		B9J0302	01-Nov-19	0.233 L	11-Nov-19 23:11	1
13C2-PFTeDA	IS	51.2	50 - 150		B9J0302	01-Nov-19	0.233 L	11-Nov-19 23:11	1

RL - Reporting limit

Results reported to RL.

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

Sample ID: L14-20-GW **PFAS Isotope Dilution Method**

Client Data				**Laboratory Data**			
Name:	Woodard & Curran	Matrix:	Aqueous	Lab Sample:	1903823-02	Column:	BEH C18
Project:	SJC PFAS Investigation	Date Collected:	23-Oct-19 09:51	Date Received:	25-Oct-19 08:40		
Location:	14						

Analyte	CAS Number	Conc. (ng/L)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	ND	2.15		B9J0302	01-Nov-19	0.233 L	11-Nov-19 23:22	1
PFPeA	2706-90-3	ND	2.15		B9J0302	01-Nov-19	0.233 L	11-Nov-19 23:22	1
PFBS	375-73-5	ND	2.15		B9J0302	01-Nov-19	0.233 L	11-Nov-19 23:22	1
4:2 FTS	757124-72-4	ND	2.15		B9J0302	01-Nov-19	0.233 L	11-Nov-19 23:22	1
PFHxA	307-24-4	ND	2.15		B9J0302	01-Nov-19	0.233 L	11-Nov-19 23:22	1
PFPeS	2706-91-4	ND	2.15		B9J0302	01-Nov-19	0.233 L	11-Nov-19 23:22	1
PFHpA	375-85-9	ND	2.15		B9J0302	01-Nov-19	0.233 L	11-Nov-19 23:22	1
PFHxS	355-46-4	ND	2.15		B9J0302	01-Nov-19	0.233 L	11-Nov-19 23:22	1
6:2 FTS	27619-97-2	ND	2.15		B9J0302	01-Nov-19	0.233 L	11-Nov-19 23:22	1
PFOA	335-67-1	ND	2.15		B9J0302	01-Nov-19	0.233 L	11-Nov-19 23:22	1
PFHpS	375-92-8	ND	2.15		B9J0302	01-Nov-19	0.233 L	11-Nov-19 23:22	1
PFNA	375-95-1	ND	2.15		B9J0302	01-Nov-19	0.233 L	11-Nov-19 23:22	1
PFOSA	754-91-6	ND	2.15		B9J0302	01-Nov-19	0.233 L	11-Nov-19 23:22	1
PFOS	1763-23-1	ND	2.15		B9J0302	01-Nov-19	0.233 L	11-Nov-19 23:22	1
PFDA	335-76-2	ND	2.15		B9J0302	01-Nov-19	0.233 L	11-Nov-19 23:22	1
8:2 FTS	39108-34-4	ND	2.15		B9J0302	01-Nov-19	0.233 L	11-Nov-19 23:22	1
MeFOSAA	2355-31-9	ND	2.15		B9J0302	01-Nov-19	0.233 L	11-Nov-19 23:22	1
EtFOSAA	2991-50-6	ND	2.15		B9J0302	01-Nov-19	0.233 L	11-Nov-19 23:22	1
PFUnA	2058-94-8	ND	2.15		B9J0302	01-Nov-19	0.233 L	11-Nov-19 23:22	1
PFDS	335-77-3	ND	2.15		B9J0302	01-Nov-19	0.233 L	11-Nov-19 23:22	1
PFDoA	307-55-1	ND	2.15		B9J0302	01-Nov-19	0.233 L	11-Nov-19 23:22	1
PFTrDA	72629-94-8	ND	2.15		B9J0302	01-Nov-19	0.233 L	11-Nov-19 23:22	1
PFTeDA	376-06-7	ND	2.15		B9J0302	01-Nov-19	0.233 L	11-Nov-19 23:22	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	135	50 - 150		B9J0302	01-Nov-19	0.233 L	11-Nov-19 23:22	1
13C3-PFPeA	IS	110	50 - 150		B9J0302	01-Nov-19	0.233 L	11-Nov-19 23:22	1
13C3-PFBS	IS	131	50 - 150		B9J0302	01-Nov-19	0.233 L	11-Nov-19 23:22	1
13C2-4:2 FTS	IS	115	50 - 150		B9J0302	01-Nov-19	0.233 L	11-Nov-19 23:22	1
13C2-PFHxA	IS	112	50 - 150		B9J0302	01-Nov-19	0.233 L	11-Nov-19 23:22	1
13C4-PFHpA	IS	106	50 - 150		B9J0302	01-Nov-19	0.233 L	11-Nov-19 23:22	1
13C3-PFHxS	IS	113	50 - 150		B9J0302	01-Nov-19	0.233 L	11-Nov-19 23:22	1
13C2-6:2 FTS	IS	107	50 - 150		B9J0302	01-Nov-19	0.233 L	11-Nov-19 23:22	1
13C5-PFNA	IS	117	50 - 150		B9J0302	01-Nov-19	0.233 L	11-Nov-19 23:22	1
13C8-PFOSA	IS	54.1	50 - 150		B9J0302	01-Nov-19	0.233 L	11-Nov-19 23:22	1
13C2-PFOA	IS	111	50 - 150		B9J0302	01-Nov-19	0.233 L	11-Nov-19 23:22	1
13C8-PFOS	IS	115	50 - 150		B9J0302	01-Nov-19	0.233 L	11-Nov-19 23:22	1
13C2-PFDA	IS	115	50 - 150		B9J0302	01-Nov-19	0.233 L	11-Nov-19 23:22	1
13C2-8:2 FTS	IS	115	50 - 150		B9J0302	01-Nov-19	0.233 L	11-Nov-19 23:22	1

Sample ID: L14-20-GW

PFAS Isotope Dilution Method

Client Data				**Laboratory Data**			
Name:	Woodard & Curran	Matrix:	Aqueous	Lab Sample:	1903823-02	Column:	BEH C18
Project:	SJC PFAS Investigation	Date Collected:	23-Oct-19 09:51	Date Received:	25-Oct-19 08:40		
Location:	14						

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
d3-MeFOSAA	IS	99.8	50 - 150		B9J0302	01-Nov-19	0.233 L	11-Nov-19 23:22	1
13C2-PFUnA	IS	98.8	50 - 150		B9J0302	01-Nov-19	0.233 L	11-Nov-19 23:22	1
d5-EtFOSAA	IS	103	50 - 150		B9J0302	01-Nov-19	0.233 L	11-Nov-19 23:22	1
13C2-PFDoA	IS	80.8	50 - 150		B9J0302	01-Nov-19	0.233 L	11-Nov-19 23:22	1
13C2-PFTeDA	IS	43.9	50 - 150	H	B9J0302	01-Nov-19	0.233 L	11-Nov-19 23:22	1

RL - Reporting limit

Results reported to RL.

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

Sample ID: L14-4-GW

PFAS Isotope Dilution Method

Client Data				**Laboratory Data**			
Name:	Woodard & Curran	Matrix:	Aqueous	Lab Sample:	1903823-03	Column:	BEH C18
Project:	SJC PFAS Investigation	Date Collected:	23-Oct-19 15:21	Date Received:	25-Oct-19 08:40		
Location:	14						

Analyte	CAS Number	Conc. (ng/L)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	ND	1.99		B9J0302	01-Nov-19	0.252 L	11-Nov-19 23:32	1
PFPeA	2706-90-3	ND	1.99		B9J0302	01-Nov-19	0.252 L	11-Nov-19 23:32	1
PFBS	375-73-5	ND	1.99		B9J0302	01-Nov-19	0.252 L	11-Nov-19 23:32	1
4:2 FTS	757124-72-4	ND	1.99		B9J0302	01-Nov-19	0.252 L	11-Nov-19 23:32	1
PFHxA	307-24-4	ND	1.99		B9J0302	01-Nov-19	0.252 L	11-Nov-19 23:32	1
PFPeS	2706-91-4	ND	1.99		B9J0302	01-Nov-19	0.252 L	11-Nov-19 23:32	1
PFHpA	375-85-9	ND	1.99		B9J0302	01-Nov-19	0.252 L	11-Nov-19 23:32	1
PFHxS	355-46-4	ND	1.99		B9J0302	01-Nov-19	0.252 L	11-Nov-19 23:32	1
6:2 FTS	27619-97-2	ND	1.99		B9J0302	01-Nov-19	0.252 L	11-Nov-19 23:32	1
PFOA	335-67-1	ND	1.99		B9J0302	01-Nov-19	0.252 L	11-Nov-19 23:32	1
PFHpS	375-92-8	ND	1.99		B9J0302	01-Nov-19	0.252 L	11-Nov-19 23:32	1
PFNA	375-95-1	ND	1.99		B9J0302	01-Nov-19	0.252 L	11-Nov-19 23:32	1
PFOSA	754-91-6	ND	1.99		B9J0302	01-Nov-19	0.252 L	11-Nov-19 23:32	1
PFOS	1763-23-1	ND	1.99		B9J0302	01-Nov-19	0.252 L	11-Nov-19 23:32	1
PFDA	335-76-2	ND	1.99		B9J0302	01-Nov-19	0.252 L	11-Nov-19 23:32	1
8:2 FTS	39108-34-4	ND	1.99		B9J0302	01-Nov-19	0.252 L	11-Nov-19 23:32	1
MeFOSAA	2355-31-9	ND	1.99		B9J0302	01-Nov-19	0.252 L	11-Nov-19 23:32	1
EtFOSAA	2991-50-6	ND	1.99		B9J0302	01-Nov-19	0.252 L	11-Nov-19 23:32	1
PFUnA	2058-94-8	ND	1.99		B9J0302	01-Nov-19	0.252 L	11-Nov-19 23:32	1
PFDS	335-77-3	ND	1.99		B9J0302	01-Nov-19	0.252 L	11-Nov-19 23:32	1
PFDoA	307-55-1	ND	1.99		B9J0302	01-Nov-19	0.252 L	11-Nov-19 23:32	1
PFTrDA	72629-94-8	ND	1.99		B9J0302	01-Nov-19	0.252 L	11-Nov-19 23:32	1
PFTeDA	376-06-7	ND	1.99		B9J0302	01-Nov-19	0.252 L	11-Nov-19 23:32	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	170	50 - 150	H	B9J0302	01-Nov-19	0.252 L	11-Nov-19 23:32	1
13C3-PFPeA	IS	134	50 - 150		B9J0302	01-Nov-19	0.252 L	11-Nov-19 23:32	1
13C3-PFBS	IS	139	50 - 150		B9J0302	01-Nov-19	0.252 L	11-Nov-19 23:32	1
13C2-4:2 FTS	IS	127	50 - 150		B9J0302	01-Nov-19	0.252 L	11-Nov-19 23:32	1
13C2-PFHxA	IS	121	50 - 150		B9J0302	01-Nov-19	0.252 L	11-Nov-19 23:32	1
13C4-PFHpA	IS	133	50 - 150		B9J0302	01-Nov-19	0.252 L	11-Nov-19 23:32	1
13C3-PFHxS	IS	127	50 - 150		B9J0302	01-Nov-19	0.252 L	11-Nov-19 23:32	1
13C2-6:2 FTS	IS	117	50 - 150		B9J0302	01-Nov-19	0.252 L	11-Nov-19 23:32	1
13C5-PFNA	IS	130	50 - 150		B9J0302	01-Nov-19	0.252 L	11-Nov-19 23:32	1
13C8-PFOSA	IS	62.7	50 - 150		B9J0302	01-Nov-19	0.252 L	11-Nov-19 23:32	1
13C2-PFOA	IS	126	50 - 150		B9J0302	01-Nov-19	0.252 L	11-Nov-19 23:32	1
13C8-PFOS	IS	133	50 - 150		B9J0302	01-Nov-19	0.252 L	11-Nov-19 23:32	1
13C2-PFDA	IS	131	50 - 150		B9J0302	01-Nov-19	0.252 L	11-Nov-19 23:32	1
13C2-8:2 FTS	IS	133	50 - 150		B9J0302	01-Nov-19	0.252 L	11-Nov-19 23:32	1

Sample ID: L14-4-GW **PFAS Isotope Dilution Method**

Client Data				**Laboratory Data**			
Name:	Woodard & Curran	Matrix:	Aqueous	Lab Sample:	1903823-03	Column:	BEH C18
Project:	SJC PFAS Investigation	Date Collected:	23-Oct-19 15:21	Date Received:	25-Oct-19 08:40		
Location:	14						

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
d3-MeFOSAA	IS	114	50 - 150		B9J0302	01-Nov-19	0.252 L	11-Nov-19 23:32	1
13C2-PFUnA	IS	112	50 - 150		B9J0302	01-Nov-19	0.252 L	11-Nov-19 23:32	1
d5-EtFOSAA	IS	120	50 - 150		B9J0302	01-Nov-19	0.252 L	11-Nov-19 23:32	1
13C2-PFDoA	IS	91.2	50 - 150		B9J0302	01-Nov-19	0.252 L	11-Nov-19 23:32	1
13C2-PFTeDA	IS	46.2	50 - 150	H	B9J0302	01-Nov-19	0.252 L	11-Nov-19 23:32	1

RL - Reporting limit

Results reported to RL.

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

Sample ID: Method Blank **PFAS Isotope Dilution Method**

Client Data				**Laboratory Data**			
Name:	Woodard & Curran	Matrix:	Solid	Lab Sample:	B9K0047-BLK1	Column:	BEH C18
Project:	SJC PFAS Investigation						

Analyte	CAS Number	Conc. (ng/g)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	ND	2.00		B9K0047	12-Nov-19	1.00 g	20-Nov-19 05:13	1
PFPeA	2706-90-3	ND	2.00		B9K0047	12-Nov-19	1.00 g	20-Nov-19 05:13	1
PFBS	375-73-5	ND	2.00		B9K0047	12-Nov-19	1.00 g	20-Nov-19 05:13	1
4:2 FTS	757124-72-4	ND	2.00		B9K0047	12-Nov-19	1.00 g	20-Nov-19 05:13	1
PFHxA	307-24-4	ND	2.00		B9K0047	12-Nov-19	1.00 g	20-Nov-19 05:13	1
PFPeS	2706-91-4	ND	2.00		B9K0047	12-Nov-19	1.00 g	20-Nov-19 05:13	1
PFHpA	375-85-9	ND	2.00		B9K0047	12-Nov-19	1.00 g	20-Nov-19 05:13	1
PFHxS	355-46-4	ND	2.00		B9K0047	12-Nov-19	1.00 g	20-Nov-19 05:13	1
6:2 FTS	27619-97-2	ND	2.00		B9K0047	12-Nov-19	1.00 g	20-Nov-19 05:13	1
PFOA	335-67-1	ND	2.00		B9K0047	12-Nov-19	1.00 g	20-Nov-19 05:13	1
PFHpS	375-92-8	ND	2.00		B9K0047	12-Nov-19	1.00 g	20-Nov-19 05:13	1
PFNA	375-95-1	ND	2.00		B9K0047	12-Nov-19	1.00 g	20-Nov-19 05:13	1
PFOS	1763-23-1	ND	2.00		B9K0047	12-Nov-19	1.00 g	20-Nov-19 05:13	1
PFDA	335-76-2	ND	2.00		B9K0047	12-Nov-19	1.00 g	20-Nov-19 05:13	1
8:2 FTS	39108-34-4	ND	2.00		B9K0047	12-Nov-19	1.00 g	20-Nov-19 05:13	1
MeFOSAA	2355-31-9	ND	2.00		B9K0047	12-Nov-19	1.00 g	20-Nov-19 05:13	1
EtFOSAA	2991-50-6	ND	2.00		B9K0047	12-Nov-19	1.00 g	20-Nov-19 05:13	1
PFUnA	2058-94-8	ND	2.00		B9K0047	12-Nov-19	1.00 g	20-Nov-19 05:13	1
PFDS	335-77-3	ND	2.00		B9K0047	12-Nov-19	1.00 g	20-Nov-19 05:13	1
PFDoA	307-55-1	ND	2.00		B9K0047	12-Nov-19	1.00 g	20-Nov-19 05:13	1
PFTrDA	72629-94-8	ND	2.00		B9K0047	12-Nov-19	1.00 g	20-Nov-19 05:13	1
PFTeDA	376-06-7	ND	2.00		B9K0047	12-Nov-19	1.00 g	20-Nov-19 05:13	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	154	50 - 150	H	B9K0047	12-Nov-19	1.00 g	20-Nov-19 05:13	1
13C3-PFPeA	IS	72.9	50 - 150		B9K0047	12-Nov-19	1.00 g	20-Nov-19 05:13	1
13C3-PFBS	IS	88.9	50 - 150		B9K0047	12-Nov-19	1.00 g	20-Nov-19 05:13	1
13C2-4:2 FTS	IS	99.7	50 - 150		B9K0047	12-Nov-19	1.00 g	20-Nov-19 05:13	1
13C2-PFHxA	IS	66.7	50 - 150		B9K0047	12-Nov-19	1.00 g	20-Nov-19 05:13	1
13C4-PFHpA	IS	69.0	50 - 150		B9K0047	12-Nov-19	1.00 g	20-Nov-19 05:13	1
13C3-PFHxS	IS	103	50 - 150		B9K0047	12-Nov-19	1.00 g	20-Nov-19 05:13	1
13C2-6:2 FTS	IS	97.3	50 - 150		B9K0047	12-Nov-19	1.00 g	20-Nov-19 05:13	1
13C5-PFNA	IS	67.4	50 - 150		B9K0047	12-Nov-19	1.00 g	20-Nov-19 05:13	1
13C2-PFOA	IS	69.3	50 - 150		B9K0047	12-Nov-19	1.00 g	20-Nov-19 05:13	1
13C8-PFOS	IS	87.3	50 - 150		B9K0047	12-Nov-19	1.00 g	20-Nov-19 05:13	1
13C2-PFDA	IS	60.2	50 - 150		B9K0047	12-Nov-19	1.00 g	20-Nov-19 05:13	1
13C2-8:2 FTS	IS	115	50 - 150		B9K0047	12-Nov-19	1.00 g	20-Nov-19 05:13	1
d3-MeFOSAA	IS	57.3	50 - 150		B9K0047	12-Nov-19	1.00 g	20-Nov-19 05:13	1
13C2-PFUnA	IS	50.9	50 - 150		B9K0047	12-Nov-19	1.00 g	20-Nov-19 05:13	1

Sample ID: Method Blank **PFAS Isotope Dilution Method**

Client Data			
Name:	Woodard & Curran	Matrix:	Solid
Project:	SJC PFAS Investigation		

Laboratory Data			
Lab Sample:	B9K0047-BLK1	Column:	BEH C18

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
d5-EtFOSAA	IS	54.3	50 - 150		B9K0047	12-Nov-19	1.00 g	20-Nov-19 05:13	1
13C2-PFDoA	IS	48.5	50 - 150	H	B9K0047	12-Nov-19	1.00 g	20-Nov-19 05:13	1
13C2-PFTeDA	IS	58.1	50 - 150		B9K0047	12-Nov-19	1.00 g	20-Nov-19 05:13	1

RL - Reporting limit

The results are reported in dry weight.
The sample size is reported in wet weight.
Results reported to RL.

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

Sample ID: OPR **PFAS Isotope Dilution Method**

Client Data				**Laboratory Data**			
Name:	Woodard & Curran	Matrix:	Solid	Lab Sample:	B9K0047-BS1	Column:	BEH C18
Project:	SJC PFAS Investigation						

Analyte	CAS Number	Amt Found (ng/g)	Spike Amt	% Rec	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	9.64	10.0	96.4	71 - 135		B9K0047	12-Nov-19	1.00 g	20-Nov-19 05:24	1
PFPeA	2706-90-3	10.8	10.0	108	69 - 132		B9K0047	12-Nov-19	1.00 g	20-Nov-19 05:24	1
PFBS	375-73-5	10.0	10.0	100	72 - 128		B9K0047	12-Nov-19	1.00 g	20-Nov-19 05:24	1
4:2 FTS	757124-72-4	11.2	10.0	112	62 - 145		B9K0047	12-Nov-19	1.00 g	20-Nov-19 05:24	1
PFHxA	307-24-4	10.7	10.0	107	70 - 132		B9K0047	12-Nov-19	1.00 g	20-Nov-19 05:24	1
PFPeS	2706-91-4	9.65	10.0	96.5	73 - 123		B9K0047	12-Nov-19	1.00 g	20-Nov-19 05:24	1
PFHpA	375-85-9	9.93	10.0	99.3	71 - 131		B9K0047	12-Nov-19	1.00 g	20-Nov-19 05:24	1
PFHxS	355-46-4	8.77	10.0	87.7	67 - 130		B9K0047	12-Nov-19	1.00 g	20-Nov-19 05:24	1
6:2 FTS	27619-97-2	12.9	10.0	129	64 - 140		B9K0047	12-Nov-19	1.00 g	20-Nov-19 05:24	1
PFOA	335-67-1	10.5	10.0	105	69 - 133		B9K0047	12-Nov-19	1.00 g	20-Nov-19 05:24	1
PFHpS	375-92-8	10.3	10.0	103	70 - 132		B9K0047	12-Nov-19	1.00 g	20-Nov-19 05:24	1
PFNA	375-95-1	9.82	10.0	98.2	72 - 129		B9K0047	12-Nov-19	1.00 g	20-Nov-19 05:24	1
PFOS	1763-23-1	9.08	10.0	90.6	68 - 136		B9K0047	12-Nov-19	1.00 g	20-Nov-19 05:24	1
PFDA	335-76-2	10.1	10.0	101	69 - 133		B9K0047	12-Nov-19	1.00 g	20-Nov-19 05:24	1
8:2 FTS	39108-34-4	11.5	10.0	115	65 - 137		B9K0047	12-Nov-19	1.00 g	20-Nov-19 05:24	1
MeFOSAA	2355-31-9	9.41	10.0	94.1	63 - 144		B9K0047	12-Nov-19	1.00 g	20-Nov-19 05:24	1
EtFOSAA	2991-50-6	9.52	10.0	95.2	61 - 139		B9K0047	12-Nov-19	1.00 g	20-Nov-19 05:24	1
PFUnA	2058-94-8	11.1	10.0	111	64 - 136		B9K0047	12-Nov-19	1.00 g	20-Nov-19 05:24	1
PFDS	335-77-3	8.48	10.0	84.6	59 - 134		B9K0047	12-Nov-19	1.00 g	20-Nov-19 05:24	1
PFDoA	307-55-1	9.92	10.0	99.2	69 - 135		B9K0047	12-Nov-19	1.00 g	20-Nov-19 05:24	1
PFTrDA	72629-94-8	11.7	10.0	117	66 - 139		B9K0047	12-Nov-19	1.00 g	20-Nov-19 05:24	1
PFTeDA	376-06-7	11.0	10.0	110	69 - 133		B9K0047	12-Nov-19	1.00 g	20-Nov-19 05:24	1

Labeled Standards	Type	% Rec	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	99.9	50- 150		B9K0047	12-Nov-19	1.00 g	20-Nov-19 05:24	1
13C3-PFPeA	IS	51.0	50- 150		B9K0047	12-Nov-19	1.00 g	20-Nov-19 05:24	1
13C3-PFBS	IS	84.9	50- 150		B9K0047	12-Nov-19	1.00 g	20-Nov-19 05:24	1
13C2-4:2 FTS	IS	87.4	50- 150		B9K0047	12-Nov-19	1.00 g	20-Nov-19 05:24	1
13C2-PFHxA	IS	50.1	50- 150		B9K0047	12-Nov-19	1.00 g	20-Nov-19 05:24	1
13C4-PFHpA	IS	51.3	50- 150		B9K0047	12-Nov-19	1.00 g	20-Nov-19 05:24	1
13C3-PFHxS	IS	98.6	50- 150		B9K0047	12-Nov-19	1.00 g	20-Nov-19 05:24	1
13C2-6:2 FTS	IS	64.6	50- 150		B9K0047	12-Nov-19	1.00 g	20-Nov-19 05:24	1
13C5-PFNA	IS	53.2	50- 150		B9K0047	12-Nov-19	1.00 g	20-Nov-19 05:24	1
13C2-PFOA	IS	51.9	50- 150		B9K0047	12-Nov-19	1.00 g	20-Nov-19 05:24	1
13C8-PFOS	IS	87.4	50- 150		B9K0047	12-Nov-19	1.00 g	20-Nov-19 05:24	1
13C2-PFDA	IS	52.9	50- 150		B9K0047	12-Nov-19	1.00 g	20-Nov-19 05:24	1

Sample ID: OPR **PFAS Isotope Dilution Method**

Client Data				**Laboratory Data**			
Name:	Woodard & Curran	Matrix:	Solid	Lab Sample:	B9K0047-BS1	Column:	BEH C18
Project:	SJC PFAS Investigation						

Labeled Standards	Type	% Rec	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-8:2 FTS	IS	89.6	50 - 150		B9K0047	12-Nov-19	1.00 g	20-Nov-19 05:24	1
d3-MeFOSAA	IS	61.4	50 - 150		B9K0047	12-Nov-19	1.00 g	20-Nov-19 05:24	1
13C2-PFUnA	IS	51.6	50 - 150		B9K0047	12-Nov-19	1.00 g	20-Nov-19 05:24	1
d5-EtFOSAA	IS	56.4	50 - 150		B9K0047	12-Nov-19	1.00 g	20-Nov-19 05:24	1
13C2-PFDoA	IS	51.1	50 - 150		B9K0047	12-Nov-19	1.00 g	20-Nov-19 05:24	1
13C2-PFTeDA	IS	61.9	50 - 150		B9K0047	12-Nov-19	1.00 g	20-Nov-19 05:24	1

Sample ID: Method Blank **PFAS Isotope Dilution Method**

Client Data		**Laboratory Data**	
Name:	Woodard & Curran	Lab Sample:	B9K0201-BLK1
Project:	SJC PFAS Investigation	Column:	BEH C18
Matrix:	Solid		

Analyte	CAS Number	Conc. (ng/g)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFOSA	754-91-6	ND	1.00		B9K0201	26-Nov-19	2.00 g	06-Dec-19 19:46	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C8-PFOSA	IS	29.5	50 - 150	H	B9K0201	26-Nov-19	2.00 g	06-Dec-19 19:46	1

RL - Reporting limit

The results are reported in dry weight.
The sample size is reported in wet weight.
Results reported to RL.

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

Sample ID: OPR **PFAS Isotope Dilution Method**

Client Data

Name:	Woodard & Curran	Matrix:	Solid
Project:	SJC PFAS Investigation		

Laboratory Data

Lab Sample:	B9K0201-BS1	Column:	BEH C18

Analyte	CAS Number	Amt Found (ng/g)	Spike Amt	% Rec	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFOSA	754-91-6	5.19	5.00	104	67 - 137		B9K0201	26-Nov-19	2.00 g	07-Dec-19 20:04	1

Labeled Standards	Type	% Rec	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C8-PFOSA	IS	39.7	50- 150	H	B9K0201	26-Nov-19	2.00 g	07-Dec-19 20:04	1

Sample ID: L14-3-1 **PFAS Isotope Dilution Method**

Client Data			
Name:	Woodard & Curran	Matrix:	Soil
Project:	SJC PFAS Investigation	Date Collected:	24-Oct-19 13:56
Location:	14		

Laboratory Data			
Lab Sample:	1903823-04	Column:	BEH C18
Date Received:	25-Oct-19 08:40		
% Solids:	75.3		

Analyte	CAS Number	Conc. (ng/g)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	ND	2.00		B9K0047	12-Nov-19	1.33 g	20-Nov-19 05:55	1
PFPeA	2706-90-3	ND	2.00		B9K0047	12-Nov-19	1.33 g	20-Nov-19 05:55	1
PFBS	375-73-5	ND	2.00		B9K0047	12-Nov-19	1.33 g	20-Nov-19 05:55	1
4:2 FTS	757124-72-4	ND	2.00		B9K0047	12-Nov-19	1.33 g	20-Nov-19 05:55	1
PFHxA	307-24-4	ND	2.00		B9K0047	12-Nov-19	1.33 g	20-Nov-19 05:55	1
PFPeS	2706-91-4	ND	2.00		B9K0047	12-Nov-19	1.33 g	20-Nov-19 05:55	1
PFHpA	375-85-9	ND	2.00		B9K0047	12-Nov-19	1.33 g	20-Nov-19 05:55	1
PFHxS	355-46-4	ND	2.00		B9K0047	12-Nov-19	1.33 g	20-Nov-19 05:55	1
6:2 FTS	27619-97-2	ND	2.00		B9K0047	12-Nov-19	1.33 g	20-Nov-19 05:55	1
PFOA	335-67-1	ND	2.00		B9K0047	12-Nov-19	1.33 g	20-Nov-19 05:55	1
PFHpS	375-92-8	ND	2.00		B9K0047	12-Nov-19	1.33 g	20-Nov-19 05:55	1
PFNA	375-95-1	ND	2.00		B9K0047	12-Nov-19	1.33 g	20-Nov-19 05:55	1
PFOSA	754-91-6	ND	0.991		B9K0201	26-Nov-19	2.68 g	06-Dec-19 20:28	1
PFOS	1763-23-1	3.07	2.00	Q	B9K0047	12-Nov-19	1.33 g	20-Nov-19 05:55	1
PFDA	335-76-2	ND	2.00		B9K0047	12-Nov-19	1.33 g	20-Nov-19 05:55	1
8:2 FTS	39108-34-4	ND	2.00		B9K0047	12-Nov-19	1.33 g	20-Nov-19 05:55	1
MeFOSAA	2355-31-9	ND	2.00		B9K0047	12-Nov-19	1.33 g	20-Nov-19 05:55	1
EtFOSAA	2991-50-6	ND	2.00		B9K0047	12-Nov-19	1.33 g	20-Nov-19 05:55	1
PFUnA	2058-94-8	ND	2.00		B9K0047	12-Nov-19	1.33 g	20-Nov-19 05:55	1
PFDS	335-77-3	ND	2.00		B9K0047	12-Nov-19	1.33 g	20-Nov-19 05:55	1
PFDoA	307-55-1	ND	2.00		B9K0047	12-Nov-19	1.33 g	20-Nov-19 05:55	1
PFTrDA	72629-94-8	ND	2.00		B9K0047	12-Nov-19	1.33 g	20-Nov-19 05:55	1
PFTeDA	376-06-7	ND	2.00		B9K0047	12-Nov-19	1.33 g	20-Nov-19 05:55	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	142	50 - 150		B9K0047	12-Nov-19	1.33 g	20-Nov-19 05:55	1
13C3-PFPeA	IS	72.6	50 - 150		B9K0047	12-Nov-19	1.33 g	20-Nov-19 05:55	1
13C3-PFBS	IS	90.8	50 - 150		B9K0047	12-Nov-19	1.33 g	20-Nov-19 05:55	1
13C2-4:2 FTS	IS	89.5	50 - 150		B9K0047	12-Nov-19	1.33 g	20-Nov-19 05:55	1
13C2-PFHxA	IS	61.8	50 - 150		B9K0047	12-Nov-19	1.33 g	20-Nov-19 05:55	1
13C4-PFHpA	IS	56.9	50 - 150		B9K0047	12-Nov-19	1.33 g	20-Nov-19 05:55	1
13C3-PFHxS	IS	91.9	50 - 150		B9K0047	12-Nov-19	1.33 g	20-Nov-19 05:55	1
13C2-6:2 FTS	IS	75.5	50 - 150		B9K0047	12-Nov-19	1.33 g	20-Nov-19 05:55	1
13C5-PFNA	IS	38.7	50 - 150	H	B9K0047	12-Nov-19	1.33 g	20-Nov-19 05:55	1
13C8-PFOSA	IS	38.7	50 - 150	H	B9K0201	26-Nov-19	2.68 g	06-Dec-19 20:28	1
13C2-PFOA	IS	49.3	50 - 150	H	B9K0047	12-Nov-19	1.33 g	20-Nov-19 05:55	1
13C8-PFOS	IS	81.1	50 - 150		B9K0047	12-Nov-19	1.33 g	20-Nov-19 05:55	1
13C2-PFDA	IS	41.9	50 - 150	H	B9K0047	12-Nov-19	1.33 g	20-Nov-19 05:55	1
13C2-8:2 FTS	IS	91.9	50 - 150		B9K0047	12-Nov-19	1.33 g	20-Nov-19 05:55	1

Sample ID: L14-3-1

PFAS Isotope Dilution Method

Client Data				**Laboratory Data**			
Name:	Woodard & Curran	Matrix:	Soil	Lab Sample:	1903823-04	Column:	BEH C18
Project:	SJC PFAS Investigation	Date Collected:	24-Oct-19 13:56	Date Received:	25-Oct-19 08:40		
Location:	14			% Solids:	75.3		

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
d3-MeFOSAA	IS	50.6	50 - 150		B9K0047	12-Nov-19	1.33 g	20-Nov-19 05:55	1
13C2-PFUnA	IS	46.6	50 - 150	H	B9K0047	12-Nov-19	1.33 g	20-Nov-19 05:55	1
d5-EtFOSAA	IS	55.1	50 - 150		B9K0047	12-Nov-19	1.33 g	20-Nov-19 05:55	1
13C2-PFDoA	IS	50.4	50 - 150		B9K0047	12-Nov-19	1.33 g	20-Nov-19 05:55	1
13C2-PFTeDA	IS	41.4	50 - 150	H	B9K0047	12-Nov-19	1.33 g	20-Nov-19 05:55	1

RL - Reporting limit

The results are reported in dry weight.
The sample size is reported in wet weight.
Results reported to RL.

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

Sample ID: L14-3-5 **PFAS Isotope Dilution Method**

Client Data

Name:	Woodard & Curran	Matrix:	Soil
Project:	SJC PFAS Investigation	Date Collected:	24-Oct-19 14:01
Location:	14		

Laboratory Data

Lab Sample:	1903823-05	Column:	BEH C18
Date Received:	25-Oct-19 08:40		
% Solids:	72.9		

Analyte	CAS Number	Conc. (ng/g)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	ND	2.00		B9K0047	12-Nov-19	1.37 g	20-Nov-19 06:06	1
PFPeA	2706-90-3	ND	2.00		B9K0047	12-Nov-19	1.37 g	20-Nov-19 06:06	1
PFBS	375-73-5	ND	2.00		B9K0047	12-Nov-19	1.37 g	20-Nov-19 06:06	1
4:2 FTS	757124-72-4	ND	2.00		B9K0047	12-Nov-19	1.37 g	20-Nov-19 06:06	1
PFHxA	307-24-4	ND	2.00		B9K0047	12-Nov-19	1.37 g	20-Nov-19 06:06	1
PFPeS	2706-91-4	ND	2.00		B9K0047	12-Nov-19	1.37 g	20-Nov-19 06:06	1
PFHpA	375-85-9	ND	2.00		B9K0047	12-Nov-19	1.37 g	20-Nov-19 06:06	1
PFHxS	355-46-4	ND	2.00		B9K0047	12-Nov-19	1.37 g	20-Nov-19 06:06	1
6:2 FTS	27619-97-2	ND	2.00		B9K0047	12-Nov-19	1.37 g	20-Nov-19 06:06	1
PFOA	335-67-1	ND	2.00		B9K0047	12-Nov-19	1.37 g	20-Nov-19 06:06	1
PFHpS	375-92-8	ND	2.00		B9K0047	12-Nov-19	1.37 g	20-Nov-19 06:06	1
PFNA	375-95-1	ND	2.00		B9K0047	12-Nov-19	1.37 g	20-Nov-19 06:06	1
PFOSA	754-91-6	ND	0.997		B9K0201	26-Nov-19	2.75 g	06-Dec-19 20:38	1
PFOS	1763-23-1	ND	2.00		B9K0047	12-Nov-19	1.37 g	20-Nov-19 06:06	1
PFDA	335-76-2	ND	2.00		B9K0047	12-Nov-19	1.37 g	20-Nov-19 06:06	1
8:2 FTS	39108-34-4	ND	2.00		B9K0047	12-Nov-19	1.37 g	20-Nov-19 06:06	1
MeFOSAA	2355-31-9	ND	2.00		B9K0047	12-Nov-19	1.37 g	20-Nov-19 06:06	1
EtFOSAA	2991-50-6	ND	2.00		B9K0047	12-Nov-19	1.37 g	20-Nov-19 06:06	1
PFUnA	2058-94-8	ND	2.00		B9K0047	12-Nov-19	1.37 g	20-Nov-19 06:06	1
PFDS	335-77-3	ND	2.00		B9K0047	12-Nov-19	1.37 g	20-Nov-19 06:06	1
PFDoA	307-55-1	ND	2.00		B9K0047	12-Nov-19	1.37 g	20-Nov-19 06:06	1
PFTrDA	72629-94-8	ND	2.00		B9K0047	12-Nov-19	1.37 g	20-Nov-19 06:06	1
PFTeDA	376-06-7	ND	2.00		B9K0047	12-Nov-19	1.37 g	20-Nov-19 06:06	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	162	50 - 150	H	B9K0047	12-Nov-19	1.37 g	20-Nov-19 06:06	1
13C3-PFPeA	IS	78.0	50 - 150		B9K0047	12-Nov-19	1.37 g	20-Nov-19 06:06	1
13C3-PFBS	IS	86.4	50 - 150		B9K0047	12-Nov-19	1.37 g	20-Nov-19 06:06	1
13C2-4:2 FTS	IS	93.0	50 - 150		B9K0047	12-Nov-19	1.37 g	20-Nov-19 06:06	1
13C2-PFHxA	IS	71.4	50 - 150		B9K0047	12-Nov-19	1.37 g	20-Nov-19 06:06	1
13C4-PFHpA	IS	64.4	50 - 150		B9K0047	12-Nov-19	1.37 g	20-Nov-19 06:06	1
13C3-PFHxS	IS	91.3	50 - 150		B9K0047	12-Nov-19	1.37 g	20-Nov-19 06:06	1
13C2-6:2 FTS	IS	82.0	50 - 150		B9K0047	12-Nov-19	1.37 g	20-Nov-19 06:06	1
13C5-PFNA	IS	49.0	50 - 150	H	B9K0047	12-Nov-19	1.37 g	20-Nov-19 06:06	1
13C8-PFOSA	IS	26.4	50 - 150	H	B9K0201	26-Nov-19	2.75 g	06-Dec-19 20:38	1
13C2-PFOA	IS	62.6	50 - 150		B9K0047	12-Nov-19	1.37 g	20-Nov-19 06:06	1
13C8-PFOS	IS	79.5	50 - 150		B9K0047	12-Nov-19	1.37 g	20-Nov-19 06:06	1
13C2-PFDA	IS	45.2	50 - 150	H	B9K0047	12-Nov-19	1.37 g	20-Nov-19 06:06	1
13C2-8:2 FTS	IS	69.6	50 - 150		B9K0047	12-Nov-19	1.37 g	20-Nov-19 06:06	1

Sample ID: L14-3-5 **PFAS Isotope Dilution Method**

Client Data				**Laboratory Data**			
Name:	Woodard & Curran	Matrix:	Soil	Lab Sample:	1903823-05	Column:	BEH C18
Project:	SJC PFAS Investigation	Date Collected:	24-Oct-19 14:01	Date Received:	25-Oct-19 08:40		
Location:	14			% Solids:	72.9		

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
d3-MeFOSAA	IS	63.1	50 - 150		B9K0047	12-Nov-19	1.37 g	20-Nov-19 06:06	1
13C2-PFUnA	IS	55.6	50 - 150		B9K0047	12-Nov-19	1.37 g	20-Nov-19 06:06	1
d5-EtFOSAA	IS	57.3	50 - 150		B9K0047	12-Nov-19	1.37 g	20-Nov-19 06:06	1
13C2-PFDoA	IS	57.8	50 - 150		B9K0047	12-Nov-19	1.37 g	20-Nov-19 06:06	1
13C2-PFTeDA	IS	54.5	50 - 150		B9K0047	12-Nov-19	1.37 g	20-Nov-19 06:06	1

RL - Reporting limit

The results are reported in dry weight.
The sample size is reported in wet weight.
Results reported to RL.

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

Sample ID: L14-3-10 **PFAS Isotope Dilution Method**

Client Data

Name: Woodard & Curran
Project: SJC PFAS Investigation
Location: 14

Matrix: Soil
Date Collected: 24-Oct-19 14:06

Laboratory Data

Lab Sample: 1903823-06
Date Received: 25-Oct-19 08:40
% Solids: 81.4
Column: BEH C18

Analyte	CAS Number	Conc. (ng/g)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	ND	1.98		B9K0047	12-Nov-19	1.24 g	20-Nov-19 06:16	1
PFPeA	2706-90-3	ND	1.98		B9K0047	12-Nov-19	1.24 g	20-Nov-19 06:16	1
PFBS	375-73-5	ND	1.98		B9K0047	12-Nov-19	1.24 g	20-Nov-19 06:16	1
4:2 FTS	757124-72-4	ND	1.98		B9K0047	12-Nov-19	1.24 g	20-Nov-19 06:16	1
PFHxA	307-24-4	ND	1.98		B9K0047	12-Nov-19	1.24 g	20-Nov-19 06:16	1
PFPeS	2706-91-4	ND	1.98		B9K0047	12-Nov-19	1.24 g	20-Nov-19 06:16	1
PFHpA	375-85-9	ND	1.98		B9K0047	12-Nov-19	1.24 g	20-Nov-19 06:16	1
PFHxS	355-46-4	ND	1.98		B9K0047	12-Nov-19	1.24 g	20-Nov-19 06:16	1
6:2 FTS	27619-97-2	ND	1.98		B9K0047	12-Nov-19	1.24 g	20-Nov-19 06:16	1
PFOA	335-67-1	ND	1.98		B9K0047	12-Nov-19	1.24 g	20-Nov-19 06:16	1
PFHpS	375-92-8	ND	1.98		B9K0047	12-Nov-19	1.24 g	20-Nov-19 06:16	1
PFNA	375-95-1	ND	1.98		B9K0047	12-Nov-19	1.24 g	20-Nov-19 06:16	1
PFOSA	754-91-6	ND	0.990		B9K0201	26-Nov-19	2.48 g	06-Dec-19 20:49	1
PFOS	1763-23-1	ND	1.98		B9K0047	12-Nov-19	1.24 g	20-Nov-19 06:16	1
PFDA	335-76-2	ND	1.98		B9K0047	12-Nov-19	1.24 g	20-Nov-19 06:16	1
8:2 FTS	39108-34-4	ND	1.98		B9K0047	12-Nov-19	1.24 g	20-Nov-19 06:16	1
MeFOSAA	2355-31-9	ND	1.98		B9K0047	12-Nov-19	1.24 g	20-Nov-19 06:16	1
EtFOSAA	2991-50-6	ND	1.98		B9K0047	12-Nov-19	1.24 g	20-Nov-19 06:16	1
PFUnA	2058-94-8	ND	1.98		B9K0047	12-Nov-19	1.24 g	20-Nov-19 06:16	1
PFDS	335-77-3	ND	1.98		B9K0047	12-Nov-19	1.24 g	20-Nov-19 06:16	1
PFDoA	307-55-1	ND	1.98		B9K0047	12-Nov-19	1.24 g	20-Nov-19 06:16	1
PFTrDA	72629-94-8	ND	1.98		B9K0047	12-Nov-19	1.24 g	20-Nov-19 06:16	1
PFTeDA	376-06-7	ND	1.98		B9K0047	12-Nov-19	1.24 g	20-Nov-19 06:16	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	133	50 - 150		B9K0047	12-Nov-19	1.24 g	20-Nov-19 06:16	1
13C3-PFPeA	IS	67.3	50 - 150		B9K0047	12-Nov-19	1.24 g	20-Nov-19 06:16	1
13C3-PFBS	IS	95.6	50 - 150		B9K0047	12-Nov-19	1.24 g	20-Nov-19 06:16	1
13C2-4:2 FTS	IS	98.9	50 - 150		B9K0047	12-Nov-19	1.24 g	20-Nov-19 06:16	1
13C2-PFHxA	IS	57.2	50 - 150		B9K0047	12-Nov-19	1.24 g	20-Nov-19 06:16	1
13C4-PFHpA	IS	48.7	50 - 150	H	B9K0047	12-Nov-19	1.24 g	20-Nov-19 06:16	1
13C3-PFHxS	IS	96.5	50 - 150		B9K0047	12-Nov-19	1.24 g	20-Nov-19 06:16	1
13C2-6:2 FTS	IS	88.5	50 - 150		B9K0047	12-Nov-19	1.24 g	20-Nov-19 06:16	1
13C5-PFNA	IS	49.0	50 - 150	H	B9K0047	12-Nov-19	1.24 g	20-Nov-19 06:16	1
13C8-PFOSA	IS	19.1	50 - 150	H	B9K0201	26-Nov-19	2.48 g	06-Dec-19 20:49	1
13C2-PFOA	IS	50.2	50 - 150		B9K0047	12-Nov-19	1.24 g	20-Nov-19 06:16	1
13C8-PFOS	IS	89.6	50 - 150		B9K0047	12-Nov-19	1.24 g	20-Nov-19 06:16	1
13C2-PFDA	IS	47.4	50 - 150	H	B9K0047	12-Nov-19	1.24 g	20-Nov-19 06:16	1
13C2-8:2 FTS	IS	90.7	50 - 150		B9K0047	12-Nov-19	1.24 g	20-Nov-19 06:16	1

Sample ID: L14-3-10 **PFAS Isotope Dilution Method**

Client Data				**Laboratory Data**			
Name:	Woodard & Curran	Matrix:	Soil	Lab Sample:	1903823-06	Column:	BEH C18
Project:	SJC PFAS Investigation	Date Collected:	24-Oct-19 14:06	Date Received:	25-Oct-19 08:40		
Location:	14			% Solids:	81.4		

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
d3-MeFOSAA	IS	67.0	50 - 150		B9K0047	12-Nov-19	1.24 g	20-Nov-19 06:16	1
13C2-PFUnA	IS	53.0	50 - 150		B9K0047	12-Nov-19	1.24 g	20-Nov-19 06:16	1
d5-EtFOSAA	IS	62.4	50 - 150		B9K0047	12-Nov-19	1.24 g	20-Nov-19 06:16	1
13C2-PFDoA	IS	61.1	50 - 150		B9K0047	12-Nov-19	1.24 g	20-Nov-19 06:16	1
13C2-PFTeDA	IS	72.0	50 - 150		B9K0047	12-Nov-19	1.24 g	20-Nov-19 06:16	1

RL - Reporting limit

The results are reported in dry weight.
The sample size is reported in wet weight.
Results reported to RL.

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

Sample ID: L14-5-1 **PFAS Isotope Dilution Method**

Client Data				**Laboratory Data**			
Name:	Woodard & Curran	Matrix:	Soil	Lab Sample:	1903823-07	Column:	BEH C18
Project:	SJC PFAS Investigation	Date Collected:	24-Oct-19 14:16	Date Received:	25-Oct-19 08:40		
Location:	14			% Solids:	75.6		

Analyte	CAS Number	Conc. (ng/g)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	ND	1.99		B9K0047	12-Nov-19	1.33 g	20-Nov-19 06:27	1
PFPeA	2706-90-3	ND	1.99		B9K0047	12-Nov-19	1.33 g	20-Nov-19 06:27	1
PFBS	375-73-5	ND	1.99		B9K0047	12-Nov-19	1.33 g	20-Nov-19 06:27	1
4:2 FTS	757124-72-4	ND	1.99		B9K0047	12-Nov-19	1.33 g	20-Nov-19 06:27	1
PFHxA	307-24-4	ND	1.99		B9K0047	12-Nov-19	1.33 g	20-Nov-19 06:27	1
PFPeS	2706-91-4	ND	1.99		B9K0047	12-Nov-19	1.33 g	20-Nov-19 06:27	1
PFHpA	375-85-9	ND	1.99		B9K0047	12-Nov-19	1.33 g	20-Nov-19 06:27	1
PFHxS	355-46-4	ND	1.99		B9K0047	12-Nov-19	1.33 g	20-Nov-19 06:27	1
6:2 FTS	27619-97-2	ND	1.99		B9K0047	12-Nov-19	1.33 g	20-Nov-19 06:27	1
PFOA	335-67-1	ND	1.99		B9K0047	12-Nov-19	1.33 g	20-Nov-19 06:27	1
PFHpS	375-92-8	ND	1.99		B9K0047	12-Nov-19	1.33 g	20-Nov-19 06:27	1
PFNA	375-95-1	ND	1.99		B9K0047	12-Nov-19	1.33 g	20-Nov-19 06:27	1
PFOSA	754-91-6	ND	0.995		B9K0201	26-Nov-19	2.66 g	06-Dec-19 20:59	1
PFOS	1763-23-1	ND	1.99		B9K0047	12-Nov-19	1.33 g	20-Nov-19 06:27	1
PFDA	335-76-2	ND	1.99		B9K0047	12-Nov-19	1.33 g	20-Nov-19 06:27	1
8:2 FTS	39108-34-4	ND	1.99		B9K0047	12-Nov-19	1.33 g	20-Nov-19 06:27	1
MeFOSAA	2355-31-9	ND	1.99		B9K0047	12-Nov-19	1.33 g	20-Nov-19 06:27	1
EtFOSAA	2991-50-6	ND	1.99		B9K0047	12-Nov-19	1.33 g	20-Nov-19 06:27	1
PFUnA	2058-94-8	ND	1.99		B9K0047	12-Nov-19	1.33 g	20-Nov-19 06:27	1
PFDS	335-77-3	ND	1.99		B9K0047	12-Nov-19	1.33 g	20-Nov-19 06:27	1
PFDoA	307-55-1	ND	1.99		B9K0047	12-Nov-19	1.33 g	20-Nov-19 06:27	1
PFTrDA	72629-94-8	ND	1.99		B9K0047	12-Nov-19	1.33 g	20-Nov-19 06:27	1
PFTeDA	376-06-7	ND	1.99		B9K0047	12-Nov-19	1.33 g	20-Nov-19 06:27	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	134	50 - 150		B9K0047	12-Nov-19	1.33 g	20-Nov-19 06:27	1
13C3-PFPeA	IS	66.6	50 - 150		B9K0047	12-Nov-19	1.33 g	20-Nov-19 06:27	1
13C3-PFBS	IS	88.7	50 - 150		B9K0047	12-Nov-19	1.33 g	20-Nov-19 06:27	1
13C2-4:2 FTS	IS	90.4	50 - 150		B9K0047	12-Nov-19	1.33 g	20-Nov-19 06:27	1
13C2-PFHxA	IS	62.8	50 - 150		B9K0047	12-Nov-19	1.33 g	20-Nov-19 06:27	1
13C4-PFHpA	IS	53.5	50 - 150		B9K0047	12-Nov-19	1.33 g	20-Nov-19 06:27	1
13C3-PFHxS	IS	92.4	50 - 150		B9K0047	12-Nov-19	1.33 g	20-Nov-19 06:27	1
13C2-6:2 FTS	IS	68.9	50 - 150		B9K0047	12-Nov-19	1.33 g	20-Nov-19 06:27	1
13C5-PFNA	IS	38.6	50 - 150	H	B9K0047	12-Nov-19	1.33 g	20-Nov-19 06:27	1
13C8-PFOSA	IS	37.4	50 - 150	H	B9K0201	26-Nov-19	2.66 g	06-Dec-19 20:59	1
13C2-PFOA	IS	48.9	50 - 150	H	B9K0047	12-Nov-19	1.33 g	20-Nov-19 06:27	1
13C8-PFOS	IS	80.5	50 - 150		B9K0047	12-Nov-19	1.33 g	20-Nov-19 06:27	1
13C2-PFDA	IS	38.5	50 - 150	H	B9K0047	12-Nov-19	1.33 g	20-Nov-19 06:27	1
13C2-8:2 FTS	IS	87.0	50 - 150		B9K0047	12-Nov-19	1.33 g	20-Nov-19 06:27	1

Sample ID: L14-5-1	**PFAS Isotope Dilution Method**

Client Data				**Laboratory Data**			
Name:	Woodard & Curran	Matrix:	Soil	Lab Sample:	1903823-07	Column:	BEH C18
Project:	SJC PFAS Investigation	Date Collected:	24-Oct-19 14:16	Date Received:	25-Oct-19 08:40		
Location:	14			% Solids:	75.6		

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
d3-MeFOSAA	IS	47.5	50 - 150	H	B9K0047	12-Nov-19	1.33 g	20-Nov-19 06:27	1
13C2-PFUnA	IS	48.6	50 - 150	H	B9K0047	12-Nov-19	1.33 g	20-Nov-19 06:27	1
d5-EtFOSAA	IS	55.1	50 - 150		B9K0047	12-Nov-19	1.33 g	20-Nov-19 06:27	1
13C2-PFDoA	IS	53.1	50 - 150		B9K0047	12-Nov-19	1.33 g	20-Nov-19 06:27	1
13C2-PFTeDA	IS	46.2	50 - 150	H	B9K0047	12-Nov-19	1.33 g	20-Nov-19 06:27	1

RL - Reporting limit

The results are reported in dry weight.
The sample size is reported in wet weight.
Results reported to RL.

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

Sample ID: L14-5-5 **PFAS Isotope Dilution Method**

Client Data				**Laboratory Data**			
Name:	Woodard & Curran	Matrix:	Soil	Lab Sample:	1903823-08	Column:	BEH C18
Project:	SJC PFAS Investigation	Date Collected:	24-Oct-19 14:19	Date Received:	25-Oct-19 08:40		
Location:	14			% Solids:	72.0		

Analyte	CAS Number	Conc. (ng/g)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	ND	1.94		B9K0047	12-Nov-19	1.43 g	20-Nov-19 06:38	1
PFPeA	2706-90-3	ND	1.94		B9K0047	12-Nov-19	1.43 g	20-Nov-19 06:38	1
PFBS	375-73-5	ND	1.94		B9K0047	12-Nov-19	1.43 g	20-Nov-19 06:38	1
4:2 FTS	757124-72-4	ND	1.94		B9K0047	12-Nov-19	1.43 g	20-Nov-19 06:38	1
PFHxA	307-24-4	ND	1.94		B9K0047	12-Nov-19	1.43 g	20-Nov-19 06:38	1
PFPeS	2706-91-4	ND	1.94		B9K0047	12-Nov-19	1.43 g	20-Nov-19 06:38	1
PFHpA	375-85-9	ND	1.94		B9K0047	12-Nov-19	1.43 g	20-Nov-19 06:38	1
PFHxS	355-46-4	ND	1.94		B9K0047	12-Nov-19	1.43 g	20-Nov-19 06:38	1
6:2 FTS	27619-97-2	ND	1.94		B9K0047	12-Nov-19	1.43 g	20-Nov-19 06:38	1
PFOA	335-67-1	ND	1.94		B9K0047	12-Nov-19	1.43 g	20-Nov-19 06:38	1
PFHpS	375-92-8	ND	1.94		B9K0047	12-Nov-19	1.43 g	20-Nov-19 06:38	1
PFNA	375-95-1	ND	1.94		B9K0047	12-Nov-19	1.43 g	20-Nov-19 06:38	1
PFOSA	754-91-6	ND	0.992		B9K0201	26-Nov-19	2.80 g	06-Dec-19 21:10	1
PFOS	1763-23-1	ND	1.94		B9K0047	12-Nov-19	1.43 g	20-Nov-19 06:38	1
PFDA	335-76-2	ND	1.94		B9K0047	12-Nov-19	1.43 g	20-Nov-19 06:38	1
8:2 FTS	39108-34-4	ND	1.94		B9K0047	12-Nov-19	1.43 g	20-Nov-19 06:38	1
MeFOSAA	2355-31-9	ND	1.94		B9K0047	12-Nov-19	1.43 g	20-Nov-19 06:38	1
EtFOSAA	2991-50-6	ND	1.94		B9K0047	12-Nov-19	1.43 g	20-Nov-19 06:38	1
PFUnA	2058-94-8	ND	1.94		B9K0047	12-Nov-19	1.43 g	20-Nov-19 06:38	1
PFDS	335-77-3	ND	1.94		B9K0047	12-Nov-19	1.43 g	20-Nov-19 06:38	1
PFDoA	307-55-1	ND	1.94		B9K0047	12-Nov-19	1.43 g	20-Nov-19 06:38	1
PFTrDA	72629-94-8	ND	1.94		B9K0047	12-Nov-19	1.43 g	20-Nov-19 06:38	1
PFTeDA	376-06-7	ND	1.94		B9K0047	12-Nov-19	1.43 g	20-Nov-19 06:38	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	148	50 - 150		B9K0047	12-Nov-19	1.43 g	20-Nov-19 06:38	1
13C3-PFPeA	IS	72.9	50 - 150		B9K0047	12-Nov-19	1.43 g	20-Nov-19 06:38	1
13C3-PFBS	IS	94.0	50 - 150		B9K0047	12-Nov-19	1.43 g	20-Nov-19 06:38	1
13C2-4:2 FTS	IS	91.1	50 - 150		B9K0047	12-Nov-19	1.43 g	20-Nov-19 06:38	1
13C2-PFHxA	IS	66.8	50 - 150		B9K0047	12-Nov-19	1.43 g	20-Nov-19 06:38	1
13C4-PFHpA	IS	61.6	50 - 150		B9K0047	12-Nov-19	1.43 g	20-Nov-19 06:38	1
13C3-PFHxS	IS	95.7	50 - 150		B9K0047	12-Nov-19	1.43 g	20-Nov-19 06:38	1
13C2-6:2 FTS	IS	82.4	50 - 150		B9K0047	12-Nov-19	1.43 g	20-Nov-19 06:38	1
13C5-PFNA	IS	56.8	50 - 150		B9K0047	12-Nov-19	1.43 g	20-Nov-19 06:38	1
13C8-PFOSA	IS	73.7	50 - 150		B9K0201	26-Nov-19	2.80 g	06-Dec-19 21:10	1
13C2-PFOA	IS	57.3	50 - 150		B9K0047	12-Nov-19	1.43 g	20-Nov-19 06:38	1
13C8-PFOS	IS	86.3	50 - 150		B9K0047	12-Nov-19	1.43 g	20-Nov-19 06:38	1
13C2-PFDA	IS	50.1	50 - 150		B9K0047	12-Nov-19	1.43 g	20-Nov-19 06:38	1
13C2-8:2 FTS	IS	99.5	50 - 150		B9K0047	12-Nov-19	1.43 g	20-Nov-19 06:38	1

Sample ID: L14-5-5

PFAS Isotope Dilution Method

Client Data				**Laboratory Data**			
Name:	Woodard & Curran	Matrix:	Soil	Lab Sample:	1903823-08	Column:	BEH C18
Project:	SJC PFAS Investigation	Date Collected:	24-Oct-19 14:19	Date Received:	25-Oct-19 08:40		
Location:	14			% Solids:	72.0		

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
d3-MeFOSAA	IS	62.1	50 - 150		B9K0047	12-Nov-19	1.43 g	20-Nov-19 06:38	1
13C2-PFUnA	IS	59.6	50 - 150		B9K0047	12-Nov-19	1.43 g	20-Nov-19 06:38	1
d5-EtFOSAA	IS	56.5	50 - 150		B9K0047	12-Nov-19	1.43 g	20-Nov-19 06:38	1
13C2-PFDoA	IS	57.7	50 - 150		B9K0047	12-Nov-19	1.43 g	20-Nov-19 06:38	1
13C2-PFTeDA	IS	73.6	50 - 150		B9K0047	12-Nov-19	1.43 g	20-Nov-19 06:38	1

RL - Reporting limit

The results are reported in dry weight.
The sample size is reported in wet weight.
Results reported to RL.

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

Sample ID: L14-5-10 **PFAS Isotope Dilution Method**

Client Data				**Laboratory Data**			
Name:	Woodard & Curran	Matrix:	Soil	Lab Sample:	1903823-09	Column:	BEH C18
Project:	SJC PFAS Investigation	Date Collected:	24-Oct-19 14:23	Date Received:	25-Oct-19 08:40		
Location:	14			% Solids:	79.7		

Analyte	CAS Number	Conc. (ng/g)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	ND	1.98		B9K0047	12-Nov-19	1.27 g	20-Nov-19 06:48	1
PFPeA	2706-90-3	ND	1.98		B9K0047	12-Nov-19	1.27 g	20-Nov-19 06:48	1
PFBS	375-73-5	ND	1.98		B9K0047	12-Nov-19	1.27 g	20-Nov-19 06:48	1
4:2 FTS	757124-72-4	ND	1.98		B9K0047	12-Nov-19	1.27 g	20-Nov-19 06:48	1
PFHxA	307-24-4	ND	1.98		B9K0047	12-Nov-19	1.27 g	20-Nov-19 06:48	1
PFPeS	2706-91-4	ND	1.98		B9K0047	12-Nov-19	1.27 g	20-Nov-19 06:48	1
PFHpA	375-85-9	ND	1.98		B9K0047	12-Nov-19	1.27 g	20-Nov-19 06:48	1
PFHxS	355-46-4	ND	1.98		B9K0047	12-Nov-19	1.27 g	20-Nov-19 06:48	1
6:2 FTS	27619-97-2	ND	1.98		B9K0047	12-Nov-19	1.27 g	20-Nov-19 06:48	1
PFOA	335-67-1	ND	1.98		B9K0047	12-Nov-19	1.27 g	20-Nov-19 06:48	1
PFHpS	375-92-8	ND	1.98		B9K0047	12-Nov-19	1.27 g	20-Nov-19 06:48	1
PFNA	375-95-1	ND	1.98		B9K0047	12-Nov-19	1.27 g	20-Nov-19 06:48	1
PFOSA	754-91-6	ND	0.992		B9K0201	26-Nov-19	2.53 g	06-Dec-19 21:20	1
PFOS	1763-23-1	ND	1.98		B9K0047	12-Nov-19	1.27 g	20-Nov-19 06:48	1
PFDA	335-76-2	ND	1.98		B9K0047	12-Nov-19	1.27 g	20-Nov-19 06:48	1
8:2 FTS	39108-34-4	ND	1.98		B9K0047	12-Nov-19	1.27 g	20-Nov-19 06:48	1
MeFOSAA	2355-31-9	ND	1.98		B9K0047	12-Nov-19	1.27 g	20-Nov-19 06:48	1
EtFOSAA	2991-50-6	ND	1.98		B9K0047	12-Nov-19	1.27 g	20-Nov-19 06:48	1
PFUnA	2058-94-8	ND	1.98		B9K0047	12-Nov-19	1.27 g	20-Nov-19 06:48	1
PFDS	335-77-3	ND	1.98		B9K0047	12-Nov-19	1.27 g	20-Nov-19 06:48	1
PFDoA	307-55-1	ND	1.98		B9K0047	12-Nov-19	1.27 g	20-Nov-19 06:48	1
PFTrDA	72629-94-8	ND	1.98		B9K0047	12-Nov-19	1.27 g	20-Nov-19 06:48	1
PFTeDA	376-06-7	ND	1.98		B9K0047	12-Nov-19	1.27 g	20-Nov-19 06:48	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	120	50 - 150		B9K0047	12-Nov-19	1.27 g	20-Nov-19 06:48	1
13C3-PFPeA	IS	60.3	50 - 150		B9K0047	12-Nov-19	1.27 g	20-Nov-19 06:48	1
13C3-PFBS	IS	83.8	50 - 150		B9K0047	12-Nov-19	1.27 g	20-Nov-19 06:48	1
13C2-4:2 FTS	IS	89.4	50 - 150		B9K0047	12-Nov-19	1.27 g	20-Nov-19 06:48	1
13C2-PFHxA	IS	56.5	50 - 150		B9K0047	12-Nov-19	1.27 g	20-Nov-19 06:48	1
13C4-PFHpA	IS	53.3	50 - 150		B9K0047	12-Nov-19	1.27 g	20-Nov-19 06:48	1
13C3-PFHxS	IS	98.8	50 - 150		B9K0047	12-Nov-19	1.27 g	20-Nov-19 06:48	1
13C2-6:2 FTS	IS	80.6	50 - 150		B9K0047	12-Nov-19	1.27 g	20-Nov-19 06:48	1
13C5-PFNA	IS	49.8	50 - 150	H	B9K0047	12-Nov-19	1.27 g	20-Nov-19 06:48	1
13C8-PFOSA	IS	20.9	50 - 150	H	B9K0201	26-Nov-19	2.53 g	06-Dec-19 21:20	1
13C2-PFOA	IS	53.6	50 - 150		B9K0047	12-Nov-19	1.27 g	20-Nov-19 06:48	1
13C8-PFOS	IS	82.5	50 - 150		B9K0047	12-Nov-19	1.27 g	20-Nov-19 06:48	1
13C2-PFDA	IS	47.9	50 - 150	H	B9K0047	12-Nov-19	1.27 g	20-Nov-19 06:48	1
13C2-8:2 FTS	IS	87.4	50 - 150		B9K0047	12-Nov-19	1.27 g	20-Nov-19 06:48	1

Sample ID: L14-5-10 **PFAS Isotope Dilution Method**

Client Data				**Laboratory Data**			
Name:	Woodard & Curran	Matrix:	Soil	Lab Sample:	1903823-09	Column:	BEH C18
Project:	SJC PFAS Investigation	Date Collected:	24-Oct-19 14:23	Date Received:	25-Oct-19 08:40		
Location:	14			% Solids:	79.7		

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
d3-MeFOSAA	IS	61.1	50 - 150		B9K0047	12-Nov-19	1.27 g	20-Nov-19 06:48	1
13C2-PFUnA	IS	53.6	50 - 150		B9K0047	12-Nov-19	1.27 g	20-Nov-19 06:48	1
d5-EtFOSAA	IS	62.1	50 - 150		B9K0047	12-Nov-19	1.27 g	20-Nov-19 06:48	1
13C2-PFDoA	IS	57.9	50 - 150		B9K0047	12-Nov-19	1.27 g	20-Nov-19 06:48	1
13C2-PFTeDA	IS	65.8	50 - 150		B9K0047	12-Nov-19	1.27 g	20-Nov-19 06:48	1

RL - Reporting limit

The results are reported in dry weight.
The sample size is reported in wet weight.
Results reported to RL.

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

Sample ID: L14-6-1 **PFAS Isotope Dilution Method**

Client Data				**Laboratory Data**			
Name:	Woodard & Curran	Matrix:	Soil	Lab Sample:	1903823-10	Column:	BEH C18
Project:	SJC PFAS Investigation	Date Collected:	24-Oct-19 14:29	Date Received:	25-Oct-19 08:40		
Location:	14			% Solids:	74.4		

Analyte	CAS Number	Conc. (ng/g)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	ND	1.96		B9K0047	12-Nov-19	1.37 g	20-Nov-19 06:59	1
PFPeA	2706-90-3	ND	1.96		B9K0047	12-Nov-19	1.37 g	20-Nov-19 06:59	1
PFBS	375-73-5	ND	1.96		B9K0047	12-Nov-19	1.37 g	20-Nov-19 06:59	1
4:2 FTS	757124-72-4	ND	1.96		B9K0047	12-Nov-19	1.37 g	20-Nov-19 06:59	1
PFHxA	307-24-4	ND	1.96		B9K0047	12-Nov-19	1.37 g	20-Nov-19 06:59	1
PFPeS	2706-91-4	ND	1.96		B9K0047	12-Nov-19	1.37 g	20-Nov-19 06:59	1
PFHpA	375-85-9	ND	1.96		B9K0047	12-Nov-19	1.37 g	20-Nov-19 06:59	1
PFHxS	355-46-4	ND	1.96		B9K0047	12-Nov-19	1.37 g	20-Nov-19 06:59	1
6:2 FTS	27619-97-2	ND	1.96		B9K0047	12-Nov-19	1.37 g	20-Nov-19 06:59	1
PFOA	335-67-1	ND	1.96		B9K0047	12-Nov-19	1.37 g	20-Nov-19 06:59	1
PFHpS	375-92-8	ND	1.96		B9K0047	12-Nov-19	1.37 g	20-Nov-19 06:59	1
PFNA	375-95-1	ND	1.96		B9K0047	12-Nov-19	1.37 g	20-Nov-19 06:59	1
PFOSA	754-91-6	ND	0.992		B9K0201	26-Nov-19	2.71 g	06-Dec-19 21:31	1
PFOS	1763-23-1	ND	1.96		B9K0047	12-Nov-19	1.37 g	20-Nov-19 06:59	1
PFDA	335-76-2	ND	1.96		B9K0047	12-Nov-19	1.37 g	20-Nov-19 06:59	1
8:2 FTS	39108-34-4	ND	1.96		B9K0047	12-Nov-19	1.37 g	20-Nov-19 06:59	1
MeFOSAA	2355-31-9	ND	1.96		B9K0047	12-Nov-19	1.37 g	20-Nov-19 06:59	1
EtFOSAA	2991-50-6	ND	1.96		B9K0047	12-Nov-19	1.37 g	20-Nov-19 06:59	1
PFUnA	2058-94-8	ND	1.96		B9K0047	12-Nov-19	1.37 g	20-Nov-19 06:59	1
PFDS	335-77-3	ND	1.96		B9K0047	12-Nov-19	1.37 g	20-Nov-19 06:59	1
PFDoA	307-55-1	ND	1.96		B9K0047	12-Nov-19	1.37 g	20-Nov-19 06:59	1
PFTrDA	72629-94-8	ND	1.96		B9K0047	12-Nov-19	1.37 g	20-Nov-19 06:59	1
PFTeDA	376-06-7	ND	1.96		B9K0047	12-Nov-19	1.37 g	20-Nov-19 06:59	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	156	50 - 150	H	B9K0047	12-Nov-19	1.37 g	20-Nov-19 06:59	1
13C3-PFPeA	IS	79.8	50 - 150		B9K0047	12-Nov-19	1.37 g	20-Nov-19 06:59	1
13C3-PFBS	IS	83.1	50 - 150		B9K0047	12-Nov-19	1.37 g	20-Nov-19 06:59	1
13C2-4:2 FTS	IS	93.9	50 - 150		B9K0047	12-Nov-19	1.37 g	20-Nov-19 06:59	1
13C2-PFHxA	IS	73.0	50 - 150		B9K0047	12-Nov-19	1.37 g	20-Nov-19 06:59	1
13C4-PFHpA	IS	71.2	50 - 150		B9K0047	12-Nov-19	1.37 g	20-Nov-19 06:59	1
13C3-PFHxS	IS	86.7	50 - 150		B9K0047	12-Nov-19	1.37 g	20-Nov-19 06:59	1
13C2-6:2 FTS	IS	78.7	50 - 150		B9K0047	12-Nov-19	1.37 g	20-Nov-19 06:59	1
13C5-PFNA	IS	52.3	50 - 150		B9K0047	12-Nov-19	1.37 g	20-Nov-19 06:59	1
13C8-PFOSA	IS	13.7	50 - 150	H	B9K0201	26-Nov-19	2.71 g	06-Dec-19 21:31	1
13C2-PFOA	IS	61.0	50 - 150		B9K0047	12-Nov-19	1.37 g	20-Nov-19 06:59	1
13C8-PFOS	IS	90.0	50 - 150		B9K0047	12-Nov-19	1.37 g	20-Nov-19 06:59	1
13C2-PFDA	IS	50.1	50 - 150		B9K0047	12-Nov-19	1.37 g	20-Nov-19 06:59	1
13C2-8:2 FTS	IS	82.4	50 - 150		B9K0047	12-Nov-19	1.37 g	20-Nov-19 06:59	1

Sample ID: L14-6-1

PFAS Isotope Dilution Method

Client Data

Name:	Woodard & Curran	Matrix:	Soil
Project:	SJC PFAS Investigation	Date Collected:	24-Oct-19 14:29
Location:	14		

Laboratory Data

Lab Sample:	1903823-10	Column:	BEH C18
Date Received:	25-Oct-19 08:40		
% Solids:	74.4		

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
d3-MeFOSAA	IS	57.8	50 - 150		B9K0047	12-Nov-19	1.37 g	20-Nov-19 06:59	1
13C2-PFUnA	IS	58.4	50 - 150		B9K0047	12-Nov-19	1.37 g	20-Nov-19 06:59	1
d5-EtFOSAA	IS	61.6	50 - 150		B9K0047	12-Nov-19	1.37 g	20-Nov-19 06:59	1
13C2-PFDoA	IS	59.9	50 - 150		B9K0047	12-Nov-19	1.37 g	20-Nov-19 06:59	1
13C2-PFTeDA	IS	65.9	50 - 150		B9K0047	12-Nov-19	1.37 g	20-Nov-19 06:59	1

RL - Reporting limit

The results are reported in dry weight.
The sample size is reported in wet weight.
Results reported to RL.

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

Sample ID: L14-6-5 **PFAS Isotope Dilution Method**

Client Data				**Laboratory Data**			
Name:	Woodard & Curran	Matrix:	Soil	Lab Sample:	1903823-11	Column:	BEH C18
Project:	SJC PFAS Investigation	Date Collected:	24-Oct-19 14:34	Date Received:	25-Oct-19 08:40		
Location:	14			% Solids:	69.5		

Analyte	CAS Number	Conc. (ng/g)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	ND	1.96		B9K0047	12-Nov-19	1.47 g	20-Nov-19 07:09	1
PFPeA	2706-90-3	ND	1.96		B9K0047	12-Nov-19	1.47 g	20-Nov-19 07:09	1
PFBS	375-73-5	ND	1.96		B9K0047	12-Nov-19	1.47 g	20-Nov-19 07:09	1
4:2 FTS	757124-72-4	ND	1.96		B9K0047	12-Nov-19	1.47 g	20-Nov-19 07:09	1
PFHxA	307-24-4	ND	1.96		B9K0047	12-Nov-19	1.47 g	20-Nov-19 07:09	1
PFPeS	2706-91-4	ND	1.96		B9K0047	12-Nov-19	1.47 g	20-Nov-19 07:09	1
PFHpA	375-85-9	ND	1.96		B9K0047	12-Nov-19	1.47 g	20-Nov-19 07:09	1
PFHxS	355-46-4	ND	1.96		B9K0047	12-Nov-19	1.47 g	20-Nov-19 07:09	1
6:2 FTS	27619-97-2	ND	1.96		B9K0047	12-Nov-19	1.47 g	20-Nov-19 07:09	1
PFOA	335-67-1	ND	1.96		B9K0047	12-Nov-19	1.47 g	20-Nov-19 07:09	1
PFHpS	375-92-8	ND	1.96		B9K0047	12-Nov-19	1.47 g	20-Nov-19 07:09	1
PFNA	375-95-1	ND	1.96		B9K0047	12-Nov-19	1.47 g	20-Nov-19 07:09	1
PFOSA	754-91-6	ND	0.992		B9K0201	26-Nov-19	2.90 g	06-Dec-19 21:41	1
PFOS	1763-23-1	ND	1.96		B9K0047	12-Nov-19	1.47 g	20-Nov-19 07:09	1
PFDA	335-76-2	ND	1.96		B9K0047	12-Nov-19	1.47 g	20-Nov-19 07:09	1
8:2 FTS	39108-34-4	ND	1.96		B9K0047	12-Nov-19	1.47 g	20-Nov-19 07:09	1
MeFOSAA	2355-31-9	ND	1.96		B9K0047	12-Nov-19	1.47 g	20-Nov-19 07:09	1
EtFOSAA	2991-50-6	ND	1.96		B9K0047	12-Nov-19	1.47 g	20-Nov-19 07:09	1
PFUnA	2058-94-8	ND	1.96		B9K0047	12-Nov-19	1.47 g	20-Nov-19 07:09	1
PFDS	335-77-3	ND	1.96		B9K0047	12-Nov-19	1.47 g	20-Nov-19 07:09	1
PFDoA	307-55-1	ND	1.96		B9K0047	12-Nov-19	1.47 g	20-Nov-19 07:09	1
PFTrDA	72629-94-8	ND	1.96		B9K0047	12-Nov-19	1.47 g	20-Nov-19 07:09	1
PFTeDA	376-06-7	ND	1.96		B9K0047	12-Nov-19	1.47 g	20-Nov-19 07:09	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	159	50 - 150	H	B9K0047	12-Nov-19	1.47 g	20-Nov-19 07:09	1
13C3-PFPeA	IS	79.2	50 - 150		B9K0047	12-Nov-19	1.47 g	20-Nov-19 07:09	1
13C3-PFBS	IS	82.9	50 - 150		B9K0047	12-Nov-19	1.47 g	20-Nov-19 07:09	1
13C2-4:2 FTS	IS	89.4	50 - 150		B9K0047	12-Nov-19	1.47 g	20-Nov-19 07:09	1
13C2-PFHxA	IS	75.3	50 - 150		B9K0047	12-Nov-19	1.47 g	20-Nov-19 07:09	1
13C4-PFHpA	IS	59.2	50 - 150		B9K0047	12-Nov-19	1.47 g	20-Nov-19 07:09	1
13C3-PFHxS	IS	81.9	50 - 150		B9K0047	12-Nov-19	1.47 g	20-Nov-19 07:09	1
13C2-6:2 FTS	IS	75.9	50 - 150		B9K0047	12-Nov-19	1.47 g	20-Nov-19 07:09	1
13C5-PFNA	IS	48.4	50 - 150	H	B9K0047	12-Nov-19	1.47 g	20-Nov-19 07:09	1
13C8-PFOSA	IS	51.1	50 - 150		B9K0201	26-Nov-19	2.90 g	06-Dec-19 21:41	1
13C2-PFOA	IS	57.1	50 - 150		B9K0047	12-Nov-19	1.47 g	20-Nov-19 07:09	1
13C8-PFOS	IS	84.8	50 - 150		B9K0047	12-Nov-19	1.47 g	20-Nov-19 07:09	1
13C2-PFDA	IS	51.2	50 - 150		B9K0047	12-Nov-19	1.47 g	20-Nov-19 07:09	1
13C2-8:2 FTS	IS	84.2	50 - 150		B9K0047	12-Nov-19	1.47 g	20-Nov-19 07:09	1

Sample ID: L14-6-5

PFAS Isotope Dilution Method

Client Data				**Laboratory Data**			
Name:	Woodard & Curran	Matrix:	Soil	Lab Sample:	1903823-11	Column:	BEH C18
Project:	SJC PFAS Investigation	Date Collected:	24-Oct-19 14:34	Date Received:	25-Oct-19 08:40		
Location:	14			% Solids:	69.5		

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
d3-MeFOSAA	IS	62.4	50 - 150		B9K0047	12-Nov-19	1.47 g	20-Nov-19 07:09	1
13C2-PFUnA	IS	54.1	50 - 150		B9K0047	12-Nov-19	1.47 g	20-Nov-19 07:09	1
d5-EtFOSAA	IS	52.5	50 - 150		B9K0047	12-Nov-19	1.47 g	20-Nov-19 07:09	1
13C2-PFDoA	IS	56.9	50 - 150		B9K0047	12-Nov-19	1.47 g	20-Nov-19 07:09	1
13C2-PFTeDA	IS	68.2	50 - 150		B9K0047	12-Nov-19	1.47 g	20-Nov-19 07:09	1

RL - Reporting limit

The results are reported in dry weight.
The sample size is reported in wet weight.
Results reported to RL.

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

Sample ID: L14-6-10 **PFAS Isotope Dilution Method**

Client Data				**Laboratory Data**			
Name:	Woodard & Curran	Matrix:	Soil	Lab Sample:	1903823-12	Column:	BEH C18
Project:	SJC PFAS Investigation	Date Collected:	24-Oct-19 14:37	Date Received:	25-Oct-19 08:40		
Location:	14			% Solids:	81.5		

Analyte	CAS Number	Conc. (ng/g)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	ND	1.95		B9K0047	12-Nov-19	1.26 g	20-Nov-19 07:41	1
PFPeA	2706-90-3	ND	1.95		B9K0047	12-Nov-19	1.26 g	20-Nov-19 07:41	1
PFBS	375-73-5	ND	1.95		B9K0047	12-Nov-19	1.26 g	20-Nov-19 07:41	1
4:2 FTS	757124-72-4	ND	1.95		B9K0047	12-Nov-19	1.26 g	20-Nov-19 07:41	1
PFHxA	307-24-4	ND	1.95		B9K0047	12-Nov-19	1.26 g	20-Nov-19 07:41	1
PFPeS	2706-91-4	ND	1.95		B9K0047	12-Nov-19	1.26 g	20-Nov-19 07:41	1
PFHpA	375-85-9	ND	1.95		B9K0047	12-Nov-19	1.26 g	20-Nov-19 07:41	1
PFHxS	355-46-4	ND	1.95		B9K0047	12-Nov-19	1.26 g	20-Nov-19 07:41	1
6:2 FTS	27619-97-2	ND	1.95		B9K0047	12-Nov-19	1.26 g	20-Nov-19 07:41	1
PFOA	335-67-1	ND	1.95		B9K0047	12-Nov-19	1.26 g	20-Nov-19 07:41	1
PFHpS	375-92-8	ND	1.95		B9K0047	12-Nov-19	1.26 g	20-Nov-19 07:41	1
PFNA	375-95-1	ND	1.95		B9K0047	12-Nov-19	1.26 g	20-Nov-19 07:41	1
PFOSA	754-91-6	ND	0.994		B9K0201	26-Nov-19	2.47 g	06-Dec-19 21:52	1
PFOS	1763-23-1	ND	1.95		B9K0047	12-Nov-19	1.26 g	20-Nov-19 07:41	1
PFDA	335-76-2	ND	1.95		B9K0047	12-Nov-19	1.26 g	20-Nov-19 07:41	1
8:2 FTS	39108-34-4	ND	1.95		B9K0047	12-Nov-19	1.26 g	20-Nov-19 07:41	1
MeFOSAA	2355-31-9	ND	1.95		B9K0047	12-Nov-19	1.26 g	20-Nov-19 07:41	1
EtFOSAA	2991-50-6	ND	1.95		B9K0047	12-Nov-19	1.26 g	20-Nov-19 07:41	1
PFUnA	2058-94-8	ND	1.95		B9K0047	12-Nov-19	1.26 g	20-Nov-19 07:41	1
PFDS	335-77-3	ND	1.95		B9K0047	12-Nov-19	1.26 g	20-Nov-19 07:41	1
PFDoA	307-55-1	ND	1.95		B9K0047	12-Nov-19	1.26 g	20-Nov-19 07:41	1
PFTrDA	72629-94-8	ND	1.95		B9K0047	12-Nov-19	1.26 g	20-Nov-19 07:41	1
PFTeDA	376-06-7	ND	1.95		B9K0047	12-Nov-19	1.26 g	20-Nov-19 07:41	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	125	50 - 150		B9K0047	12-Nov-19	1.26 g	20-Nov-19 07:41	1
13C3-PFPeA	IS	64.6	50 - 150		B9K0047	12-Nov-19	1.26 g	20-Nov-19 07:41	1
13C3-PFBS	IS	76.0	50 - 150		B9K0047	12-Nov-19	1.26 g	20-Nov-19 07:41	1
13C2-4:2 FTS	IS	88.9	50 - 150		B9K0047	12-Nov-19	1.26 g	20-Nov-19 07:41	1
13C2-PFHxA	IS	58.8	50 - 150		B9K0047	12-Nov-19	1.26 g	20-Nov-19 07:41	1
13C4-PFHpA	IS	58.9	50 - 150		B9K0047	12-Nov-19	1.26 g	20-Nov-19 07:41	1
13C3-PFHxS	IS	82.3	50 - 150		B9K0047	12-Nov-19	1.26 g	20-Nov-19 07:41	1
13C2-6:2 FTS	IS	75.3	50 - 150		B9K0047	12-Nov-19	1.26 g	20-Nov-19 07:41	1
13C5-PFNA	IS	52.1	50 - 150		B9K0047	12-Nov-19	1.26 g	20-Nov-19 07:41	1
13C8-PFOSA	IS	17.5	50 - 150	H	B9K0201	26-Nov-19	2.47 g	06-Dec-19 21:52	1
13C2-PFOA	IS	57.2	50 - 150		B9K0047	12-Nov-19	1.26 g	20-Nov-19 07:41	1
13C8-PFOS	IS	81.2	50 - 150		B9K0047	12-Nov-19	1.26 g	20-Nov-19 07:41	1
13C2-PFDA	IS	53.7	50 - 150		B9K0047	12-Nov-19	1.26 g	20-Nov-19 07:41	1
13C2-8:2 FTS	IS	87.0	50 - 150		B9K0047	12-Nov-19	1.26 g	20-Nov-19 07:41	1

Sample ID: L14-6-10 **PFAS Isotope Dilution Method**

Client Data				**Laboratory Data**			
Name:	Woodard & Curran	Matrix:	Soil	Lab Sample:	1903823-12	Column:	BEH C18
Project:	SJC PFAS Investigation	Date Collected:	24-Oct-19 14:37	Date Received:	25-Oct-19 08:40		
Location:	14			% Solids:	81.5		

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
d3-MeFOSAA	IS	56.0	50 - 150		B9K0047	12-Nov-19	1.26 g	20-Nov-19 07:41	1
13C2-PFUnA	IS	53.9	50 - 150		B9K0047	12-Nov-19	1.26 g	20-Nov-19 07:41	1
d5-EtFOSAA	IS	50.8	50 - 150		B9K0047	12-Nov-19	1.26 g	20-Nov-19 07:41	1
13C2-PFDoA	IS	53.1	50 - 150		B9K0047	12-Nov-19	1.26 g	20-Nov-19 07:41	1
13C2-PFTeDA	IS	62.0	50 - 150		B9K0047	12-Nov-19	1.26 g	20-Nov-19 07:41	1

RL - Reporting limit

The results are reported in dry weight.
The sample size is reported in wet weight.
Results reported to RL.

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

DATA QUALIFIERS & ABBREVIATIONS

B	This compound was also detected in the method blank
Conc.	Concentration
CRS	Cleanup Recovery Standard
D	Dilution
DL	Detection limit
E	The associated compound concentration exceeded the calibration range of the instrument
H	Recovery and/or RPD was outside laboratory acceptance limits
I	Chemical Interference
IS	Internal Standard
J	The amount detected is below the Reporting Limit/LOQ
LOD	Limit of Detection
LOQ	Limit of Quantitation
M	Estimated Maximum Possible Concentration (CA Region 2 projects only)
NA	Not applicable
ND	Not Detected
OPR	Ongoing Precision and Recovery sample
P	The reported concentration may include contribution from chlorinated diphenyl ether(s).
Q	The ion transition ratio is outside of the acceptance criteria.
RL	Reporting Limit
TEQ	Toxic Equivalency
U	Not Detected (specific projects only)
*	See Cover Letter

Unless otherwise noted, solid sample results are reported in dry weight. Tissue samples are reported in wet weight.

Vista Analytical Laboratory Certifications

Accrediting Authority	Certificate Number
Alaska Department of Environmental Conservation	17-013
Arkansas Department of Environmental Quality	19-013-0
California Department of Health – ELAP	2892
DoD ELAP - A2LA Accredited - ISO/IEC 17025:2005	3091.01
Florida Department of Health	E87777-23
Hawaii Department of Health	N/A
Louisiana Department of Environmental Quality	01977
Maine Department of Health	2018017
Massachusetts Department of Environmental Protection	N/A
Michigan Department of Environmental Quality	9932
Minnesota Department of Health	1521520
New Hampshire Environmental Accreditation Program	207718-B
New Jersey Department of Environmental Protection	190001
New York Department of Health	11411
Oregon Laboratory Accreditation Program	4042-010
Pennsylvania Department of Environmental Protection	016
Texas Commission on Environmental Quality	T104704189-19-10
Vermont Department of Health	VT-4042
Virginia Department of General Services	10272
Washington Department of Ecology	C584-19
Wisconsin Department of Natural Resources	998036160

Current certificates and lists of licensed parameters are located in the Quality Assurance office and are available upon request.

NELAP Accredited Test Methods

MATRIX: Air	
Description of Test	**Method**
Determination of Polychlorinated p-Dioxins & Polychlorinated Dibenzofurans	EPA 23
Determination of Polychlorinated p-Dioxins & Polychlorinated Dibenzofurans	EPA TO-9A

MATRIX: Biological Tissue	
Description of Test	**Method**
Tetra- through Octa-Chlorinated Dioxins and Furans by Isotope Dilution GC/HRMS	EPA 1613B
Brominated Diphenyl Ethers by HRGC/HRMS	EPA 1614A
Chlorinated Biphenyl Congeners in Water, Soil, Sediment, and Tissue by GC/HRMS	EPA 1668A/C
Pesticides in Water, Soil, Sediment, Biosolids, and Tissue by HRGC/HRMS	EPA 1699
Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/MS/MS	EPA 537
Polychlorinated Dibenzo-p-Dioxins and Polychlorinated Dibenzofurans by GC/HRMS	EPA 8280A/B
Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by GC/HRMS	EPA 8290/8290A

MATRIX: Drinking Water	
Description of Test	**Method**
2,3,7,8-Tetrachlorodibenzo- p-dioxin (2,3,7,8-TCDD) GC/HRMS	EPA 1613/1613B
1,4-Dioxane (1,4-Diethyleneoxide) analysis by GC/HRMS	EPA 522
Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/MS/MS	EPA 537
Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/MS/MS	ISO 25101 2009

MATRIX: Non-Potable Water	
Description of Test	**Method**
Tetra- through Octa-Chlorinated Dioxins and Furans by Isotope Dilution GC/HRMS	EPA 1613B
Brominated Diphenyl Ethers by HRGC/HRMS	EPA 1614A
Chlorinated Biphenyl Congeners in Water, Soil, Sediment, and Tissue by GC/HRMS	EPA 1668A/C
Pesticides in Water, Soil, Sediment, Biosolids, and Tissue by HRGC/HRMS	EPA 1699
Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/MS/MS	EPA 537
Dioxin by GC/HRMS	EPA 613
Polychlorinated Dibenzo-p-Dioxins and Polychlorinated Dibenzofurans by GC/HRMS	EPA 8280A/B
Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by GC/HRMS	EPA 8290/8290A

MATRIX: Solids	
Description of Test	**Method**
Tetra-Octa Chlorinated Dioxins and Furans by Isotope Dilution GC/HRMS	EPA 1613
Tetra- through Octa-Chlorinated Dioxins and Furans by Isotope Dilution GC/HRMS	EPA 1613B
Brominated Diphenyl Ethers by HRGC/HRMS	EPA 1614A
Chlorinated Biphenyl Congeners in Water, Soil, Sediment, and Tissue by GC/HRMS	EPA 1668A/C
Pesticides in Water, Soil, Sediment, Biosolids, and Tissue by HRGC/HRMS	EPA 1699
Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/MS/MS	EPA 537
Polychlorinated Dibenzo-p-Dioxins and Polychlorinated Dibenzofurans by GC/HRMS	EPA 8280A/B
Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by GC/HRMS	EPA 8290/8290A

Vista
Analytical Laboratory

CHAIN OF CUSTODY

For Laboratory Use Only
Work Order #: 1903823
Temp: 0.6 °C
Storage ID: R-13, WR-2
Storage Secured: Yes ☑ No ☐

Project ID: SJC PFAS Investigation
PO#: D232401.01
Sampler: WA/CL (name)

TAT (check one): Standard: ☒ 21 days
Rush (surcharge may apply) ☐ 14 days ☐ 7 days Specify:

Kevin Almestad	10/24/19	17:30	Fedex	10/24/19	17:30
Relinquished by (printed name and signature)	Date	Time	Received by (printed name and signature)	Date	Time
FedEx			Marissa Sparks MSparks	10/25/19	0840
Relinquished by (printed name and signature)	Date	Time	Received by (printed name and signature)	Date	Time

SHIP TO: Vista Analytical Laboratory
1104 Windfield Way
El Dorado Hills, CA 95762
(916) 673-1520 * Fax (916) 673-0106

ATTN: Jade White-Dobbs

Method of Shipment: Fedex

Tracking No.:

Add Analysis(es) Requested

				Container(s)			PFAS by Isotope Dilution					EPA Method 537 (DW only)				
Sample ID	Date	Time	Location/ Sample Description	Quantity	Type	Matrix	PFOA/ PFOS	UCMR3 PFAS List:6	537.1 List: 14 or 18 (Circle One)	EPA Draft List of 24	OTHER: Please attach analyte list CA Airport PFAS List (23)	PFOA/ PFOS	UCMR3 PFAS List:6	537.1 List of 14	537.1 List of 18	Comments
L14-2-GW	10/23/19	0951	14	2	P	AQ					X					
L14-20-GW	↓	0951	14	2	↓	↓					↓					
L14-4-GW	↓	1521	14	2	↓	↓					↓					
L14-3-1	WA ~~[illegible]~~	1356	↓	1	PJ	SD					↓					10/24/19
L14-3-5	WA ~~[illegible]~~	1401	↓	1	↓	↓					↓					10/24/19
L14-3-10	WA ~~[illegible]~~	1406	↓	1	↓	↓					↓					10/24/19
L14-5-1	10/24/19	1416	↓	1	↓	↓					↓					
L14-5-5	↓	1419	↓	1	↓	↓					↓					
L14-5-10	↓	1423	↓	1	↓	↓					↓					
L14-6-1	↓	1429	↓	1	↓	↓					↓					

Special Instructions/Comments:
Geotracker EDF

SEND DOCUMENTATION AND RESULTS TO:

Name: Jim Strandberg
Company: Woodard & Curran, Inc.
Address: 2175 N California Blvd, Ste 315
City: Walnut Creek CA 94597
Phone: (510)-310-3776 (925)-627-4101
Email: JStrandberg@woodardcurran.com

Container Types: P= HDPE, PJ= HDPE Jar
PY= Polypropylene, O = Other:

Bottle Preservation Type:
TZ = Trizma:

Matrix Types: AQ = Aqueous, DW = Drinking Water, EF = Effluent, PP = Pulp/Paper, SD = Sediment, SL = Sludge, SO = Soil, WW = Wastewater, B = Blood/Serum, O = Other:

ID: LR-537COC Rev. No. 1 Rev. Date: 8/16/2019 Page: 2 of 3

Vista

Submit by Email

Print Form

CHAIN OF CUSTODY RECORD

FOR LABORATORY USE ONLY

Laboratory Project ID: 1903823

Temp 0.6 °C

Storage ID: WR-2 , R-13

Storage Secured: Yes ☑ No ☐

TAT: (Check One)
Standard ☒ 21 days
Rush (surcharge may apply)
○ 14 days ○ 7 days Specify:

Project I.D.: SJC PFAS Investigation P.O. #: 0232401.01 Sampler: KA/CL (Name)

Invoice to: Name Company Address City State Zip Ph# Fax #

Relinquished by: (Printed Name and Signature) / Kevin Atmestad Date: 10/24/19 Time: 17:30 Received by: (Signature and Printed Name) / Fedex Date: 10/24/19 Time: 17:30

Relinquished by: (Printed Name and Signature) FedEx Date: Time: Received by: (Signature and Printed Name) Marissa Sparks Date: 10/25/19 Time: 0840

See "Sample Log-in Checklist" for additional sample information

SHIP TO: Vista Analytical Laboratory
1104 Windfield Way
El Dorado Hills, CA 95762
(916) 673-1520 • Fax (916) 673-0106

ATTN: Jade White-Dobbs

Method of Shipment: Fedex

Tracking No.:

Add Analysis(es) Requested

				Container(s)			EPA1613			EPA8290			EPA8280			EPA1668			EPA1614	CARB429		
Sample ID	Date	Time	Location/Sample Description	Quantity	Type	Matrix	2378-TCDD	2378-TCDD/TCDF	PCDD/PCDF	2378-TCDD	2378-TCDD/TCDF	PCDD/PCDF	2378-TCDD	2378-TCDD/TCDF	PCDD/PCDF	TOTALS	COPLANAR PCBs	209 CONGENERS	PBDE	PAH	WHO-29	CA Airport PFAS (23)
L14-6-5	10/24/19	1434	14	1	PJ	SO																X
L14-6-10	10/24/19	1437	14	1	PJ	SO																X

Special Instructions/Comments: Geotracker EDF

SEND DOCUMENTATION AND RESULTS TO:

Name: Jim Strandberg
Company: Woodard & Curran, Inc.
Address: 2175 N California Blvd, Ste 315
City: Walnut Creek State: CA Zip: 94597
Phone: (510)-310-3776 Fax: (925)-627-4101
Email: JStrandberg@woodardcurran.com

Container Types: A = 1 Liter Amber, G = Glass Jar
P = PUF, T = MM5 Train, O = Other

***Bottle Preservative Type:** ☐ T = Thiosulfate,
☐ O = Other

Matrix Types: DW = Drinking Water, EF = Effluent, PP = Pulp/Paper,
SD = Sediment, SL = Sludge, SO = Soil, WW = Wastewater, B=Blood/Serum
O = Other

2 of 3

Vista
Analytical Laboratory

Sample Log-In Checklist

Page # 1 of 1

Vista Work Order #: 1903823 **TAT** Std

Samples Arrival:	**Date/Time** 10/25/19 0840	**Initials:** WWS	**Location:** WR-2 **Shelf/Rack:** N/A

Delivered By:	[✓ FedEx]	UPS	On Trac	GSO	DHL	Hand Delivered	Other

Preservation:	[✓ Ice]	Blue Ice	Dry Ice	None

Temp °C: 0.6 **(uncorrected)** **Temp °C:** 0.6 **(corrected)**	**Probe used:** Y / [✓ N]	**Thermometer ID:** IR-4

	YES	NO	NA
Shipping Container(s) Intact?	✓		
Shipping Custody Seals Intact?			✓
Airbill #1 Trk # 7804 9905 8237	✓		
Shipping Documentation Present?	✓		

Shipping Container	Vista	[✓ Client]	Retain	[✓ Return]	Dispose

	YES	NO	NA
Chain of Custody / Sample Documentation Present?	✓		
Chain of Custody / Sample Documentation Complete?	✓		
Holding Time Acceptable?	✓		

Logged In:	**Date/Time** 10/27/19 1442	**Initials:** KE	**Location:** WR-2 | R-13 **Shelf/Rack:** KE 10/27/19 ~~P7~~ / P7 | A4

	YES	NO	NA
COC Anomaly/Sample Acceptance Form completed?		✓	✓

Comments:

CoC/Label Reconciliation Report WO# 1903823

LabNumber	CoC Sample ID	Label ID matches COCID	Label ID doesn't match COCID	SampleAlias	Sampled	Label Sampled matches	Sampled doesn't match	Container	Container Correct	BaseMatrix	Sample Comments
1903823-01	A L14-2-GW	☑		14 ✓	23-Oct-19 09:51	☑		HDPE Bottle, 250 mL	☑	Aqueous ✓	
1903823-01	B L14-2-GW	☑	* "G" lined out	14	23-Oct-19 09:51	☑		HDPE Bottle, 250 mL	☑	Aqueous	
1903823-02	A L14-20-GW	☑	"0" is smeared on label	14	23-Oct-19 09:51	☑		HDPE Bottle, 250 mL	☑	Aqueous	
1903823-02	B L14-20-GW	☑		14	23-Oct-19 09:51	☑		HDPE Bottle, 250 mL	☑	Aqueous	
1903823-03	A L14-4-GW	☑		14	23-Oct-19 15:21	☑		HDPE Bottle, 250 mL	☑	Aqueous	
1903823-03	B L14-4-GW	☑		14	23-Oct-19 15:21	☑		HDPE Bottle, 250 mL	☑	Aqueous	
1903823-04	A L14-3-1	☑		14 ⊛	24-Oct-19 13:56	☑		HDPE Jar, 6 oz	☑	Solid ✓	
1903823-05	A L14-3-5	☑		14	24-Oct-19 14:01	☑		HDPE Jar, 6 oz	☑	Solid	
1903823-06	A L14-3-10	☑		14	24-Oct-19 14:06	☑		HDPE Jar, 6 oz	☑	Solid	
1903823-07	A L14-5-1	☑		14	24-Oct-19 14:16	☑		HDPE Jar, 6 oz	☑	Solid	
1903823-08	A L14-5-5	☑		14	24-Oct-19 14:19	☑		HDPE Jar, 6 oz	☑	Solid	
1903823-09	A L14-5-10	☑		14	24-Oct-19 14:23	☑		HDPE Jar, 6 oz	☑	Solid	
1903823-10	A L14-6-1	☑		14	24-Oct-19 14:29	☑		HDPE Jar, 6 oz	☑	Solid	
1903823-11	A L14-6-5	☑		14	24-Oct-19 14:34	☑		HDPE Jar, 6 oz	☑	Solid	
1903823-12	A L14-6-10	☑		14	24-Oct-19 14:37	☑		HDPE Jar, 6 oz	☑	Solid	

	Yes	No	NA
Sample Container Intact?	✓		
Sample Custody Seals Intact?			✓
Adequate Sample Volume?	✓		
Preservation Documented: Na2S2O3 Trizma [✓ None] Other		✓	✓
If Chlorinated or Drinking Water Samples, Acceptable Preservation?			✓

Comments: ⊛ no location/alias on sample labels
all samples received in cooler 1 of 2.

Verifed by/Date: uws 10/28/19

December 04, 2019

Vista Work Order No. 1903824

Mr. Jim Strandberg
Woodard & Curran
2175 North California Boulevard, Suite 315
Walnut Creek, CA 94596

Dear Mr. Strandberg,

Enclosed are the results for the sample set received at Vista Analytical Laboratory on October 25, 2019 under your Project Name 'SJC PFAS Investigation'.

Vista Analytical Laboratory is committed to serving you effectively. If you require additional information, please contact me at 916-673-1520 or by email at mmaier@vista-analytical.com.

Thank you for choosing Vista as part of your analytical support team.

Sincerely,

Martha Maier
Laboratory Director

Vista Work Order No. 1903824
Case Narrative

Sample Condition on Receipt:

Sixteen soil samples and four aqueous samples were received in good condition and within the method temperature requirements. The samples were received and stored securely in accordance with Vista standard operating procedures and EPA methodology.

Analytical Notes:

PFAS Isotope Dilution Method-Aqueous

The aqueous samples were extracted and analyzed for a selected list of PFAS using Vista's PFAS Isotope Dilution Method. This method is listed on Vista's NELAP certificate as Modified EPA Method 537. The results for PFHxS, PFOA, PFOS, MeFOSAA, and EtFOSAA include both linear and branched isomers. Results for all other analytes include the linear isomers only.

Sample "L3-3-GW" contained particulate and was centrifuged prior to extraction.

Holding Times

The samples were extracted and analyzed within the method hold times.

Quality Control

The Initial Calibration and Continuing Calibration Verifications met the method acceptance criteria.

A Method Blank and Laboratory Control Sample (LCS)/Laboratory Control Sample Duplicate (LCSD) were extracted and analyzed with the preparation batch. No analytes were detected in the Method Blank above the Reporting Limit. The LCS/LCSD recoveries were within the acceptance criteria.

The labeled standard recoveries outside the acceptance criteria are flagged with an "H" qualifier.

PFAS Isotope Dilution Method-Solid

The solid samples were extracted and analyzed for a selected list of PFAS using Vista's PFAS Isotope Dilution Method. This method is listed on Vista's NELAP certificate as Modified EPA Method 537. The results for PFHxS, PFOA, PFOS, MeFOSAA, and EtFOSAA include both linear and branched isomers. Results for all other analytes include the linear isomers only.

Holding Times

The samples were extracted and analyzed within the hold times.

Quality Control

The Initial Calibration and Continuing Calibration Verifications met the method acceptance criteria.

A Method Blank and Ongoing Precision and Recovery (OPR) sample were extracted and analyzed with the preparation batch. No analytes were detected in the Method Blank above the Reporting Limit. The OPR recoveries were within the method acceptance criteria.

As requested, an MS/MSD was performed on sample "L3-3-1". The MS/MSD recoveries and/or RPDs were out of the acceptance criteria for PFPeS and 8:2 FTS. All other analyte recoveries and/or RPDs were within the acceptance criteria.

The labeled standard recoveries outside the acceptance criteria are flagged with an "H" qualifier.

TABLE OF CONTENTS

Sample Inventory Report

Vista Sample ID	Client Sample ID	Sampled	Received	Components/Containers
1903824-01	EB-4	24-Oct-19 11:45	25-Oct-19 08:40	HDPE Bottle, 250 mL
				HDPE Bottle, 250 mL
1903824-02	FB-5	24-Oct-19 09:29	25-Oct-19 08:40	HDPE Bottle, 250 mL
				HDPE Bottle, 250 mL
1903824-03	L3-3-1	23-Oct-19 12:28	25-Oct-19 08:40	HDPE Jar, 6 oz
1903824-04	FB-4	23-Oct-19 12:01	25-Oct-19 08:40	HDPE Bottle, 250 mL
				HDPE Bottle, 250 mL
1903824-05	L3-3-5	23-Oct-19 12:30	25-Oct-19 08:40	HDPE Jar, 6 oz
1903824-06	L3-3-10	23-Oct-19 12:32	25-Oct-19 08:40	HDPE Jar, 6 oz
1903824-07	L3-3-GW	23-Oct-19 13:16	25-Oct-19 08:40	HDPE Bottle, 250 mL
				HDPE Bottle, 250 mL
1903824-08	L3-1-1	23-Oct-19 13:42	25-Oct-19 08:40	HDPE Jar, 6 oz
1903824-09	L3-1-5	23-Oct-19 13:46	25-Oct-19 08:40	HDPE Jar, 6 oz
1903824-10	L3-1-10	23-Oct-19 13:55	25-Oct-19 08:40	HDPE Jar, 6 oz
1903824-11	L3-2-1	23-Oct-19 13:11	25-Oct-19 08:40	HDPE Jar, 6 oz
1903824-12	L3-2-5	23-Oct-19 13:18	25-Oct-19 08:40	HDPE Jar, 6 oz
1903824-13	L3-2-10	23-Oct-19 13:20	25-Oct-19 08:40	HDPE Jar, 6 oz
1903824-14	L8/9-1-1	24-Oct-19 08:11	25-Oct-19 08:40	HDPE Jar, 6 oz
1903824-15	L8/9-1-5	24-Oct-19 08:15	25-Oct-19 08:40	HDPE Jar, 6 oz
1903824-16	L8/9-1-10	24-Oct-19 08:19	25-Oct-19 08:40	HDPE Jar, 6 oz
1903824-17	L8/9-2-1	24-Oct-19 08:33	25-Oct-19 08:40	HDPE Jar, 6 oz
1903824-18	L8/9-2-5	24-Oct-19 08:37	25-Oct-19 08:40	HDPE Jar, 6 oz
1903824-19	L8/9-2-10	24-Oct-19 08:41	25-Oct-19 08:40	HDPE Jar, 6 oz
1903824-20	L8/9-3-1	24-Oct-19 08:56	25-Oct-19 08:40	HDPE Jar, 6 oz

ANALYTICAL RESULTS

Sample ID: Method Blank **PFAS Isotope Dilution Method**

Client Data				**Laboratory Data**	
Name:	Woodard & Curran	Matrix:	Aqueous	Lab Sample:	B9J0302-BLK1
Project:	SJC PFAS Investigation			Column:	BEH C18

Analyte	CAS Number	Conc. (ng/L)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	ND	2.00		B9J0302	01-Nov-19	0.250 L	11-Nov-19 22:28	1
PFPeA	2706-90-3	ND	2.00		B9J0302	01-Nov-19	0.250 L	11-Nov-19 22:28	1
PFBS	375-73-5	ND	2.00		B9J0302	01-Nov-19	0.250 L	11-Nov-19 22:28	1
4:2 FTS	757124-72-4	ND	2.00		B9J0302	01-Nov-19	0.250 L	11-Nov-19 22:28	1
PFHxA	307-24-4	ND	2.00		B9J0302	01-Nov-19	0.250 L	11-Nov-19 22:28	1
PFPeS	2706-91-4	ND	2.00		B9J0302	01-Nov-19	0.250 L	11-Nov-19 22:28	1
PFHpA	375-85-9	ND	2.00		B9J0302	01-Nov-19	0.250 L	11-Nov-19 22:28	1
PFHxS	355-46-4	ND	2.00		B9J0302	01-Nov-19	0.250 L	11-Nov-19 22:28	1
6:2 FTS	27619-97-2	ND	2.00		B9J0302	01-Nov-19	0.250 L	11-Nov-19 22:28	1
PFOA	335-67-1	ND	2.00		B9J0302	01-Nov-19	0.250 L	11-Nov-19 22:28	1
PFHpS	375-92-8	ND	2.00		B9J0302	01-Nov-19	0.250 L	11-Nov-19 22:28	1
PFNA	375-95-1	ND	2.00		B9J0302	01-Nov-19	0.250 L	11-Nov-19 22:28	1
PFOSA	754-91-6	ND	2.00		B9J0302	01-Nov-19	0.250 L	11-Nov-19 22:28	1
PFOS	1763-23-1	ND	2.00		B9J0302	01-Nov-19	0.250 L	11-Nov-19 22:28	1
PFDA	335-76-2	ND	2.00		B9J0302	01-Nov-19	0.250 L	11-Nov-19 22:28	1
8:2 FTS	39108-34-4	ND	2.00		B9J0302	01-Nov-19	0.250 L	11-Nov-19 22:28	1
MeFOSAA	2355-31-9	ND	2.00		B9J0302	01-Nov-19	0.250 L	11-Nov-19 22:28	1
EtFOSAA	2991-50-6	ND	2.00		B9J0302	01-Nov-19	0.250 L	11-Nov-19 22:28	1
PFUnA	2058-94-8	ND	2.00		B9J0302	01-Nov-19	0.250 L	11-Nov-19 22:28	1
PFDS	335-77-3	ND	2.00		B9J0302	01-Nov-19	0.250 L	11-Nov-19 22:28	1
PFDoA	307-55-1	ND	2.00		B9J0302	01-Nov-19	0.250 L	11-Nov-19 22:28	1
PFTrDA	72629-94-8	ND	2.00		B9J0302	01-Nov-19	0.250 L	11-Nov-19 22:28	1
PFTeDA	376-06-7	ND	2.00		B9J0302	01-Nov-19	0.250 L	11-Nov-19 22:28	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	115	50 - 150		B9J0302	01-Nov-19	0.250 L	11-Nov-19 22:28	1
13C3-PFPeA	IS	86.7	50 - 150		B9J0302	01-Nov-19	0.250 L	11-Nov-19 22:28	1
13C3-PFBS	IS	95.0	50 - 150		B9J0302	01-Nov-19	0.250 L	11-Nov-19 22:28	1
13C2-4:2 FTS	IS	98.0	50 - 150		B9J0302	01-Nov-19	0.250 L	11-Nov-19 22:28	1
13C2-PFHxA	IS	83.5	50 - 150		B9J0302	01-Nov-19	0.250 L	11-Nov-19 22:28	1
13C4-PFHpA	IS	89.2	50 - 150		B9J0302	01-Nov-19	0.250 L	11-Nov-19 22:28	1
13C3-PFHxS	IS	93.5	50 - 150		B9J0302	01-Nov-19	0.250 L	11-Nov-19 22:28	1
13C2-6:2 FTS	IS	88.9	50 - 150		B9J0302	01-Nov-19	0.250 L	11-Nov-19 22:28	1
13C5-PFNA	IS	94.2	50 - 150		B9J0302	01-Nov-19	0.250 L	11-Nov-19 22:28	1
13C8-PFOSA	IS	41.5	50 - 150	H	B9J0302	01-Nov-19	0.250 L	11-Nov-19 22:28	1
13C2-PFOA	IS	84.7	50 - 150		B9J0302	01-Nov-19	0.250 L	11-Nov-19 22:28	1
13C8-PFOS	IS	91.3	50 - 150		B9J0302	01-Nov-19	0.250 L	11-Nov-19 22:28	1
13C2-PFDA	IS	89.9	50 - 150		B9J0302	01-Nov-19	0.250 L	11-Nov-19 22:28	1
13C2-8:2 FTS	IS	97.5	50 - 150		B9J0302	01-Nov-19	0.250 L	11-Nov-19 22:28	1

Sample ID: Method Blank **PFAS Isotope Dilution Method**

Client Data			
Name:	Woodard & Curran	Matrix:	Aqueous
Project:	SJC PFAS Investigation		

Laboratory Data			
Lab Sample:	B9J0302-BLK1	Column:	BEH C18

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
d3-MeFOSAA	IS	77.2	50 - 150		B9J0302	01-Nov-19	0.250 L	11-Nov-19 22:28	1
13C2-PFUnA	IS	79.9	50 - 150		B9J0302	01-Nov-19	0.250 L	11-Nov-19 22:28	1
d5-EtFOSAA	IS	76.6	50 - 150		B9J0302	01-Nov-19	0.250 L	11-Nov-19 22:28	1
13C2-PFDoA	IS	72.0	50 - 150		B9J0302	01-Nov-19	0.250 L	11-Nov-19 22:28	1
13C2-PFTeDA	IS	72.2	50 - 150		B9J0302	01-Nov-19	0.250 L	11-Nov-19 22:28	1

RL - Reporting limit

Results reported to RL.

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

Sample ID: LCSD **PFAS Isotope Dilution Method**

Name:	Woodard & Curran	Lab Sample:	B9J0302-BS1/B9J0302-BSD1		
Project:	SJC PFAS Investigation	QC Batch:	B9J0302	Date Extracted:	01-Nov-19
Matrix:	Aqueous	Samp Size:	0.250/0.250 L	Column:	BEH C18

Analyte	CAS Number	LCS (ng/L)	LCS Spike	LCS % Rec	LCS Quals	LCSD (ng/L)	LCSD Spike	LCSD % Rec	RPD	LCSD Quals	%Rec Limits	RPD Limits	LCS Analyzed	LCS Dil	LCSD Analyzed	LCSD Dil
PFBA	375-22-4	40.9	40.0	102		38.7	40.0	96.6	5.67		73-129	30	11-Nov-19 22:39	1	11-Nov-19 22:50	1
PFPeA	2706-90-3	42.5	40.0	106		40.8	40.0	102	4.11		72-129	30	11-Nov-19 22:39	1	11-Nov-19 22:50	1
PFBS	375-73-5	42.4	40.0	106		38.1	40.0	95.2	10.7		72-130	30	11-Nov-19 22:39	1	11-Nov-19 22:50	1
4:2 FTS	757124-72-4	35.5	40.0	88.8		34.9	40.0	87.3	1.63		63-143	30	11-Nov-19 22:39	1	11-Nov-19 22:50	1
PFHxA	307-24-4	41.2	40.0	103		42.3	40.0	106	2.82		72-129	30	11-Nov-19 22:39	1	11-Nov-19 22:50	1
PFPeS	2706-91-4	37.5	40.0	93.8		34.0	40.0	84.9	9.94		71-127	30	11-Nov-19 22:39	1	11-Nov-19 22:50	1
PFHpA	375-85-9	43.7	40.0	109		41.7	40.0	104	4.60		72-130	30	11-Nov-19 22:39	1	11-Nov-19 22:50	1
PFHxS	355-46-4	35.0	40.0	87.4		34.5	40.0	86.4	1.18		68-131	30	11-Nov-19 22:39	1	11-Nov-19 22:50	1
6:2 FTS	27619-97-2	43.6	40.0	109		40.7	40.0	102	6.87		64-140	30	11-Nov-19 22:39	1	11-Nov-19 22:50	1
PFOA	335-67-1	36.0	40.0	90.0		36.6	40.0	91.6	1.67		71-133	30	11-Nov-19 22:39	1	11-Nov-19 22:50	1
PFHpS	375-92-8	44.5	40.0	111		43.1	40.0	108	3.19		69-134	30	11-Nov-19 22:39	1	11-Nov-19 22:50	1
PFNA	375-95-1	43.7	40.0	109		42.2	40.0	105	3.59		69-130	30	11-Nov-19 22:39	1	11-Nov-19 22:50	1
PFOSA	754-91-6	37.8	40.0	94.5		39.5	40.0	98.7	4.33		67-137	30	11-Nov-19 22:39	1	11-Nov-19 22:50	1
PFOS	1763-23-1	41.9	40.0	105		40.5	40.0	101	3.41		65-140	30	11-Nov-19 22:39	1	11-Nov-19 22:50	1
PFDA	335-76-2	40.7	40.0	102		41.0	40.0	103	0.785		71-129	30	11-Nov-19 22:39	1	11-Nov-19 22:50	1
8:2 FTS	39108-34-4	33.8	40.0	84.5		32.2	40.0	80.6	4.73		67-138	30	11-Nov-19 22:39	1	11-Nov-19 22:50	1
MeFOSAA	2355-31-9	35.3	40.0	88.1		35.5	40.0	88.8	0.794		65-136	30	11-Nov-19 22:39	1	11-Nov-19 22:50	1
EtFOSAA	2991-50-6	36.3	40.0	90.9		33.0	40.0	82.6	9.50		61-135	30	11-Nov-19 22:39	1	11-Nov-19 22:50	1
PFUnA	2058-94-8	42.1	40.0	105		42.2	40.0	106	0.426		69-133	30	11-Nov-19 22:39	1	11-Nov-19 22:50	1
PFDS	335-77-3	34.9	40.0	87.3		30.7	40.0	76.8	12.8		53-142	30	11-Nov-19 22:39	1	11-Nov-19 22:50	1
PFDoA	307-55-1	44.2	40.0	110		43.2	40.0	108	2.17		72-134	30	11-Nov-19 22:39	1	11-Nov-19 22:50	1
PFTrDA	72629-94-8	37.8	40.0	94.4		34.8	40.0	86.9	8.23		65-144	30	11-Nov-19 22:39	1	11-Nov-19 22:50	1
PFTeDA	376-06-7	42.6	40.0	106		41.9	40.0	105	1.56		71-132	30	11-Nov-19 22:39	1	11-Nov-19 22:50	1

Labeled Standards	Type	LCS % Rec	LCS Quals	LCSD % Rec	LCSD Quals	Limits	LCS Analyzed	LCS Dil	LCSD Analyzed	LCSD Dil
13C3-PFBA	IS	101		121		50-150	11-Nov-19 22:39	1	11-Nov-19 22:50	1
13C3-PFPeA	IS	77.3		91.3		50-150	11-Nov-19 22:39	1	11-Nov-19 22:50	1
13C3-PFBS	IS	85.8		110		50-150	11-Nov-19 22:39	1	11-Nov-19 22:50	1
13C2-4:2 FTS	IS	86.8		97.8		50-150	11-Nov-19 22:39	1	11-Nov-19 22:50	1
13C2-PFHxA	IS	78.8		86.5		50-150	11-Nov-19 22:39	1	11-Nov-19 22:50	1
13C4-PFHpA	IS	82.3		90.9		50-150	11-Nov-19 22:39	1	11-Nov-19 22:50	1
13C3-PFHxS	IS	92.0		103		50-150	11-Nov-19 22:39	1	11-Nov-19 22:50	1
13C2-6:2 FTS	IS	79.8		97.8		50-150	11-Nov-19 22:39	1	11-Nov-19 22:50	1

Sample ID: LCSD **PFAS Isotope Dilution Method**

Name: Woodard & Curran
Project: SJC PFAS Investigation
Matrix: Aqueous

Lab Sample: B9J0302-BS1/B9J0302-BSD1
QC Batch: B9J0302
Samp Size: 0.250/0.250 L

Date Extracted: 01-Nov-19
Column: BEH C18

Labeled Standards	Type	LCS % Rec	LCS Quals	LCSD % Rec	LCSD Quals	Limits	LCS Analyzed	LCS Dil	LCSD Analyzed	LCSD Dil
13C5-PFNA	IS	88.3		102		50 - 150	11-Nov-19 22:39	1	11-Nov-19 22:50	1
13C8-PFOSA	IS	35.5	H	39.8	H	50 - 150	11-Nov-19 22:39	1	11-Nov-19 22:50	1
13C2-PFOA	IS	80.9		90.9		50 - 150	11-Nov-19 22:39	1	11-Nov-19 22:50	1
13C8-PFOS	IS	88.8		104		50 - 150	11-Nov-19 22:39	1	11-Nov-19 22:50	1
13C2-PFDA	IS	87.7		99.2		50 - 150	11-Nov-19 22:39	1	11-Nov-19 22:50	1
13C2-8:2 FTS	IS	91.0		104		50 - 150	11-Nov-19 22:39	1	11-Nov-19 22:50	1
d3-MeFOSAA	IS	69.4		74.9		50 - 150	11-Nov-19 22:39	1	11-Nov-19 22:50	1
13C2-PFUnA	IS	80.7		84.4		50 - 150	11-Nov-19 22:39	1	11-Nov-19 22:50	1
d5-EtFOSAA	IS	70.8		85.2		50 - 150	11-Nov-19 22:39	1	11-Nov-19 22:50	1
13C2-PFDoA	IS	66.9		71.6		50 - 150	11-Nov-19 22:39	1	11-Nov-19 22:50	1
13C2-PFTeDA	IS	73.0		60.4		50 - 150	11-Nov-19 22:39	1	11-Nov-19 22:50	1

Sample ID: EB-4 **PFAS Isotope Dilution Method**

Client Data

Name:	Woodard & Curran	Matrix:	Aqueous
Project:	SJC PFAS Investigation	Date Collected:	24-Oct-19 11:45
Location:	8/9		

Laboratory Data

Lab Sample:	1903824-01	Column:	BEH C18
Date Received:	25-Oct-19 08:40		

Analyte	CAS Number	Conc. (ng/L)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	ND	2.03		B9J0302	01-Nov-19	0.247 L	11-Nov-19 23:43	1
PFPeA	2706-90-3	ND	2.03		B9J0302	01-Nov-19	0.247 L	11-Nov-19 23:43	1
PFBS	375-73-5	ND	2.03		B9J0302	01-Nov-19	0.247 L	11-Nov-19 23:43	1
4:2 FTS	757124-72-4	ND	2.03		B9J0302	01-Nov-19	0.247 L	11-Nov-19 23:43	1
PFHxA	307-24-4	ND	2.03		B9J0302	01-Nov-19	0.247 L	11-Nov-19 23:43	1
PFPeS	2706-91-4	ND	2.03		B9J0302	01-Nov-19	0.247 L	11-Nov-19 23:43	1
PFHpA	375-85-9	ND	2.03		B9J0302	01-Nov-19	0.247 L	11-Nov-19 23:43	1
PFHxS	355-46-4	ND	2.03		B9J0302	01-Nov-19	0.247 L	11-Nov-19 23:43	1
6:2 FTS	27619-97-2	ND	2.03		B9J0302	01-Nov-19	0.247 L	11-Nov-19 23:43	1
PFOA	335-67-1	ND	2.03		B9J0302	01-Nov-19	0.247 L	11-Nov-19 23:43	1
PFHpS	375-92-8	ND	2.03		B9J0302	01-Nov-19	0.247 L	11-Nov-19 23:43	1
PFNA	375-95-1	ND	2.03		B9J0302	01-Nov-19	0.247 L	11-Nov-19 23:43	1
PFOSA	754-91-6	ND	2.03		B9J0302	01-Nov-19	0.247 L	11-Nov-19 23:43	1
PFOS	1763-23-1	ND	2.03		B9J0302	01-Nov-19	0.247 L	11-Nov-19 23:43	1
PFDA	335-76-2	ND	2.03		B9J0302	01-Nov-19	0.247 L	11-Nov-19 23:43	1
8:2 FTS	39108-34-4	ND	2.03		B9J0302	01-Nov-19	0.247 L	11-Nov-19 23:43	1
MeFOSAA	2355-31-9	ND	2.03		B9J0302	01-Nov-19	0.247 L	11-Nov-19 23:43	1
EtFOSAA	2991-50-6	ND	2.03		B9J0302	01-Nov-19	0.247 L	11-Nov-19 23:43	1
PFUnA	2058-94-8	ND	2.03		B9J0302	01-Nov-19	0.247 L	11-Nov-19 23:43	1
PFDS	335-77-3	ND	2.03		B9J0302	01-Nov-19	0.247 L	11-Nov-19 23:43	1
PFDoA	307-55-1	ND	2.03		B9J0302	01-Nov-19	0.247 L	11-Nov-19 23:43	1
PFTrDA	72629-94-8	ND	2.03		B9J0302	01-Nov-19	0.247 L	11-Nov-19 23:43	1
PFTeDA	376-06-7	ND	2.03		B9J0302	01-Nov-19	0.247 L	11-Nov-19 23:43	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	124	50 - 150		B9J0302	01-Nov-19	0.247 L	11-Nov-19 23:43	1
13C3-PFPeA	IS	92.4	50 - 150		B9J0302	01-Nov-19	0.247 L	11-Nov-19 23:43	1
13C3-PFBS	IS	94.6	50 - 150		B9J0302	01-Nov-19	0.247 L	11-Nov-19 23:43	1
13C2-4:2 FTS	IS	95.7	50 - 150		B9J0302	01-Nov-19	0.247 L	11-Nov-19 23:43	1
13C2-PFHxA	IS	89.4	50 - 150		B9J0302	01-Nov-19	0.247 L	11-Nov-19 23:43	1
13C4-PFHpA	IS	97.5	50 - 150		B9J0302	01-Nov-19	0.247 L	11-Nov-19 23:43	1
13C3-PFHxS	IS	97.1	50 - 150		B9J0302	01-Nov-19	0.247 L	11-Nov-19 23:43	1
13C2-6:2 FTS	IS	95.4	50 - 150		B9J0302	01-Nov-19	0.247 L	11-Nov-19 23:43	1
13C5-PFNA	IS	100	50 - 150		B9J0302	01-Nov-19	0.247 L	11-Nov-19 23:43	1
13C8-PFOSA	IS	37.6	50 - 150	H	B9J0302	01-Nov-19	0.247 L	11-Nov-19 23:43	1
13C2-PFOA	IS	94.9	50 - 150		B9J0302	01-Nov-19	0.247 L	11-Nov-19 23:43	1
13C8-PFOS	IS	98.6	50 - 150		B9J0302	01-Nov-19	0.247 L	11-Nov-19 23:43	1
13C2-PFDA	IS	92.6	50 - 150		B9J0302	01-Nov-19	0.247 L	11-Nov-19 23:43	1
13C2-8:2 FTS	IS	116	50 - 150		B9J0302	01-Nov-19	0.247 L	11-Nov-19 23:43	1

Vista
Analytical Laboratory

Sample ID: EB-4 **PFAS Isotope Dilution Method**

Client Data				**Laboratory Data**			
Name:	Woodard & Curran	Matrix:	Aqueous	Lab Sample:	1903824-01	Column:	BEH C18
Project:	SJC PFAS Investigation	Date Collected:	24-Oct-19 11:45	Date Received:	25-Oct-19 08:40		
Location:	8/9						

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
d3-MeFOSAA	IS	83.5	50 - 150		B9J0302	01-Nov-19	0.247 L	11-Nov-19 23:43	1
13C2-PFUnA	IS	96.4	50 - 150		B9J0302	01-Nov-19	0.247 L	11-Nov-19 23:43	1
d5-EtFOSAA	IS	81.0	50 - 150		B9J0302	01-Nov-19	0.247 L	11-Nov-19 23:43	1
13C2-PFDoA	IS	82.9	50 - 150		B9J0302	01-Nov-19	0.247 L	11-Nov-19 23:43	1
13C2-PFTeDA	IS	80.5	50 - 150		B9J0302	01-Nov-19	0.247 L	11-Nov-19 23:43	1

RL - Reporting limit

Results reported to RL.

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

Sample ID: FB-5 **PFAS Isotope Dilution Method**

Client Data				**Laboratory Data**			
Name:	Woodard & Curran	Matrix:	Aqueous	Lab Sample:	1903824-02	Column:	BEH C18
Project:	SJC PFAS Investigation	Date Collected:	24-Oct-19 09:29	Date Received:	25-Oct-19 08:40		
Location:	8/9						

Analyte	CAS Number	Conc. (ng/L)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	ND	2.02		B9J0302	01-Nov-19	0.247 L	11-Nov-19 23:53	1
PFPeA	2706-90-3	ND	2.02		B9J0302	01-Nov-19	0.247 L	11-Nov-19 23:53	1
PFBS	375-73-5	ND	2.02		B9J0302	01-Nov-19	0.247 L	11-Nov-19 23:53	1
4:2 FTS	757124-72-4	ND	2.02		B9J0302	01-Nov-19	0.247 L	11-Nov-19 23:53	1
PFHxA	307-24-4	ND	2.02		B9J0302	01-Nov-19	0.247 L	11-Nov-19 23:53	1
PFPeS	2706-91-4	ND	2.02		B9J0302	01-Nov-19	0.247 L	11-Nov-19 23:53	1
PFHpA	375-85-9	ND	2.02		B9J0302	01-Nov-19	0.247 L	11-Nov-19 23:53	1
PFHxS	355-46-4	ND	2.02		B9J0302	01-Nov-19	0.247 L	11-Nov-19 23:53	1
6:2 FTS	27619-97-2	ND	2.02		B9J0302	01-Nov-19	0.247 L	11-Nov-19 23:53	1
PFOA	335-67-1	ND	2.02		B9J0302	01-Nov-19	0.247 L	11-Nov-19 23:53	1
PFHpS	375-92-8	ND	2.02		B9J0302	01-Nov-19	0.247 L	11-Nov-19 23:53	1
PFNA	375-95-1	ND	2.02		B9J0302	01-Nov-19	0.247 L	11-Nov-19 23:53	1
PFOSA	754-91-6	ND	2.02		B9J0302	01-Nov-19	0.247 L	11-Nov-19 23:53	1
PFOS	1763-23-1	ND	2.02		B9J0302	01-Nov-19	0.247 L	11-Nov-19 23:53	1
PFDA	335-76-2	ND	2.02		B9J0302	01-Nov-19	0.247 L	11-Nov-19 23:53	1
8:2 FTS	39108-34-4	ND	2.02		B9J0302	01-Nov-19	0.247 L	11-Nov-19 23:53	1
MeFOSAA	2355-31-9	ND	2.02		B9J0302	01-Nov-19	0.247 L	11-Nov-19 23:53	1
EtFOSAA	2991-50-6	ND	2.02		B9J0302	01-Nov-19	0.247 L	11-Nov-19 23:53	1
PFUnA	2058-94-8	ND	2.02		B9J0302	01-Nov-19	0.247 L	11-Nov-19 23:53	1
PFDS	335-77-3	ND	2.02		B9J0302	01-Nov-19	0.247 L	11-Nov-19 23:53	1
PFDoA	307-55-1	ND	2.02		B9J0302	01-Nov-19	0.247 L	11-Nov-19 23:53	1
PFTrDA	72629-94-8	ND	2.02		B9J0302	01-Nov-19	0.247 L	11-Nov-19 23:53	1
PFTeDA	376-06-7	ND	2.02		B9J0302	01-Nov-19	0.247 L	11-Nov-19 23:53	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	131	50 - 150		B9J0302	01-Nov-19	0.247 L	11-Nov-19 23:53	1
13C3-PFPeA	IS	96.2	50 - 150		B9J0302	01-Nov-19	0.247 L	11-Nov-19 23:53	1
13C3-PFBS	IS	112	50 - 150		B9J0302	01-Nov-19	0.247 L	11-Nov-19 23:53	1
13C2-4:2 FTS	IS	103	50 - 150		B9J0302	01-Nov-19	0.247 L	11-Nov-19 23:53	1
13C2-PFHxA	IS	96.6	50 - 150		B9J0302	01-Nov-19	0.247 L	11-Nov-19 23:53	1
13C4-PFHpA	IS	92.7	50 - 150		B9J0302	01-Nov-19	0.247 L	11-Nov-19 23:53	1
13C3-PFHxS	IS	96.6	50 - 150		B9J0302	01-Nov-19	0.247 L	11-Nov-19 23:53	1
13C2-6:2 FTS	IS	101	50 - 150		B9J0302	01-Nov-19	0.247 L	11-Nov-19 23:53	1
13C5-PFNA	IS	99.9	50 - 150		B9J0302	01-Nov-19	0.247 L	11-Nov-19 23:53	1
13C8-PFOSA	IS	44.0	50 - 150	H	B9J0302	01-Nov-19	0.247 L	11-Nov-19 23:53	1
13C2-PFOA	IS	94.8	50 - 150		B9J0302	01-Nov-19	0.247 L	11-Nov-19 23:53	1
13C8-PFOS	IS	101	50 - 150		B9J0302	01-Nov-19	0.247 L	11-Nov-19 23:53	1
13C2-PFDA	IS	107	50 - 150		B9J0302	01-Nov-19	0.247 L	11-Nov-19 23:53	1
13C2-8:2 FTS	IS	103	50 - 150		B9J0302	01-Nov-19	0.247 L	11-Nov-19 23:53	1

Sample ID: FB-5 **PFAS Isotope Dilution Method**

Client Data				**Laboratory Data**			
Name:	Woodard & Curran	Matrix:	Aqueous	Lab Sample:	1903824-02	Column:	BEH C18
Project:	SJC PFAS Investigation	Date Collected:	24-Oct-19 09:29	Date Received:	25-Oct-19 08:40		
Location:	8/9						

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
d3-MeFOSAA	IS	82.7	50 - 150		B9J0302	01-Nov-19	0.247 L	11-Nov-19 23:53	1
13C2-PFUnA	IS	97.7	50 - 150		B9J0302	01-Nov-19	0.247 L	11-Nov-19 23:53	1
d5-EtFOSAA	IS	93.4	50 - 150		B9J0302	01-Nov-19	0.247 L	11-Nov-19 23:53	1
13C2-PFDoA	IS	82.6	50 - 150		B9J0302	01-Nov-19	0.247 L	11-Nov-19 23:53	1
13C2-PFTeDA	IS	68.4	50 - 150		B9J0302	01-Nov-19	0.247 L	11-Nov-19 23:53	1

RL - Reporting limit

Results reported to RL.

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

Sample ID: FB-4 **PFAS Isotope Dilution Method**

Client Data				**Laboratory Data**			
Name:	Woodard & Curran	Matrix:	Aqueous	Lab Sample:	1903824-04	Column:	BEH C18
Project:	SJC PFAS Investigation	Date Collected:	23-Oct-19 12:01	Date Received:	25-Oct-19 08:40		
Location:	14						

Analyte	CAS Number	Conc. (ng/L)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	ND	2.01		B9J0302	01-Nov-19	0.249 L	12-Nov-19 00:25	1
PFPeA	2706-90-3	ND	2.01		B9J0302	01-Nov-19	0.249 L	12-Nov-19 00:25	1
PFBS	375-73-5	ND	2.01		B9J0302	01-Nov-19	0.249 L	12-Nov-19 00:25	1
4:2 FTS	757124-72-4	ND	2.01		B9J0302	01-Nov-19	0.249 L	12-Nov-19 00:25	1
PFHxA	307-24-4	ND	2.01		B9J0302	01-Nov-19	0.249 L	12-Nov-19 00:25	1
PFPeS	2706-91-4	ND	2.01		B9J0302	01-Nov-19	0.249 L	12-Nov-19 00:25	1
PFHpA	375-85-9	ND	2.01		B9J0302	01-Nov-19	0.249 L	12-Nov-19 00:25	1
PFHxS	355-46-4	ND	2.01		B9J0302	01-Nov-19	0.249 L	12-Nov-19 00:25	1
6:2 FTS	27619-97-2	ND	2.01		B9J0302	01-Nov-19	0.249 L	12-Nov-19 00:25	1
PFOA	335-67-1	ND	2.01		B9J0302	01-Nov-19	0.249 L	12-Nov-19 00:25	1
PFHpS	375-92-8	ND	2.01		B9J0302	01-Nov-19	0.249 L	12-Nov-19 00:25	1
PFNA	375-95-1	ND	2.01		B9J0302	01-Nov-19	0.249 L	12-Nov-19 00:25	1
PFOSA	754-91-6	ND	2.01		B9J0302	01-Nov-19	0.249 L	12-Nov-19 00:25	1
PFOS	1763-23-1	ND	2.01		B9J0302	01-Nov-19	0.249 L	12-Nov-19 00:25	1
PFDA	335-76-2	ND	2.01		B9J0302	01-Nov-19	0.249 L	12-Nov-19 00:25	1
8:2 FTS	39108-34-4	ND	2.01		B9J0302	01-Nov-19	0.249 L	12-Nov-19 00:25	1
MeFOSAA	2355-31-9	ND	2.01		B9J0302	01-Nov-19	0.249 L	12-Nov-19 00:25	1
EtFOSAA	2991-50-6	ND	2.01		B9J0302	01-Nov-19	0.249 L	12-Nov-19 00:25	1
PFUnA	2058-94-8	ND	2.01		B9J0302	01-Nov-19	0.249 L	12-Nov-19 00:25	1
PFDS	335-77-3	ND	2.01		B9J0302	01-Nov-19	0.249 L	12-Nov-19 00:25	1
PFDoA	307-55-1	ND	2.01		B9J0302	01-Nov-19	0.249 L	12-Nov-19 00:25	1
PFTrDA	72629-94-8	ND	2.01		B9J0302	01-Nov-19	0.249 L	12-Nov-19 00:25	1
PFTeDA	376-06-7	ND	2.01		B9J0302	01-Nov-19	0.249 L	12-Nov-19 00:25	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	154	50 - 150	H	B9J0302	01-Nov-19	0.249 L	12-Nov-19 00:25	1
13C3-PFPeA	IS	114	50 - 150		B9J0302	01-Nov-19	0.249 L	12-Nov-19 00:25	1
13C3-PFBS	IS	131	50 - 150		B9J0302	01-Nov-19	0.249 L	12-Nov-19 00:25	1
13C2-4:2 FTS	IS	123	50 - 150		B9J0302	01-Nov-19	0.249 L	12-Nov-19 00:25	1
13C2-PFHxA	IS	112	50 - 150		B9J0302	01-Nov-19	0.249 L	12-Nov-19 00:25	1
13C4-PFHpA	IS	114	50 - 150		B9J0302	01-Nov-19	0.249 L	12-Nov-19 00:25	1
13C3-PFHxS	IS	118	50 - 150		B9J0302	01-Nov-19	0.249 L	12-Nov-19 00:25	1
13C2-6:2 FTS	IS	105	50 - 150		B9J0302	01-Nov-19	0.249 L	12-Nov-19 00:25	1
13C5-PFNA	IS	120	50 - 150		B9J0302	01-Nov-19	0.249 L	12-Nov-19 00:25	1
13C8-PFOSA	IS	45.9	50 - 150	H	B9J0302	01-Nov-19	0.249 L	12-Nov-19 00:25	1
13C2-PFOA	IS	104	50 - 150		B9J0302	01-Nov-19	0.249 L	12-Nov-19 00:25	1
13C8-PFOS	IS	121	50 - 150		B9J0302	01-Nov-19	0.249 L	12-Nov-19 00:25	1
13C2-PFDA	IS	118	50 - 150		B9J0302	01-Nov-19	0.249 L	12-Nov-19 00:25	1
13C2-8:2 FTS	IS	127	50 - 150		B9J0302	01-Nov-19	0.249 L	12-Nov-19 00:25	1

Sample ID: FB-4

PFAS Isotope Dilution Method

Client Data				**Laboratory Data**			
Name:	Woodard & Curran	Matrix:	Aqueous	Lab Sample:	1903824-04	Column:	BEH C18
Project:	SJC PFAS Investigation	Date Collected:	23-Oct-19 12:01	Date Received:	25-Oct-19 08:40		
Location:	14						

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
d3-MeFOSAA	IS	94.3	50 - 150		B9J0302	01-Nov-19	0.249 L	12-Nov-19 00:25	1
13C2-PFUnA	IS	114	50 - 150		B9J0302	01-Nov-19	0.249 L	12-Nov-19 00:25	1
d5-EtFOSAA	IS	97.4	50 - 150		B9J0302	01-Nov-19	0.249 L	12-Nov-19 00:25	1
13C2-PFDoA	IS	88.6	50 - 150		B9J0302	01-Nov-19	0.249 L	12-Nov-19 00:25	1
13C2-PFTeDA	IS	72.3	50 - 150		B9J0302	01-Nov-19	0.249 L	12-Nov-19 00:25	1

RL - Reporting limit

Results reported to RL.

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

Sample ID: L3-3-GW **PFAS Isotope Dilution Method**

Client Data				**Laboratory Data**			
Name:	Woodard & Curran	Matrix:	Aqueous	Lab Sample:	1903824-07	Column:	BEH C18
Project:	SJC PFAS Investigation	Date Collected:	23-Oct-19 13:16	Date Received:	25-Oct-19 08:40		
Location:	3						

Analyte	CAS Number	Conc. (ng/L)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	10.2	2.10		B9J0302	01-Nov-19	0.238 L	12-Nov-19 00:36	1
PFPeA	2706-90-3	7.78	2.10		B9J0302	01-Nov-19	0.238 L	12-Nov-19 00:36	1
PFBS	375-73-5	12.6	2.10		B9J0302	01-Nov-19	0.238 L	12-Nov-19 00:36	1
4:2 FTS	757124-72-4	ND	2.10		B9J0302	01-Nov-19	0.238 L	12-Nov-19 00:36	1
PFHxA	307-24-4	15.1	2.10		B9J0302	01-Nov-19	0.238 L	12-Nov-19 00:36	1
PFPeS	2706-91-4	5.55	2.10		B9J0302	01-Nov-19	0.238 L	12-Nov-19 00:36	1
PFHpA	375-85-9	3.28	2.10		B9J0302	01-Nov-19	0.238 L	12-Nov-19 00:36	1
PFHxS	355-46-4	37.2	2.10		B9J0302	01-Nov-19	0.238 L	12-Nov-19 00:36	1
6:2 FTS	27619-97-2	2.58	2.10		B9J0302	01-Nov-19	0.238 L	12-Nov-19 00:36	1
PFOA	335-67-1	29.7	2.10		B9J0302	01-Nov-19	0.238 L	12-Nov-19 00:36	1
PFHpS	375-92-8	ND	2.10		B9J0302	01-Nov-19	0.238 L	12-Nov-19 00:36	1
PFNA	375-95-1	ND	2.10		B9J0302	01-Nov-19	0.238 L	12-Nov-19 00:36	1
PFOSA	754-91-6	ND	2.10		B9J0302	01-Nov-19	0.238 L	12-Nov-19 00:36	1
PFOS	1763-23-1	37.9	2.10		B9J0302	01-Nov-19	0.238 L	12-Nov-19 00:36	1
PFDA	335-76-2	ND	2.10		B9J0302	01-Nov-19	0.238 L	12-Nov-19 00:36	1
8:2 FTS	39108-34-4	ND	2.10		B9J0302	01-Nov-19	0.238 L	12-Nov-19 00:36	1
MeFOSAA	2355-31-9	ND	2.10		B9J0302	01-Nov-19	0.238 L	12-Nov-19 00:36	1
EtFOSAA	2991-50-6	ND	2.10		B9J0302	01-Nov-19	0.238 L	12-Nov-19 00:36	1
PFUnA	2058-94-8	ND	2.10		B9J0302	01-Nov-19	0.238 L	12-Nov-19 00:36	1
PFDS	335-77-3	ND	2.10		B9J0302	01-Nov-19	0.238 L	12-Nov-19 00:36	1
PFDoA	307-55-1	ND	2.10		B9J0302	01-Nov-19	0.238 L	12-Nov-19 00:36	1
PFTrDA	72629-94-8	ND	2.10		B9J0302	01-Nov-19	0.238 L	12-Nov-19 00:36	1
PFTeDA	376-06-7	ND	2.10		B9J0302	01-Nov-19	0.238 L	12-Nov-19 00:36	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	113	50 - 150		B9J0302	01-Nov-19	0.238 L	12-Nov-19 00:36	1
13C3-PFPeA	IS	111	50 - 150		B9J0302	01-Nov-19	0.238 L	12-Nov-19 00:36	1
13C3-PFBS	IS	109	50 - 150		B9J0302	01-Nov-19	0.238 L	12-Nov-19 00:36	1
13C2-4:2 FTS	IS	107	50 - 150		B9J0302	01-Nov-19	0.238 L	12-Nov-19 00:36	1
13C2-PFHxA	IS	115	50 - 150		B9J0302	01-Nov-19	0.238 L	12-Nov-19 00:36	1
13C4-PFHpA	IS	113	50 - 150		B9J0302	01-Nov-19	0.238 L	12-Nov-19 00:36	1
13C3-PFHxS	IS	109	50 - 150		B9J0302	01-Nov-19	0.238 L	12-Nov-19 00:36	1
13C2-6:2 FTS	IS	102	50 - 150		B9J0302	01-Nov-19	0.238 L	12-Nov-19 00:36	1
13C5-PFNA	IS	111	50 - 150		B9J0302	01-Nov-19	0.238 L	12-Nov-19 00:36	1
13C8-PFOSA	IS	58.1	50 - 150		B9J0302	01-Nov-19	0.238 L	12-Nov-19 00:36	1
13C2-PFOA	IS	102	50 - 150		B9J0302	01-Nov-19	0.238 L	12-Nov-19 00:36	1
13C8-PFOS	IS	111	50 - 150		B9J0302	01-Nov-19	0.238 L	12-Nov-19 00:36	1
13C2-PFDA	IS	112	50 - 150		B9J0302	01-Nov-19	0.238 L	12-Nov-19 00:36	1
13C2-8:2 FTS	IS	105	50 - 150		B9J0302	01-Nov-19	0.238 L	12-Nov-19 00:36	1

Sample ID: L3-3-GW

PFAS Isotope Dilution Method

Client Data

Name:	Woodard & Curran	Matrix:	Aqueous
Project:	SJC PFAS Investigation	Date Collected:	23-Oct-19 13:16
Location:	3		

Laboratory Data

Lab Sample:	1903824-07	Column:	BEH C18
Date Received:	25-Oct-19 08:40		

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
d3-MeFOSAA	IS	98.9	50 - 150		B9J0302	01-Nov-19	0.238 L	12-Nov-19 00:36	1
13C2-PFUnA	IS	95.2	50 - 150		B9J0302	01-Nov-19	0.238 L	12-Nov-19 00:36	1
d5-EtFOSAA	IS	88.3	50 - 150		B9J0302	01-Nov-19	0.238 L	12-Nov-19 00:36	1
13C2-PFDoA	IS	71.3	50 - 150		B9J0302	01-Nov-19	0.238 L	12-Nov-19 00:36	1
13C2-PFTeDA	IS	27.8	50 - 150	H	B9J0302	01-Nov-19	0.238 L	12-Nov-19 00:36	1

RL - Reporting limit

Results reported to RL.

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

Sample ID: Method Blank **PFAS Isotope Dilution Method**

Client Data

Name:	Woodard & Curran	Matrix:	Solid
Project:	SJC PFAS Investigation		

Laboratory Data

Lab Sample:	B9K0012-BLK1	Column:	BEH C18

Analyte	CAS Number	Conc. (ng/g)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	ND	2.00		B9K0012	11-Nov-19	1.00 g	19-Nov-19 23:48	1
PFPeA	2706-90-3	ND	2.00		B9K0012	11-Nov-19	1.00 g	19-Nov-19 23:48	1
PFBS	375-73-5	ND	2.00		B9K0012	11-Nov-19	1.00 g	19-Nov-19 23:48	1
4:2 FTS	757124-72-4	ND	2.00		B9K0012	11-Nov-19	1.00 g	19-Nov-19 23:48	1
PFHxA	307-24-4	ND	2.00		B9K0012	11-Nov-19	1.00 g	19-Nov-19 23:48	1
PFPeS	2706-91-4	ND	2.00		B9K0012	11-Nov-19	1.00 g	19-Nov-19 23:48	1
PFHpA	375-85-9	ND	2.00		B9K0012	11-Nov-19	1.00 g	19-Nov-19 23:48	1
PFHxS	355-46-4	ND	2.00		B9K0012	11-Nov-19	1.00 g	19-Nov-19 23:48	1
6:2 FTS	27619-97-2	ND	2.00		B9K0012	11-Nov-19	1.00 g	19-Nov-19 23:48	1
PFOA	335-67-1	ND	2.00		B9K0012	11-Nov-19	1.00 g	19-Nov-19 23:48	1
PFHpS	375-92-8	ND	2.00		B9K0012	11-Nov-19	1.00 g	19-Nov-19 23:48	1
PFNA	375-95-1	ND	2.00		B9K0012	11-Nov-19	1.00 g	19-Nov-19 23:48	1
PFOSA	754-91-6	ND	2.00		B9K0012	11-Nov-19	1.00 g	19-Nov-19 23:48	1
PFOS	1763-23-1	ND	2.00		B9K0012	11-Nov-19	1.00 g	19-Nov-19 23:48	1
PFDA	335-76-2	ND	2.00		B9K0012	11-Nov-19	1.00 g	19-Nov-19 23:48	1
8:2 FTS	39108-34-4	ND	2.00		B9K0012	11-Nov-19	1.00 g	19-Nov-19 23:48	1
MeFOSAA	2355-31-9	ND	2.00		B9K0012	11-Nov-19	1.00 g	19-Nov-19 23:48	1
EtFOSAA	2991-50-6	ND	2.00		B9K0012	11-Nov-19	1.00 g	19-Nov-19 23:48	1
PFUnA	2058-94-8	ND	2.00		B9K0012	11-Nov-19	1.00 g	19-Nov-19 23:48	1
PFDS	335-77-3	ND	2.00		B9K0012	11-Nov-19	1.00 g	19-Nov-19 23:48	1
PFDoA	307-55-1	ND	2.00		B9K0012	11-Nov-19	1.00 g	19-Nov-19 23:48	1
PFTrDA	72629-94-8	ND	2.00		B9K0012	11-Nov-19	1.00 g	19-Nov-19 23:48	1
PFTeDA	376-06-7	ND	2.00		B9K0012	11-Nov-19	1.00 g	19-Nov-19 23:48	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	142	50 - 150		B9K0012	11-Nov-19	1.00 g	19-Nov-19 23:48	1
13C3-PFPeA	IS	72.2	50 - 150		B9K0012	11-Nov-19	1.00 g	19-Nov-19 23:48	1
13C3-PFBS	IS	86.5	50 - 150		B9K0012	11-Nov-19	1.00 g	19-Nov-19 23:48	1
13C2-4:2 FTS	IS	89.3	50 - 150		B9K0012	11-Nov-19	1.00 g	19-Nov-19 23:48	1
13C2-PFHxA	IS	70.1	50 - 150		B9K0012	11-Nov-19	1.00 g	19-Nov-19 23:48	1
13C4-PFHpA	IS	68.5	50 - 150		B9K0012	11-Nov-19	1.00 g	19-Nov-19 23:48	1
13C3-PFHxS	IS	88.2	50 - 150		B9K0012	11-Nov-19	1.00 g	19-Nov-19 23:48	1
13C2-6:2 FTS	IS	80.4	50 - 150		B9K0012	11-Nov-19	1.00 g	19-Nov-19 23:48	1
13C5-PFNA	IS	66.4	50 - 150		B9K0012	11-Nov-19	1.00 g	19-Nov-19 23:48	1
13C8-PFOSA	IS	20.3	50 - 150	H	B9K0012	11-Nov-19	1.00 g	19-Nov-19 23:48	1
13C2-PFOA	IS	72.6	50 - 150		B9K0012	11-Nov-19	1.00 g	19-Nov-19 23:48	1
13C8-PFOS	IS	88.4	50 - 150		B9K0012	11-Nov-19	1.00 g	19-Nov-19 23:48	1
13C2-PFDA	IS	55.1	50 - 150		B9K0012	11-Nov-19	1.00 g	19-Nov-19 23:48	1
13C2-8:2 FTS	IS	92.0	50 - 150		B9K0012	11-Nov-19	1.00 g	19-Nov-19 23:48	1

Sample ID: Method Blank

PFAS Isotope Dilution Method

Client Data				**Laboratory Data**			
Name:	Woodard & Curran	Matrix:	Solid	Lab Sample:	B9K0012-BLK1	Column:	BEH C18
Project:	SJC PFAS Investigation						

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
d3-MeFOSAA	IS	49.0	50 - 150	H	B9K0012	11-Nov-19	1.00 g	19-Nov-19 23:48	1
13C2-PFUnA	IS	44.9	50 - 150	H	B9K0012	11-Nov-19	1.00 g	19-Nov-19 23:48	1
d5-EtFOSAA	IS	50.2	50 - 150		B9K0012	11-Nov-19	1.00 g	19-Nov-19 23:48	1
13C2-PFDoA	IS	37.3	50 - 150	H	B9K0012	11-Nov-19	1.00 g	19-Nov-19 23:48	1
13C2-PFTeDA	IS	53.8	50 - 150		B9K0012	11-Nov-19	1.00 g	19-Nov-19 23:48	1

RL - Reporting limit

The results are reported in dry weight.
The sample size is reported in wet weight.
Results reported to RL.

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

Sample ID: OPR **PFAS Isotope Dilution Method**

Client Data				**Laboratory Data**			
Name:	Woodard & Curran	Matrix:	Solid	Lab Sample:	B9K0012-BS1	Column:	BEH C18
Project:	SJC PFAS Investigation						

Analyte	CAS Number	Amt Found (ng/g)	Spike Amt	% Rec	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	9.92	10.0	99.2	71 - 135		B9K0012	11-Nov-19	1.00 g	19-Nov-19 23:58	1
PFPeA	2706-90-3	10.9	10.0	109	69 - 132		B9K0012	11-Nov-19	1.00 g	19-Nov-19 23:58	1
PFBS	375-73-5	9.92	10.0	99.2	72 - 128		B9K0012	11-Nov-19	1.00 g	19-Nov-19 23:58	1
4:2 FTS	757124-72-4	10.4	10.0	104	62 - 145		B9K0012	11-Nov-19	1.00 g	19-Nov-19 23:58	1
PFHxA	307-24-4	10.6	10.0	106	70 - 132		B9K0012	11-Nov-19	1.00 g	19-Nov-19 23:58	1
PFPeS	2706-91-4	10.5	10.0	105	73 - 123		B9K0012	11-Nov-19	1.00 g	19-Nov-19 23:58	1
PFHpA	375-85-9	9.44	10.0	94.4	71 - 131		B9K0012	11-Nov-19	1.00 g	19-Nov-19 23:58	1
PFHxS	355-46-4	9.72	10.0	97.2	67 - 130		B9K0012	11-Nov-19	1.00 g	19-Nov-19 23:58	1
6:2 FTS	27619-97-2	8.98	10.0	89.8	64 - 140		B9K0012	11-Nov-19	1.00 g	19-Nov-19 23:58	1
PFOA	335-67-1	11.0	10.0	110	69 - 133		B9K0012	11-Nov-19	1.00 g	19-Nov-19 23:58	1
PFHpS	375-92-8	10.6	10.0	106	70 - 132		B9K0012	11-Nov-19	1.00 g	19-Nov-19 23:58	1
PFNA	375-95-1	9.76	10.0	97.6	72 - 129		B9K0012	11-Nov-19	1.00 g	19-Nov-19 23:58	1
PFOSA	754-91-6	11.9	10.0	119	67 - 137		B9K0012	11-Nov-19	1.00 g	19-Nov-19 23:58	1
PFOS	1763-23-1	9.95	10.0	99.3	68 - 136		B9K0012	11-Nov-19	1.00 g	19-Nov-19 23:58	1
PFDA	335-76-2	10.4	10.0	104	69 - 133		B9K0012	11-Nov-19	1.00 g	19-Nov-19 23:58	1
8:2 FTS	39108-34-4	9.19	10.0	91.9	65 - 137		B9K0012	11-Nov-19	1.00 g	19-Nov-19 23:58	1
MeFOSAA	2355-31-9	10.4	10.0	104	63 - 144		B9K0012	11-Nov-19	1.00 g	19-Nov-19 23:58	1
EtFOSAA	2991-50-6	9.06	10.0	90.6	61 - 139		B9K0012	11-Nov-19	1.00 g	19-Nov-19 23:58	1
PFUnA	2058-94-8	11.6	10.0	116	64 - 136		B9K0012	11-Nov-19	1.00 g	19-Nov-19 23:58	1
PFDS	335-77-3	8.49	10.0	84.7	59 - 134		B9K0012	11-Nov-19	1.00 g	19-Nov-19 23:58	1
PFDoA	307-55-1	10.4	10.0	104	69 - 135		B9K0012	11-Nov-19	1.00 g	19-Nov-19 23:58	1
PFTrDA	72629-94-8	11.1	10.0	111	66 - 139		B9K0012	11-Nov-19	1.00 g	19-Nov-19 23:58	1
PFTeDA	376-06-7	10.9	10.0	109	69 - 133		B9K0012	11-Nov-19	1.00 g	19-Nov-19 23:58	1

Labeled Standards	Type	% Rec	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	153	50- 150	H	B9K0012	11-Nov-19	1.00 g	19-Nov-19 23:58	1
13C3-PFPeA	IS	76.3	50- 150		B9K0012	11-Nov-19	1.00 g	19-Nov-19 23:58	1
13C3-PFBS	IS	87.6	50- 150		B9K0012	11-Nov-19	1.00 g	19-Nov-19 23:58	1
13C2-4:2 FTS	IS	89.6	50- 150		B9K0012	11-Nov-19	1.00 g	19-Nov-19 23:58	1
13C2-PFHxA	IS	75.1	50- 150		B9K0012	11-Nov-19	1.00 g	19-Nov-19 23:58	1
13C4-PFHpA	IS	77.5	50- 150		B9K0012	11-Nov-19	1.00 g	19-Nov-19 23:58	1
13C3-PFHxS	IS	95.7	50- 150		B9K0012	11-Nov-19	1.00 g	19-Nov-19 23:58	1
13C2-6:2 FTS	IS	86.5	50- 150		B9K0012	11-Nov-19	1.00 g	19-Nov-19 23:58	1
13C5-PFNA	IS	67.8	50- 150		B9K0012	11-Nov-19	1.00 g	19-Nov-19 23:58	1
13C8-PFOSA	IS	25.0	50- 150	H	B9K0012	11-Nov-19	1.00 g	19-Nov-19 23:58	1
13C2-PFOA	IS	70.3	50- 150		B9K0012	11-Nov-19	1.00 g	19-Nov-19 23:58	1

Sample ID: OPR **PFAS Isotope Dilution Method**

Client Data

Name:	Woodard & Curran	Matrix:	Solid
Project:	SJC PFAS Investigation		

Laboratory Data

Lab Sample:	B9K0012-BS1	Column:	BEH C18

Labeled Standards	Type	% Rec	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C8-PFOS	IS	83.6	50 - 150		B9K0012	11-Nov-19	1.00 g	19-Nov-19 23:58	1
13C2-PFDA	IS	60.6	50 - 150		B9K0012	11-Nov-19	1.00 g	19-Nov-19 23:58	1
13C2-8:2 FTS	IS	107	50 - 150		B9K0012	11-Nov-19	1.00 g	19-Nov-19 23:58	1
d3-MeFOSAA	IS	52.7	50 - 150		B9K0012	11-Nov-19	1.00 g	19-Nov-19 23:58	1
13C2-PFUnA	IS	49.3	50 - 150	H	B9K0012	11-Nov-19	1.00 g	19-Nov-19 23:58	1
d5-EtFOSAA	IS	46.1	50 - 150	H	B9K0012	11-Nov-19	1.00 g	19-Nov-19 23:58	1
13C2-PFDoA	IS	51.8	50 - 150		B9K0012	11-Nov-19	1.00 g	19-Nov-19 23:58	1
13C2-PFTeDA	IS	65.7	50 - 150		B9K0012	11-Nov-19	1.00 g	19-Nov-19 23:58	1

Sample ID: L3-3-1 **PFAS Isotope Dilution Method**

Client Data				**Laboratory Data**			
Name:	Woodard & Curran	Matrix:	Soil	Lab Sample:	1903824-03	Column:	BEH C18
Project:	SJC PFAS Investigation	Date Collected:	23-Oct-19 12:28	Date Received:	25-Oct-19 08:40		
Location:	3			% Solids:	86.8		

Analyte	CAS Number	Conc. (ng/g)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	ND	1.97		B9K0012	11-Nov-19	1.17 g	20-Nov-19 00:30	1
PFPeA	2706-90-3	ND	1.97		B9K0012	11-Nov-19	1.17 g	20-Nov-19 00:30	1
PFBS	375-73-5	ND	1.97		B9K0012	11-Nov-19	1.17 g	20-Nov-19 00:30	1
4:2 FTS	757124-72-4	ND	1.97		B9K0012	11-Nov-19	1.17 g	20-Nov-19 00:30	1
PFHxA	307-24-4	ND	1.97		B9K0012	11-Nov-19	1.17 g	20-Nov-19 00:30	1
PFPeS	2706-91-4	ND	1.97		B9K0012	11-Nov-19	1.17 g	20-Nov-19 00:30	1
PFHpA	375-85-9	ND	1.97		B9K0012	11-Nov-19	1.17 g	20-Nov-19 00:30	1
PFHxS	355-46-4	ND	1.97		B9K0012	11-Nov-19	1.17 g	20-Nov-19 00:30	1
6:2 FTS	27619-97-2	ND	1.97		B9K0012	11-Nov-19	1.17 g	20-Nov-19 00:30	1
PFOA	335-67-1	ND	1.97		B9K0012	11-Nov-19	1.17 g	20-Nov-19 00:30	1
PFHpS	375-92-8	ND	1.97		B9K0012	11-Nov-19	1.17 g	20-Nov-19 00:30	1
PFNA	375-95-1	ND	1.97		B9K0012	11-Nov-19	1.17 g	20-Nov-19 00:30	1
PFOSA	754-91-6	ND	1.97		B9K0012	11-Nov-19	1.17 g	20-Nov-19 00:30	1
PFOS	1763-23-1	4.67	1.97		B9K0012	11-Nov-19	1.17 g	20-Nov-19 00:30	1
PFDA	335-76-2	ND	1.97		B9K0012	11-Nov-19	1.17 g	20-Nov-19 00:30	1
8:2 FTS	39108-34-4	ND	1.97		B9K0012	11-Nov-19	1.17 g	20-Nov-19 00:30	1
MeFOSAA	2355-31-9	ND	1.97		B9K0012	11-Nov-19	1.17 g	20-Nov-19 00:30	1
EtFOSAA	2991-50-6	ND	1.97		B9K0012	11-Nov-19	1.17 g	20-Nov-19 00:30	1
PFUnA	2058-94-8	ND	1.97		B9K0012	11-Nov-19	1.17 g	20-Nov-19 00:30	1
PFDS	335-77-3	ND	1.97		B9K0012	11-Nov-19	1.17 g	20-Nov-19 00:30	1
PFDoA	307-55-1	ND	1.97		B9K0012	11-Nov-19	1.17 g	20-Nov-19 00:30	1
PFTrDA	72629-94-8	ND	1.97		B9K0012	11-Nov-19	1.17 g	20-Nov-19 00:30	1
PFTeDA	376-06-7	ND	1.97		B9K0012	11-Nov-19	1.17 g	20-Nov-19 00:30	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	157	50 - 150	H	B9K0012	11-Nov-19	1.17 g	20-Nov-19 00:30	1
13C3-PFPeA	IS	82.3	50 - 150		B9K0012	11-Nov-19	1.17 g	20-Nov-19 00:30	1
13C3-PFBS	IS	88.5	50 - 150		B9K0012	11-Nov-19	1.17 g	20-Nov-19 00:30	1
13C2-4:2 FTS	IS	92.5	50 - 150		B9K0012	11-Nov-19	1.17 g	20-Nov-19 00:30	1
13C2-PFHxA	IS	79.0	50 - 150		B9K0012	11-Nov-19	1.17 g	20-Nov-19 00:30	1
13C4-PFHpA	IS	76.7	50 - 150		B9K0012	11-Nov-19	1.17 g	20-Nov-19 00:30	1
13C3-PFHxS	IS	96.5	50 - 150		B9K0012	11-Nov-19	1.17 g	20-Nov-19 00:30	1
13C2-6:2 FTS	IS	91.4	50 - 150		B9K0012	11-Nov-19	1.17 g	20-Nov-19 00:30	1
13C5-PFNA	IS	71.1	50 - 150		B9K0012	11-Nov-19	1.17 g	20-Nov-19 00:30	1
13C8-PFOSA	IS	38.1	50 - 150	H	B9K0012	11-Nov-19	1.17 g	20-Nov-19 00:30	1
13C2-PFOA	IS	75.4	50 - 150		B9K0012	11-Nov-19	1.17 g	20-Nov-19 00:30	1
13C8-PFOS	IS	91.6	50 - 150		B9K0012	11-Nov-19	1.17 g	20-Nov-19 00:30	1
13C2-PFDA	IS	68.2	50 - 150		B9K0012	11-Nov-19	1.17 g	20-Nov-19 00:30	1
13C2-8:2 FTS	IS	108	50 - 150		B9K0012	11-Nov-19	1.17 g	20-Nov-19 00:30	1

Sample ID: L3-3-1

PFAS Isotope Dilution Method

Client Data

Name:	Woodard & Curran	Matrix:	Soil
Project:	SJC PFAS Investigation	Date Collected:	23-Oct-19 12:28
Location:	3		

Laboratory Data

Lab Sample:	1903824-03	Column:	BEH C18
Date Received:	25-Oct-19 08:40		
% Solids:	86.8		

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
d3-MeFOSAA	IS	66.9	50 - 150		B9K0012	11-Nov-19	1.17 g	20-Nov-19 00:30	1
13C2-PFUnA	IS	74.0	50 - 150		B9K0012	11-Nov-19	1.17 g	20-Nov-19 00:30	1
d5-EtFOSAA	IS	59.5	50 - 150		B9K0012	11-Nov-19	1.17 g	20-Nov-19 00:30	1
13C2-PFDoA	IS	68.7	50 - 150		B9K0012	11-Nov-19	1.17 g	20-Nov-19 00:30	1
13C2-PFTeDA	IS	58.5	50 - 150		B9K0012	11-Nov-19	1.17 g	20-Nov-19 00:30	1

RL - Reporting limit

The results are reported in dry weight.
The sample size is reported in wet weight.
Results reported to RL.

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

Sample ID: L3-3-1 **PFAS Isotope Dilution Method**

Name:	Woodard & Curran	Lab Sample:	B9K0012-MS1/B9K0012-MSD1	Source Lab Sample:	1903824-03
Project:	SJC PFAS Investigation	QC Batch:	B9K0012	Date Extracted:	11-Nov-19
Matrix:	Solid	Samp Size:	1.17/1.15 g	Column:	BEH C18

Analyte	CAS Number	Sample (ng/g)	MS (ng/g)	MS Spike	MS % Rec	MS Quals	MSD (ng/g)	MSD Spike	MSD % Rec	RPD	MSD Quals	%Rec Limits	RPD Limits	MS Analyzed	MS Dil	MSD Analyzed	MSD Dil
PFBA	375-22-4	ND	10.1	9.85	103		10.4	10.0	104	0.966		71-135	30	20-Nov-19 00:09	1	20-Nov-19 00:19	1
PFPeA	2706-90-3	ND	11.6	9.85	118		11.2	10.0	112	5.22		69-132	30	20-Nov-19 00:09	1	20-Nov-19 00:19	1
PFBS	375-73-5	ND	11.5	9.85	117		11.0	10.0	110	6.17		72-128	30	20-Nov-19 00:09	1	20-Nov-19 00:19	1
4:2 FTS	757124-72-4	ND	10.6	9.85	107		10.8	10.0	108	0.930		62-145	30	20-Nov-19 00:09	1	20-Nov-19 00:19	1
PFHxA	307-24-4	ND	10.9	9.85	111		10.4	10.0	104	6.51		70-132	30	20-Nov-19 00:09	1	20-Nov-19 00:19	1
PFPeS	2706-91-4	ND	12.2	9.85	124	H	12.2	10.0	122	1.63		73-123	30	20-Nov-19 00:09	1	20-Nov-19 00:19	1
PFHpA	375-85-9	ND	10.1	9.85	103		9.63	10.0	96.3	6.72		71-131	30	20-Nov-19 00:09	1	20-Nov-19 00:19	1
PFHxS	355-46-4	ND	11.7	9.85	107		13.3	10.0	121	12.3		67-130	30	20-Nov-19 00:09	1	20-Nov-19 00:19	1
6:2 FTS	27619-97-2	ND	9.63	9.85	97.8		11.1	10.0	111	12.6		64-140	30	20-Nov-19 00:09	1	20-Nov-19 00:19	1
PFOA	335-67-1	ND	11.4	9.85	114		11.1	10.0	110	3.57		69-133	30	20-Nov-19 00:09	1	20-Nov-19 00:19	1
PFHpS	375-92-8	ND	11.1	9.85	110		12.3	10.0	121	9.52		70-132	30	20-Nov-19 00:09	1	20-Nov-19 00:19	1
PFNA	375-95-1	ND	10.9	9.85	110		10.6	10.0	106	3.70		72-129	30	20-Nov-19 00:09	1	20-Nov-19 00:19	1
PFOSA	754-91-6	ND	9.86	9.85	100		9.94	10.0	99.4	0.602		67-137	30	20-Nov-19 00:09	1	20-Nov-19 00:19	1
PFOS	1763-23-1	4.67	15.0	9.87	105		15.7	10.0	110	4.65		68-136	30	20-Nov-19 00:09	1	20-Nov-19 00:19	1
PFDA	335-76-2	ND	10.4	9.85	106		11.0	10.0	110	3.70		69-133	30	20-Nov-19 00:09	1	20-Nov-19 00:19	1
8:2 FTS	39108-34-4	ND	9.24	9.85	93.8		13.0	10.0	130	32.4	H	65-137	30	20-Nov-19 00:09	1	20-Nov-19 00:19	1
MeFOSAA	2355-31-9	ND	11.1	9.85	112		8.92	10.0	89.2	22.7		63-144	30	20-Nov-19 00:09	1	20-Nov-19 00:19	1
EtFOSAA	2991-50-6	ND	9.46	9.85	96.0		12.2	10.0	122	23.9		61-139	30	20-Nov-19 00:09	1	20-Nov-19 00:19	1
PFUnA	2058-94-8	ND	10.6	9.85	108		11.6	10.0	116	7.14		64-136	30	20-Nov-19 00:09	1	20-Nov-19 00:19	1
PFDS	335-77-3	ND	10.9	9.87	111		10.6	10.0	106	4.61		59-134	30	20-Nov-19 00:09	1	20-Nov-19 00:19	1
PFDoA	307-55-1	ND	11.7	9.85	119		11.5	10.0	115	3.42		69-135	30	20-Nov-19 00:09	1	20-Nov-19 00:19	1
PFTrDA	72629-94-8	ND	10.3	9.85	104		10.3	10.0	103	0.966		66-139	30	20-Nov-19 00:09	1	20-Nov-19 00:19	1
PFTeDA	376-06-7	ND	11.1	9.85	112		11.5	10.0	115	2.64		69-133	30	20-Nov-19 00:09	1	20-Nov-19 00:19	1

Labeled Standards	Type	MS % Rec	MS Quals	MSD % Rec	MSD Quals	Limits	MS Analyzed	MS Dil	MSD Analyzed	MSD Dil
13C3-PFBA	IS	164	H	154	H	50-150	20-Nov-19 00:09	1	20-Nov-19 00:19	1
13C3-PFPeA	IS	80.4		79.3		50-150	20-Nov-19 00:09	1	20-Nov-19 00:19	1
13C3-PFBS	IS	75.8		79.0		50-150	20-Nov-19 00:09	1	20-Nov-19 00:19	1
13C2-4:2 FTS	IS	92.5		100		50-150	20-Nov-19 00:09	1	20-Nov-19 00:19	1
13C2-PFHxA	IS	78.8		81.0		50-150	20-Nov-19 00:09	1	20-Nov-19 00:19	1
13C4-PFHpA	IS	80.4		82.8		50-150	20-Nov-19 00:09	1	20-Nov-19 00:19	1
13C3-PFHxS	IS	86.6		80.8		50-150	20-Nov-19 00:09	1	20-Nov-19 00:19	1
13C2-6:2 FTS	IS	85.0		82.3		50-150	20-Nov-19 00:09	1	20-Nov-19 00:19	1

Sample ID: L3-3-1 **PFAS Isotope Dilution Method**

Name:	Woodard & Curran	Lab Sample:	B9K0012-MS1/B9K0012-MSD1	Source Lab Sample:	1903824-03
Project:	SJC PFAS Investigation	QC Batch:	B9K0012	Date Extracted:	11-Nov-19
Matrix:	Solid	Samp Size:	1.17/1.15 g	Column:	BEH C18

Labeled Standards	Type	MS % Rec	MS Quals	MSD % Rec	MSD Quals	Limits	MS Analyzed	MS Dil	MSD Analyzed	MSD Dil
13C5-PFNA	IS	67.5		70.2		50 - 150	20-Nov-19 00:09	1	20-Nov-19 00:19	1
13C8-PFOSA	IS	48.0	H	31.5	H	50 - 150	20-Nov-19 00:09	1	20-Nov-19 00:19	1
13C2-PFOA	IS	76.6		79.9		50 - 150	20-Nov-19 00:09	1	20-Nov-19 00:19	1
13C8-PFOS	IS	80.7		82.4		50 - 150	20-Nov-19 00:09	1	20-Nov-19 00:19	1
13C2-PFDA	IS	63.2		61.4		50 - 150	20-Nov-19 00:09	1	20-Nov-19 00:19	1
13C2-8:2 FTS	IS	102		84.7		50 - 150	20-Nov-19 00:09	1	20-Nov-19 00:19	1
d3-MeFOSAA	IS	53.5		72.6		50 - 150	20-Nov-19 00:09	1	20-Nov-19 00:19	1
13C2-PFUnA	IS	67.2		64.0		50 - 150	20-Nov-19 00:09	1	20-Nov-19 00:19	1
d5-EtFOSAA	IS	54.7		61.8		50 - 150	20-Nov-19 00:09	1	20-Nov-19 00:19	1
13C2-PFDoA	IS	64.5		63.3		50 - 150	20-Nov-19 00:09	1	20-Nov-19 00:19	1
13C2-PFTeDA	IS	46.2	H	49.0	H	50 - 150	20-Nov-19 00:09	1	20-Nov-19 00:19	1

Sample ID: L3-3-5 **PFAS Isotope Dilution Method**

Client Data				**Laboratory Data**			
Name:	Woodard & Curran	Matrix:	Soil	Lab Sample:	1903824-05	Column:	BEH C18
Project:	SJC PFAS Investigation	Date Collected:	23-Oct-19 12:30	Date Received:	25-Oct-19 08:40		
Location:	3			% Solids:	75.0		

Analyte	CAS Number	Conc. (ng/g)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	ND	1.99		B9K0012	11-Nov-19	1.34 g	20-Nov-19 00:40	1
PFPeA	2706-90-3	ND	1.99		B9K0012	11-Nov-19	1.34 g	20-Nov-19 00:40	1
PFBS	375-73-5	ND	1.99		B9K0012	11-Nov-19	1.34 g	20-Nov-19 00:40	1
4:2 FTS	757124-72-4	ND	1.99		B9K0012	11-Nov-19	1.34 g	20-Nov-19 00:40	1
PFHxA	307-24-4	ND	1.99		B9K0012	11-Nov-19	1.34 g	20-Nov-19 00:40	1
PFPeS	2706-91-4	ND	1.99		B9K0012	11-Nov-19	1.34 g	20-Nov-19 00:40	1
PFHpA	375-85-9	ND	1.99		B9K0012	11-Nov-19	1.34 g	20-Nov-19 00:40	1
PFHxS	355-46-4	ND	1.99		B9K0012	11-Nov-19	1.34 g	20-Nov-19 00:40	1
6:2 FTS	27619-97-2	ND	1.99		B9K0012	11-Nov-19	1.34 g	20-Nov-19 00:40	1
PFOA	335-67-1	ND	1.99		B9K0012	11-Nov-19	1.34 g	20-Nov-19 00:40	1
PFHpS	375-92-8	ND	1.99		B9K0012	11-Nov-19	1.34 g	20-Nov-19 00:40	1
PFNA	375-95-1	ND	1.99		B9K0012	11-Nov-19	1.34 g	20-Nov-19 00:40	1
PFOSA	754-91-6	ND	1.99		B9K0012	11-Nov-19	1.34 g	20-Nov-19 00:40	1
PFOS	1763-23-1	ND	1.99		B9K0012	11-Nov-19	1.34 g	20-Nov-19 00:40	1
PFDA	335-76-2	ND	1.99		B9K0012	11-Nov-19	1.34 g	20-Nov-19 00:40	1
8:2 FTS	39108-34-4	ND	1.99		B9K0012	11-Nov-19	1.34 g	20-Nov-19 00:40	1
MeFOSAA	2355-31-9	ND	1.99		B9K0012	11-Nov-19	1.34 g	20-Nov-19 00:40	1
EtFOSAA	2991-50-6	ND	1.99		B9K0012	11-Nov-19	1.34 g	20-Nov-19 00:40	1
PFUnA	2058-94-8	ND	1.99		B9K0012	11-Nov-19	1.34 g	20-Nov-19 00:40	1
PFDS	335-77-3	ND	1.99		B9K0012	11-Nov-19	1.34 g	20-Nov-19 00:40	1
PFDoA	307-55-1	ND	1.99		B9K0012	11-Nov-19	1.34 g	20-Nov-19 00:40	1
PFTrDA	72629-94-8	ND	1.99		B9K0012	11-Nov-19	1.34 g	20-Nov-19 00:40	1
PFTeDA	376-06-7	ND	1.99		B9K0012	11-Nov-19	1.34 g	20-Nov-19 00:40	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	165	50 - 150	H	B9K0012	11-Nov-19	1.34 g	20-Nov-19 00:40	1
13C3-PFPeA	IS	85.1	50 - 150		B9K0012	11-Nov-19	1.34 g	20-Nov-19 00:40	1
13C3-PFBS	IS	87.5	50 - 150		B9K0012	11-Nov-19	1.34 g	20-Nov-19 00:40	1
13C2-4:2 FTS	IS	85.3	50 - 150		B9K0012	11-Nov-19	1.34 g	20-Nov-19 00:40	1
13C2-PFHxA	IS	84.8	50 - 150		B9K0012	11-Nov-19	1.34 g	20-Nov-19 00:40	1
13C4-PFHpA	IS	81.6	50 - 150		B9K0012	11-Nov-19	1.34 g	20-Nov-19 00:40	1
13C3-PFHxS	IS	92.6	50 - 150		B9K0012	11-Nov-19	1.34 g	20-Nov-19 00:40	1
13C2-6:2 FTS	IS	89.2	50 - 150		B9K0012	11-Nov-19	1.34 g	20-Nov-19 00:40	1
13C5-PFNA	IS	69.8	50 - 150		B9K0012	11-Nov-19	1.34 g	20-Nov-19 00:40	1
13C8-PFOSA	IS	50.0	50 - 150		B9K0012	11-Nov-19	1.34 g	20-Nov-19 00:40	1
13C2-PFOA	IS	75.6	50 - 150		B9K0012	11-Nov-19	1.34 g	20-Nov-19 00:40	1
13C8-PFOS	IS	79.0	50 - 150		B9K0012	11-Nov-19	1.34 g	20-Nov-19 00:40	1
13C2-PFDA	IS	60.3	50 - 150		B9K0012	11-Nov-19	1.34 g	20-Nov-19 00:40	1
13C2-8:2 FTS	IS	107	50 - 150		B9K0012	11-Nov-19	1.34 g	20-Nov-19 00:40	1

Sample ID: L3-3-5 **PFAS Isotope Dilution Method**

Client Data			
Name:	Woodard & Curran	Matrix:	Soil
Project:	SJC PFAS Investigation	Date Collected:	23-Oct-19 12:30
Location:	3		

Laboratory Data			
Lab Sample:	1903824-05	Column:	BEH C18
Date Received:	25-Oct-19 08:40		
% Solids:	75.0		

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
d3-MeFOSAA	IS	61.5	50 - 150		B9K0012	11-Nov-19	1.34 g	20-Nov-19 00:40	1
13C2-PFUnA	IS	63.6	50 - 150		B9K0012	11-Nov-19	1.34 g	20-Nov-19 00:40	1
d5-EtFOSAA	IS	55.6	50 - 150		B9K0012	11-Nov-19	1.34 g	20-Nov-19 00:40	1
13C2-PFDoA	IS	59.5	50 - 150		B9K0012	11-Nov-19	1.34 g	20-Nov-19 00:40	1
13C2-PFTeDA	IS	63.7	50 - 150		B9K0012	11-Nov-19	1.34 g	20-Nov-19 00:40	1

RL - Reporting limit

The results are reported in dry weight.
The sample size is reported in wet weight.
Results reported to RL.

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

Sample ID: L3-3-10 **PFAS Isotope Dilution Method**

Client Data				**Laboratory Data**			
Name:	Woodard & Curran	Matrix:	Soil	Lab Sample:	1903824-06	Column:	BEH C18
Project:	SJC PFAS Investigation	Date Collected:	23-Oct-19 12:32	Date Received:	25-Oct-19 08:40		
Location:	3			% Solids:	79.1		

Analyte	CAS Number	Conc. (ng/g)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	ND	1.99		B9K0012	11-Nov-19	1.27 g	20-Nov-19 00:51	1
PFPeA	2706-90-3	ND	1.99		B9K0012	11-Nov-19	1.27 g	20-Nov-19 00:51	1
PFBS	375-73-5	ND	1.99		B9K0012	11-Nov-19	1.27 g	20-Nov-19 00:51	1
4:2 FTS	757124-72-4	ND	1.99		B9K0012	11-Nov-19	1.27 g	20-Nov-19 00:51	1
PFHxA	307-24-4	ND	1.99		B9K0012	11-Nov-19	1.27 g	20-Nov-19 00:51	1
PFPeS	2706-91-4	ND	1.99		B9K0012	11-Nov-19	1.27 g	20-Nov-19 00:51	1
PFHpA	375-85-9	ND	1.99		B9K0012	11-Nov-19	1.27 g	20-Nov-19 00:51	1
PFHxS	355-46-4	ND	1.99		B9K0012	11-Nov-19	1.27 g	20-Nov-19 00:51	1
6:2 FTS	27619-97-2	ND	1.99		B9K0012	11-Nov-19	1.27 g	20-Nov-19 00:51	1
PFOA	335-67-1	ND	1.99		B9K0012	11-Nov-19	1.27 g	20-Nov-19 00:51	1
PFHpS	375-92-8	ND	1.99		B9K0012	11-Nov-19	1.27 g	20-Nov-19 00:51	1
PFNA	375-95-1	ND	1.99		B9K0012	11-Nov-19	1.27 g	20-Nov-19 00:51	1
PFOSA	754-91-6	ND	1.99		B9K0012	11-Nov-19	1.27 g	20-Nov-19 00:51	1
PFOS	1763-23-1	ND	1.99		B9K0012	11-Nov-19	1.27 g	20-Nov-19 00:51	1
PFDA	335-76-2	ND	1.99		B9K0012	11-Nov-19	1.27 g	20-Nov-19 00:51	1
8:2 FTS	39108-34-4	ND	1.99		B9K0012	11-Nov-19	1.27 g	20-Nov-19 00:51	1
MeFOSAA	2355-31-9	ND	1.99		B9K0012	11-Nov-19	1.27 g	20-Nov-19 00:51	1
EtFOSAA	2991-50-6	ND	1.99		B9K0012	11-Nov-19	1.27 g	20-Nov-19 00:51	1
PFUnA	2058-94-8	ND	1.99		B9K0012	11-Nov-19	1.27 g	20-Nov-19 00:51	1
PFDS	335-77-3	ND	1.99		B9K0012	11-Nov-19	1.27 g	20-Nov-19 00:51	1
PFDoA	307-55-1	ND	1.99		B9K0012	11-Nov-19	1.27 g	20-Nov-19 00:51	1
PFTrDA	72629-94-8	ND	1.99		B9K0012	11-Nov-19	1.27 g	20-Nov-19 00:51	1
PFTeDA	376-06-7	ND	1.99		B9K0012	11-Nov-19	1.27 g	20-Nov-19 00:51	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	153	50 - 150	H	B9K0012	11-Nov-19	1.27 g	20-Nov-19 00:51	1
13C3-PFPeA	IS	80.2	50 - 150		B9K0012	11-Nov-19	1.27 g	20-Nov-19 00:51	1
13C3-PFBS	IS	94.4	50 - 150		B9K0012	11-Nov-19	1.27 g	20-Nov-19 00:51	1
13C2-4:2 FTS	IS	96.4	50 - 150		B9K0012	11-Nov-19	1.27 g	20-Nov-19 00:51	1
13C2-PFHxA	IS	77.6	50 - 150		B9K0012	11-Nov-19	1.27 g	20-Nov-19 00:51	1
13C4-PFHpA	IS	77.8	50 - 150		B9K0012	11-Nov-19	1.27 g	20-Nov-19 00:51	1
13C3-PFHxS	IS	103	50 - 150		B9K0012	11-Nov-19	1.27 g	20-Nov-19 00:51	1
13C2-6:2 FTS	IS	89.7	50 - 150		B9K0012	11-Nov-19	1.27 g	20-Nov-19 00:51	1
13C5-PFNA	IS	75.3	50 - 150		B9K0012	11-Nov-19	1.27 g	20-Nov-19 00:51	1
13C8-PFOSA	IS	44.1	50 - 150	H	B9K0012	11-Nov-19	1.27 g	20-Nov-19 00:51	1
13C2-PFOA	IS	78.5	50 - 150		B9K0012	11-Nov-19	1.27 g	20-Nov-19 00:51	1
13C8-PFOS	IS	87.0	50 - 150		B9K0012	11-Nov-19	1.27 g	20-Nov-19 00:51	1
13C2-PFDA	IS	71.3	50 - 150		B9K0012	11-Nov-19	1.27 g	20-Nov-19 00:51	1
13C2-8:2 FTS	IS	85.6	50 - 150		B9K0012	11-Nov-19	1.27 g	20-Nov-19 00:51	1

Sample ID: L3-3-10 **PFAS Isotope Dilution Method**

Client Data				**Laboratory Data**			
Name:	Woodard & Curran	Matrix:	Soil	Lab Sample:	1903824-06	Column:	BEH C18
Project:	SJC PFAS Investigation	Date Collected:	23-Oct-19 12:32	Date Received:	25-Oct-19 08:40		
Location:	3			% Solids:	79.1		

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
d3-MeFOSAA	IS	67.8	50 - 150		B9K0012	11-Nov-19	1.27 g	20-Nov-19 00:51	1
13C2-PFUnA	IS	65.9	50 - 150		B9K0012	11-Nov-19	1.27 g	20-Nov-19 00:51	1
d5-EtFOSAA	IS	71.1	50 - 150		B9K0012	11-Nov-19	1.27 g	20-Nov-19 00:51	1
13C2-PFDoA	IS	61.9	50 - 150		B9K0012	11-Nov-19	1.27 g	20-Nov-19 00:51	1
13C2-PFTeDA	IS	67.8	50 - 150		B9K0012	11-Nov-19	1.27 g	20-Nov-19 00:51	1

RL - Reporting limit

The results are reported in dry weight.
The sample size is reported in wet weight.
Results reported to RL.

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

Sample ID: L3-1-1 **PFAS Isotope Dilution Method**

Client Data

Name: Woodard & Curran
Project: SJC PFAS Investigation
Location: 3
Matrix: Soil
Date Collected: 23-Oct-19 13:42

Laboratory Data

Lab Sample: 1903824-08
Date Received: 25-Oct-19 08:40
% Solids: 83.5
Column: BEH C18

Analyte	CAS Number	Conc. (ng/g)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	ND	1.96		B9K0012	11-Nov-19	1.22 g	20-Nov-19 01:01	1
PFPeA	2706-90-3	ND	1.96		B9K0012	11-Nov-19	1.22 g	20-Nov-19 01:01	1
PFBS	375-73-5	ND	1.96		B9K0012	11-Nov-19	1.22 g	20-Nov-19 01:01	1
4:2 FTS	757124-72-4	ND	1.96		B9K0012	11-Nov-19	1.22 g	20-Nov-19 01:01	1
PFHxA	307-24-4	ND	1.96		B9K0012	11-Nov-19	1.22 g	20-Nov-19 01:01	1
PFPeS	2706-91-4	ND	1.96		B9K0012	11-Nov-19	1.22 g	20-Nov-19 01:01	1
PFHpA	375-85-9	ND	1.96		B9K0012	11-Nov-19	1.22 g	20-Nov-19 01:01	1
PFHxS	355-46-4	ND	1.96		B9K0012	11-Nov-19	1.22 g	20-Nov-19 01:01	1
6:2 FTS	27619-97-2	ND	1.96		B9K0012	11-Nov-19	1.22 g	20-Nov-19 01:01	1
PFOA	335-67-1	ND	1.96		B9K0012	11-Nov-19	1.22 g	20-Nov-19 01:01	1
PFHpS	375-92-8	ND	1.96		B9K0012	11-Nov-19	1.22 g	20-Nov-19 01:01	1
PFNA	375-95-1	ND	1.96		B9K0012	11-Nov-19	1.22 g	20-Nov-19 01:01	1
PFOSA	754-91-6	ND	1.96		B9K0012	11-Nov-19	1.22 g	20-Nov-19 01:01	1
PFOS	1763-23-1	14.8	1.96		B9K0012	11-Nov-19	1.22 g	20-Nov-19 01:01	1
PFDA	335-76-2	ND	1.96		B9K0012	11-Nov-19	1.22 g	20-Nov-19 01:01	1
8:2 FTS	39108-34-4	ND	1.96		B9K0012	11-Nov-19	1.22 g	20-Nov-19 01:01	1
MeFOSAA	2355-31-9	ND	1.96		B9K0012	11-Nov-19	1.22 g	20-Nov-19 01:01	1
EtFOSAA	2991-50-6	ND	1.96		B9K0012	11-Nov-19	1.22 g	20-Nov-19 01:01	1
PFUnA	2058-94-8	ND	1.96		B9K0012	11-Nov-19	1.22 g	20-Nov-19 01:01	1
PFDS	335-77-3	ND	1.96		B9K0012	11-Nov-19	1.22 g	20-Nov-19 01:01	1
PFDoA	307-55-1	ND	1.96		B9K0012	11-Nov-19	1.22 g	20-Nov-19 01:01	1
PFTrDA	72629-94-8	ND	1.96		B9K0012	11-Nov-19	1.22 g	20-Nov-19 01:01	1
PFTeDA	376-06-7	ND	1.96		B9K0012	11-Nov-19	1.22 g	20-Nov-19 01:01	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	172	50 - 150	H	B9K0012	11-Nov-19	1.22 g	20-Nov-19 01:01	1
13C3-PFPeA	IS	88.7	50 - 150		B9K0012	11-Nov-19	1.22 g	20-Nov-19 01:01	1
13C3-PFBS	IS	85.7	50 - 150		B9K0012	11-Nov-19	1.22 g	20-Nov-19 01:01	1
13C2-4:2 FTS	IS	86.3	50 - 150		B9K0012	11-Nov-19	1.22 g	20-Nov-19 01:01	1
13C2-PFHxA	IS	87.9	50 - 150		B9K0012	11-Nov-19	1.22 g	20-Nov-19 01:01	1
13C4-PFHpA	IS	83.3	50 - 150		B9K0012	11-Nov-19	1.22 g	20-Nov-19 01:01	1
13C3-PFHxS	IS	100	50 - 150		B9K0012	11-Nov-19	1.22 g	20-Nov-19 01:01	1
13C2-6:2 FTS	IS	83.6	50 - 150		B9K0012	11-Nov-19	1.22 g	20-Nov-19 01:01	1
13C5-PFNA	IS	75.2	50 - 150		B9K0012	11-Nov-19	1.22 g	20-Nov-19 01:01	1
13C8-PFOSA	IS	46.4	50 - 150	H	B9K0012	11-Nov-19	1.22 g	20-Nov-19 01:01	1
13C2-PFOA	IS	81.0	50 - 150		B9K0012	11-Nov-19	1.22 g	20-Nov-19 01:01	1
13C8-PFOS	IS	90.1	50 - 150		B9K0012	11-Nov-19	1.22 g	20-Nov-19 01:01	1
13C2-PFDA	IS	67.2	50 - 150		B9K0012	11-Nov-19	1.22 g	20-Nov-19 01:01	1
13C2-8:2 FTS	IS	95.1	50 - 150		B9K0012	11-Nov-19	1.22 g	20-Nov-19 01:01	1

Sample ID: L3-1-1

PFAS Isotope Dilution Method

Client Data			
Name:	Woodard & Curran	Matrix:	Soil
Project:	SJC PFAS Investigation	Date Collected:	23-Oct-19 13:42
Location:	3		

Laboratory Data			
Lab Sample:	1903824-08	Column:	BEH C18
Date Received:	25-Oct-19 08:40		
% Solids:	83.5		

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
d3-MeFOSAA	IS	61.6	50 - 150		B9K0012	11-Nov-19	1.22 g	20-Nov-19 01:01	1
13C2-PFUnA	IS	70.4	50 - 150		B9K0012	11-Nov-19	1.22 g	20-Nov-19 01:01	1
d5-EtFOSAA	IS	53.6	50 - 150		B9K0012	11-Nov-19	1.22 g	20-Nov-19 01:01	1
13C2-PFDoA	IS	70.2	50 - 150		B9K0012	11-Nov-19	1.22 g	20-Nov-19 01:01	1
13C2-PFTeDA	IS	53.3	50 - 150		B9K0012	11-Nov-19	1.22 g	20-Nov-19 01:01	1

RL - Reporting limit

The results are reported in dry weight.
The sample size is reported in wet weight.
Results reported to RL.

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

Sample ID: L3-1-5 **PFAS Isotope Dilution Method**

Client Data				**Laboratory Data**			
Name:	Woodard & Curran	Matrix:	Soil	Lab Sample:	1903824-09	Column:	BEH C18
Project:	SJC PFAS Investigation	Date Collected:	23-Oct-19 13:46	Date Received:	25-Oct-19 08:40		
Location:	3			% Solids:	73.1		

Analyte	CAS Number	Conc. (ng/g)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	ND	1.97		B9K0012	11-Nov-19	1.39 g	20-Nov-19 01:12	1
PFPeA	2706-90-3	ND	1.97		B9K0012	11-Nov-19	1.39 g	20-Nov-19 01:12	1
PFBS	375-73-5	ND	1.97		B9K0012	11-Nov-19	1.39 g	20-Nov-19 01:12	1
4:2 FTS	757124-72-4	ND	1.97		B9K0012	11-Nov-19	1.39 g	20-Nov-19 01:12	1
PFHxA	307-24-4	ND	1.97		B9K0012	11-Nov-19	1.39 g	20-Nov-19 01:12	1
PFPeS	2706-91-4	ND	1.97		B9K0012	11-Nov-19	1.39 g	20-Nov-19 01:12	1
PFHpA	375-85-9	ND	1.97		B9K0012	11-Nov-19	1.39 g	20-Nov-19 01:12	1
PFHxS	355-46-4	ND	1.97		B9K0012	11-Nov-19	1.39 g	20-Nov-19 01:12	1
6:2 FTS	27619-97-2	ND	1.97		B9K0012	11-Nov-19	1.39 g	20-Nov-19 01:12	1
PFOA	335-67-1	ND	1.97		B9K0012	11-Nov-19	1.39 g	20-Nov-19 01:12	1
PFHpS	375-92-8	ND	1.97		B9K0012	11-Nov-19	1.39 g	20-Nov-19 01:12	1
PFNA	375-95-1	ND	1.97		B9K0012	11-Nov-19	1.39 g	20-Nov-19 01:12	1
PFOSA	754-91-6	ND	1.97		B9K0012	11-Nov-19	1.39 g	20-Nov-19 01:12	1
PFOS	1763-23-1	ND	1.97		B9K0012	11-Nov-19	1.39 g	20-Nov-19 01:12	1
PFDA	335-76-2	ND	1.97		B9K0012	11-Nov-19	1.39 g	20-Nov-19 01:12	1
8:2 FTS	39108-34-4	ND	1.97		B9K0012	11-Nov-19	1.39 g	20-Nov-19 01:12	1
MeFOSAA	2355-31-9	ND	1.97		B9K0012	11-Nov-19	1.39 g	20-Nov-19 01:12	1
EtFOSAA	2991-50-6	ND	1.97		B9K0012	11-Nov-19	1.39 g	20-Nov-19 01:12	1
PFUnA	2058-94-8	ND	1.97		B9K0012	11-Nov-19	1.39 g	20-Nov-19 01:12	1
PFDS	335-77-3	ND	1.97		B9K0012	11-Nov-19	1.39 g	20-Nov-19 01:12	1
PFDoA	307-55-1	ND	1.97		B9K0012	11-Nov-19	1.39 g	20-Nov-19 01:12	1
PFTrDA	72629-94-8	ND	1.97		B9K0012	11-Nov-19	1.39 g	20-Nov-19 01:12	1
PFTeDA	376-06-7	ND	1.97		B9K0012	11-Nov-19	1.39 g	20-Nov-19 01:12	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	154	50 - 150	H	B9K0012	11-Nov-19	1.39 g	20-Nov-19 01:12	1
13C3-PFPeA	IS	79.3	50 - 150		B9K0012	11-Nov-19	1.39 g	20-Nov-19 01:12	1
13C3-PFBS	IS	82.4	50 - 150		B9K0012	11-Nov-19	1.39 g	20-Nov-19 01:12	1
13C2-4:2 FTS	IS	87.3	50 - 150		B9K0012	11-Nov-19	1.39 g	20-Nov-19 01:12	1
13C2-PFHxA	IS	84.3	50 - 150		B9K0012	11-Nov-19	1.39 g	20-Nov-19 01:12	1
13C4-PFHpA	IS	78.4	50 - 150		B9K0012	11-Nov-19	1.39 g	20-Nov-19 01:12	1
13C3-PFHxS	IS	88.1	50 - 150		B9K0012	11-Nov-19	1.39 g	20-Nov-19 01:12	1
13C2-6:2 FTS	IS	79.6	50 - 150		B9K0012	11-Nov-19	1.39 g	20-Nov-19 01:12	1
13C5-PFNA	IS	68.0	50 - 150		B9K0012	11-Nov-19	1.39 g	20-Nov-19 01:12	1
13C8-PFOSA	IS	31.6	50 - 150	H	B9K0012	11-Nov-19	1.39 g	20-Nov-19 01:12	1
13C2-PFOA	IS	75.5	50 - 150		B9K0012	11-Nov-19	1.39 g	20-Nov-19 01:12	1
13C8-PFOS	IS	88.4	50 - 150		B9K0012	11-Nov-19	1.39 g	20-Nov-19 01:12	1
13C2-PFDA	IS	62.7	50 - 150		B9K0012	11-Nov-19	1.39 g	20-Nov-19 01:12	1
13C2-8:2 FTS	IS	100	50 - 150		B9K0012	11-Nov-19	1.39 g	20-Nov-19 01:12	1

Sample ID: L3-1-5 **PFAS Isotope Dilution Method**

Client Data				**Laboratory Data**			
Name:	Woodard & Curran	Matrix:	Soil	Lab Sample:	1903824-09	Column:	BEH C18
Project:	SJC PFAS Investigation	Date Collected:	23-Oct-19 13:46	Date Received:	25-Oct-19 08:40		
Location:	3			% Solids:	73.1		

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
d3-MeFOSAA	IS	54.3	50 - 150		B9K0012	11-Nov-19	1.39 g	20-Nov-19 01:12	1
13C2-PFUnA	IS	59.5	50 - 150		B9K0012	11-Nov-19	1.39 g	20-Nov-19 01:12	1
d5-EtFOSAA	IS	46.5	50 - 150	H	B9K0012	11-Nov-19	1.39 g	20-Nov-19 01:12	1
13C2-PFDoA	IS	54.7	50 - 150		B9K0012	11-Nov-19	1.39 g	20-Nov-19 01:12	1
13C2-PFTeDA	IS	65.6	50 - 150		B9K0012	11-Nov-19	1.39 g	20-Nov-19 01:12	1

RL - Reporting limit

The results are reported in dry weight.
The sample size is reported in wet weight.
Results reported to RL.

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

Sample ID: L3-1-10

PFAS Isotope Dilution Method

Client Data

Name: Woodard & Curran
Project: SJC PFAS Investigation
Location: 3
Matrix: Soil
Date Collected: 23-Oct-19 13:55

Laboratory Data

Lab Sample: 1903824-10
Date Received: 25-Oct-19 08:40
% Solids: 79.9
Column: BEH C18

Analyte	CAS Number	Conc. (ng/g)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	ND	2.00		B9K0012	11-Nov-19	1.25 g	20-Nov-19 01:22	1
PFPeA	2706-90-3	ND	2.00		B9K0012	11-Nov-19	1.25 g	20-Nov-19 01:22	1
PFBS	375-73-5	ND	2.00		B9K0012	11-Nov-19	1.25 g	20-Nov-19 01:22	1
4:2 FTS	757124-72-4	ND	2.00		B9K0012	11-Nov-19	1.25 g	20-Nov-19 01:22	1
PFHxA	307-24-4	ND	2.00		B9K0012	11-Nov-19	1.25 g	20-Nov-19 01:22	1
PFPeS	2706-91-4	ND	2.00		B9K0012	11-Nov-19	1.25 g	20-Nov-19 01:22	1
PFHpA	375-85-9	ND	2.00		B9K0012	11-Nov-19	1.25 g	20-Nov-19 01:22	1
PFHxS	355-46-4	ND	2.00		B9K0012	11-Nov-19	1.25 g	20-Nov-19 01:22	1
6:2 FTS	27619-97-2	ND	2.00		B9K0012	11-Nov-19	1.25 g	20-Nov-19 01:22	1
PFOA	335-67-1	ND	2.00		B9K0012	11-Nov-19	1.25 g	20-Nov-19 01:22	1
PFHpS	375-92-8	ND	2.00		B9K0012	11-Nov-19	1.25 g	20-Nov-19 01:22	1
PFNA	375-95-1	ND	2.00		B9K0012	11-Nov-19	1.25 g	20-Nov-19 01:22	1
PFOSA	754-91-6	ND	2.00		B9K0012	11-Nov-19	1.25 g	20-Nov-19 01:22	1
PFOS	1763-23-1	ND	2.00		B9K0012	11-Nov-19	1.25 g	20-Nov-19 01:22	1
PFDA	335-76-2	ND	2.00		B9K0012	11-Nov-19	1.25 g	20-Nov-19 01:22	1
8:2 FTS	39108-34-4	ND	2.00		B9K0012	11-Nov-19	1.25 g	20-Nov-19 01:22	1
MeFOSAA	2355-31-9	ND	2.00		B9K0012	11-Nov-19	1.25 g	20-Nov-19 01:22	1
EtFOSAA	2991-50-6	ND	2.00		B9K0012	11-Nov-19	1.25 g	20-Nov-19 01:22	1
PFUnA	2058-94-8	ND	2.00		B9K0012	11-Nov-19	1.25 g	20-Nov-19 01:22	1
PFDS	335-77-3	ND	2.00		B9K0012	11-Nov-19	1.25 g	20-Nov-19 01:22	1
PFDoA	307-55-1	ND	2.00		B9K0012	11-Nov-19	1.25 g	20-Nov-19 01:22	1
PFTrDA	72629-94-8	ND	2.00		B9K0012	11-Nov-19	1.25 g	20-Nov-19 01:22	1
PFTeDA	376-06-7	ND	2.00		B9K0012	11-Nov-19	1.25 g	20-Nov-19 01:22	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	121	50 - 150		B9K0012	11-Nov-19	1.25 g	20-Nov-19 01:22	1
13C3-PFPeA	IS	58.5	50 - 150		B9K0012	11-Nov-19	1.25 g	20-Nov-19 01:22	1
13C3-PFBS	IS	75.1	50 - 150		B9K0012	11-Nov-19	1.25 g	20-Nov-19 01:22	1
13C2-4:2 FTS	IS	80.1	50 - 150		B9K0012	11-Nov-19	1.25 g	20-Nov-19 01:22	1
13C2-PFHxA	IS	54.2	50 - 150		B9K0012	11-Nov-19	1.25 g	20-Nov-19 01:22	1
13C4-PFHpA	IS	56.7	50 - 150		B9K0012	11-Nov-19	1.25 g	20-Nov-19 01:22	1
13C3-PFHxS	IS	83.7	50 - 150		B9K0012	11-Nov-19	1.25 g	20-Nov-19 01:22	1
13C2-6:2 FTS	IS	67.7	50 - 150		B9K0012	11-Nov-19	1.25 g	20-Nov-19 01:22	1
13C5-PFNA	IS	50.5	50 - 150		B9K0012	11-Nov-19	1.25 g	20-Nov-19 01:22	1
13C8-PFOSA	IS	28.8	50 - 150	H	B9K0012	11-Nov-19	1.25 g	20-Nov-19 01:22	1
13C2-PFOA	IS	59.0	50 - 150		B9K0012	11-Nov-19	1.25 g	20-Nov-19 01:22	1
13C8-PFOS	IS	78.1	50 - 150		B9K0012	11-Nov-19	1.25 g	20-Nov-19 01:22	1
13C2-PFDA	IS	50.1	50 - 150		B9K0012	11-Nov-19	1.25 g	20-Nov-19 01:22	1
13C2-8:2 FTS	IS	89.8	50 - 150		B9K0012	11-Nov-19	1.25 g	20-Nov-19 01:22	1

Sample ID: L3-1-10 **PFAS Isotope Dilution Method**

Client Data				**Laboratory Data**			
Name:	Woodard & Curran	Matrix:	Soil	Lab Sample:	1903824-10	Column:	BEH C18
Project:	SJC PFAS Investigation	Date Collected:	23-Oct-19 13:55	Date Received:	25-Oct-19 08:40		
Location:	3			% Solids:	79.9		

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
d3-MeFOSAA	IS	50.8	50 - 150		B9K0012	11-Nov-19	1.25 g	20-Nov-19 01:22	1
13C2-PFUnA	IS	46.5	50 - 150	H	B9K0012	11-Nov-19	1.25 g	20-Nov-19 01:22	1
d5-EtFOSAA	IS	43.2	50 - 150	H	B9K0012	11-Nov-19	1.25 g	20-Nov-19 01:22	1
13C2-PFDoA	IS	43.7	50 - 150	H	B9K0012	11-Nov-19	1.25 g	20-Nov-19 01:22	1
13C2-PFTeDA	IS	53.0	50 - 150		B9K0012	11-Nov-19	1.25 g	20-Nov-19 01:22	1

RL - Reporting limit

The results are reported in dry weight.
The sample size is reported in wet weight.
Results reported to RL.

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

Sample ID: L3-2-1 **PFAS Isotope Dilution Method**

Client Data				**Laboratory Data**			
Name:	Woodard & Curran	Matrix:	Soil	Lab Sample:	1903824-11	Column:	BEH C18
Project:	SJC PFAS Investigation	Date Collected:	23-Oct-19 13:11	Date Received:	25-Oct-19 08:40		
Location:	3			% Solids:	83.6		

Analyte	CAS Number	Conc. (ng/g)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	ND	1.99		B9K0012	11-Nov-19	1.20 g	20-Nov-19 01:33	1
PFPeA	2706-90-3	ND	1.99		B9K0012	11-Nov-19	1.20 g	20-Nov-19 01:33	1
PFBS	375-73-5	ND	1.99		B9K0012	11-Nov-19	1.20 g	20-Nov-19 01:33	1
4:2 FTS	757124-72-4	ND	1.99		B9K0012	11-Nov-19	1.20 g	20-Nov-19 01:33	1
PFHxA	307-24-4	ND	1.99		B9K0012	11-Nov-19	1.20 g	20-Nov-19 01:33	1
PFPeS	2706-91-4	ND	1.99		B9K0012	11-Nov-19	1.20 g	20-Nov-19 01:33	1
PFHpA	375-85-9	ND	1.99		B9K0012	11-Nov-19	1.20 g	20-Nov-19 01:33	1
PFHxS	355-46-4	9.56	1.99		B9K0012	11-Nov-19	1.20 g	20-Nov-19 01:33	1
6:2 FTS	27619-97-2	ND	1.99		B9K0012	11-Nov-19	1.20 g	20-Nov-19 01:33	1
PFOA	335-67-1	ND	1.99		B9K0012	11-Nov-19	1.20 g	20-Nov-19 01:33	1
PFHpS	375-92-8	ND	1.99		B9K0012	11-Nov-19	1.20 g	20-Nov-19 01:33	1
PFNA	375-95-1	ND	1.99		B9K0012	11-Nov-19	1.20 g	20-Nov-19 01:33	1
PFOSA	754-91-6	ND	1.99		B9K0012	11-Nov-19	1.20 g	20-Nov-19 01:33	1
PFOS	1763-23-1	26.7	1.99		B9K0012	11-Nov-19	1.20 g	20-Nov-19 01:33	1
PFDA	335-76-2	ND	1.99		B9K0012	11-Nov-19	1.20 g	20-Nov-19 01:33	1
8:2 FTS	39108-34-4	ND	1.99		B9K0012	11-Nov-19	1.20 g	20-Nov-19 01:33	1
MeFOSAA	2355-31-9	ND	1.99		B9K0012	11-Nov-19	1.20 g	20-Nov-19 01:33	1
EtFOSAA	2991-50-6	ND	1.99		B9K0012	11-Nov-19	1.20 g	20-Nov-19 01:33	1
PFUnA	2058-94-8	ND	1.99		B9K0012	11-Nov-19	1.20 g	20-Nov-19 01:33	1
PFDS	335-77-3	ND	1.99		B9K0012	11-Nov-19	1.20 g	20-Nov-19 01:33	1
PFDoA	307-55-1	ND	1.99		B9K0012	11-Nov-19	1.20 g	20-Nov-19 01:33	1
PFTrDA	72629-94-8	ND	1.99		B9K0012	11-Nov-19	1.20 g	20-Nov-19 01:33	1
PFTeDA	376-06-7	ND	1.99		B9K0012	11-Nov-19	1.20 g	20-Nov-19 01:33	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	136	50 - 150		B9K0012	11-Nov-19	1.20 g	20-Nov-19 01:33	1
13C3-PFPeA	IS	68.7	50 - 150		B9K0012	11-Nov-19	1.20 g	20-Nov-19 01:33	1
13C3-PFBS	IS	83.5	50 - 150		B9K0012	11-Nov-19	1.20 g	20-Nov-19 01:33	1
13C2-4:2 FTS	IS	86.5	50 - 150		B9K0012	11-Nov-19	1.20 g	20-Nov-19 01:33	1
13C2-PFHxA	IS	63.4	50 - 150		B9K0012	11-Nov-19	1.20 g	20-Nov-19 01:33	1
13C4-PFHpA	IS	61.4	50 - 150		B9K0012	11-Nov-19	1.20 g	20-Nov-19 01:33	1
13C3-PFHxS	IS	83.2	50 - 150		B9K0012	11-Nov-19	1.20 g	20-Nov-19 01:33	1
13C2-6:2 FTS	IS	76.4	50 - 150		B9K0012	11-Nov-19	1.20 g	20-Nov-19 01:33	1
13C5-PFNA	IS	51.9	50 - 150		B9K0012	11-Nov-19	1.20 g	20-Nov-19 01:33	1
13C8-PFOSA	IS	39.8	50 - 150	H	B9K0012	11-Nov-19	1.20 g	20-Nov-19 01:33	1
13C2-PFOA	IS	55.1	50 - 150		B9K0012	11-Nov-19	1.20 g	20-Nov-19 01:33	1
13C8-PFOS	IS	75.2	50 - 150		B9K0012	11-Nov-19	1.20 g	20-Nov-19 01:33	1
13C2-PFDA	IS	50.3	50 - 150		B9K0012	11-Nov-19	1.20 g	20-Nov-19 01:33	1
13C2-8:2 FTS	IS	72.2	50 - 150		B9K0012	11-Nov-19	1.20 g	20-Nov-19 01:33	1

Sample ID: L3-2-1 **PFAS Isotope Dilution Method**

Client Data				**Laboratory Data**			
Name:	Woodard & Curran	Matrix:	Soil	Lab Sample:	1903824-11	Column:	BEH C18
Project:	SJC PFAS Investigation	Date Collected:	23-Oct-19 13:11	Date Received:	25-Oct-19 08:40		
Location:	3			% Solids:	83.6		

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
d3-MeFOSAA	IS	72.3	50 - 150		B9K0012	11-Nov-19	1.20 g	20-Nov-19 01:33	1
13C2-PFUnA	IS	49.9	50 - 150	H	B9K0012	11-Nov-19	1.20 g	20-Nov-19 01:33	1
d5-EtFOSAA	IS	68.8	50 - 150		B9K0012	11-Nov-19	1.20 g	20-Nov-19 01:33	1
13C2-PFDoA	IS	45.9	50 - 150	H	B9K0012	11-Nov-19	1.20 g	20-Nov-19 01:33	1
13C2-PFTeDA	IS	25.8	50 - 150	H	B9K0012	11-Nov-19	1.20 g	20-Nov-19 01:33	1

RL - Reporting limit

The results are reported in dry weight.
The sample size is reported in wet weight.
Results reported to RL.

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

Sample ID: L3-2-5

PFAS Isotope Dilution Method

Client Data				**Laboratory Data**			
Name:	Woodard & Curran	Matrix:	Soil	Lab Sample:	1903824-12	Column:	BEH C18
Project:	SJC PFAS Investigation	Date Collected:	23-Oct-19 13:18	Date Received:	25-Oct-19 08:40		
Location:	3			% Solids:	74.5		

Analyte	CAS Number	Conc. (ng/g)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	ND	2.00		B9K0012	11-Nov-19	1.34 g	20-Nov-19 02:04	1
PFPeA	2706-90-3	ND	2.00		B9K0012	11-Nov-19	1.34 g	20-Nov-19 02:04	1
PFBS	375-73-5	3.09	2.00		B9K0012	11-Nov-19	1.34 g	20-Nov-19 02:04	1
4:2 FTS	757124-72-4	ND	2.00		B9K0012	11-Nov-19	1.34 g	20-Nov-19 02:04	1
PFHxA	307-24-4	5.16	2.00		B9K0012	11-Nov-19	1.34 g	20-Nov-19 02:04	1
PFPeS	2706-91-4	ND	2.00		B9K0012	11-Nov-19	1.34 g	20-Nov-19 02:04	1
PFHpA	375-85-9	ND	2.00		B9K0012	11-Nov-19	1.34 g	20-Nov-19 02:04	1
PFHxS	355-46-4	2.19	2.00	Q	B9K0012	11-Nov-19	1.34 g	20-Nov-19 02:04	1
6:2 FTS	27619-97-2	ND	2.00		B9K0012	11-Nov-19	1.34 g	20-Nov-19 02:04	1
PFOA	335-67-1	ND	2.00		B9K0012	11-Nov-19	1.34 g	20-Nov-19 02:04	1
PFHpS	375-92-8	ND	2.00		B9K0012	11-Nov-19	1.34 g	20-Nov-19 02:04	1
PFNA	375-95-1	ND	2.00		B9K0012	11-Nov-19	1.34 g	20-Nov-19 02:04	1
PFOSA	754-91-6	ND	2.00		B9K0012	11-Nov-19	1.34 g	20-Nov-19 02:04	1
PFOS	1763-23-1	ND	2.00		B9K0012	11-Nov-19	1.34 g	20-Nov-19 02:04	1
PFDA	335-76-2	ND	2.00		B9K0012	11-Nov-19	1.34 g	20-Nov-19 02:04	1
8:2 FTS	39108-34-4	ND	2.00		B9K0012	11-Nov-19	1.34 g	20-Nov-19 02:04	1
MeFOSAA	2355-31-9	ND	2.00		B9K0012	11-Nov-19	1.34 g	20-Nov-19 02:04	1
EtFOSAA	2991-50-6	ND	2.00		B9K0012	11-Nov-19	1.34 g	20-Nov-19 02:04	1
PFUnA	2058-94-8	ND	2.00		B9K0012	11-Nov-19	1.34 g	20-Nov-19 02:04	1
PFDS	335-77-3	ND	2.00		B9K0012	11-Nov-19	1.34 g	20-Nov-19 02:04	1
PFDoA	307-55-1	ND	2.00		B9K0012	11-Nov-19	1.34 g	20-Nov-19 02:04	1
PFTrDA	72629-94-8	ND	2.00		B9K0012	11-Nov-19	1.34 g	20-Nov-19 02:04	1
PFTeDA	376-06-7	ND	2.00		B9K0012	11-Nov-19	1.34 g	20-Nov-19 02:04	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	144	50 - 150		B9K0012	11-Nov-19	1.34 g	20-Nov-19 02:04	1
13C3-PFPeA	IS	72.4	50 - 150		B9K0012	11-Nov-19	1.34 g	20-Nov-19 02:04	1
13C3-PFBS	IS	86.4	50 - 150		B9K0012	11-Nov-19	1.34 g	20-Nov-19 02:04	1
13C2-4:2 FTS	IS	93.4	50 - 150		B9K0012	11-Nov-19	1.34 g	20-Nov-19 02:04	1
13C2-PFHxA	IS	75.3	50 - 150		B9K0012	11-Nov-19	1.34 g	20-Nov-19 02:04	1
13C4-PFHpA	IS	71.5	50 - 150		B9K0012	11-Nov-19	1.34 g	20-Nov-19 02:04	1
13C3-PFHxS	IS	94.4	50 - 150		B9K0012	11-Nov-19	1.34 g	20-Nov-19 02:04	1
13C2-6:2 FTS	IS	78.0	50 - 150		B9K0012	11-Nov-19	1.34 g	20-Nov-19 02:04	1
13C5-PFNA	IS	65.5	50 - 150		B9K0012	11-Nov-19	1.34 g	20-Nov-19 02:04	1
13C8-PFOSA	IS	39.2	50 - 150	H	B9K0012	11-Nov-19	1.34 g	20-Nov-19 02:04	1
13C2-PFOA	IS	70.0	50 - 150		B9K0012	11-Nov-19	1.34 g	20-Nov-19 02:04	1
13C8-PFOS	IS	83.1	50 - 150		B9K0012	11-Nov-19	1.34 g	20-Nov-19 02:04	1
13C2-PFDA	IS	62.3	50 - 150		B9K0012	11-Nov-19	1.34 g	20-Nov-19 02:04	1
13C2-8:2 FTS	IS	85.3	50 - 150		B9K0012	11-Nov-19	1.34 g	20-Nov-19 02:04	1

Sample ID: L3-2-5

PFAS Isotope Dilution Method

Client Data				**Laboratory Data**			
Name:	Woodard & Curran	Matrix:	Soil	Lab Sample:	1903824-12	Column:	BEH C18
Project:	SJC PFAS Investigation	Date Collected:	23-Oct-19 13:18	Date Received:	25-Oct-19 08:40		
Location:	3			% Solids:	74.5		

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
d3-MeFOSAA	IS	70.5	50 - 150		B9K0012	11-Nov-19	1.34 g	20-Nov-19 02:04	1
13C2-PFUnA	IS	64.6	50 - 150		B9K0012	11-Nov-19	1.34 g	20-Nov-19 02:04	1
d5-EtFOSAA	IS	73.6	50 - 150		B9K0012	11-Nov-19	1.34 g	20-Nov-19 02:04	1
13C2-PFDoA	IS	60.2	50 - 150		B9K0012	11-Nov-19	1.34 g	20-Nov-19 02:04	1
13C2-PFTeDA	IS	71.2	50 - 150		B9K0012	11-Nov-19	1.34 g	20-Nov-19 02:04	1

RL - Reporting limit

The results are reported in dry weight.
The sample size is reported in wet weight.
Results reported to RL.

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

Sample ID: L3-2-10 **PFAS Isotope Dilution Method**

Client Data

Name:	Woodard & Curran	Matrix:	Soil
Project:	SJC PFAS Investigation	Date Collected:	23-Oct-19 13:20
Location:	3		

Laboratory Data

Lab Sample:	1903824-13	Column:	BEH C18
Date Received:	25-Oct-19 08:40		
% Solids:	77.9		

Analyte	CAS Number	Conc. (ng/g)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	ND	2.01		B9K0012	11-Nov-19	1.28 g	20-Nov-19 02:15	1
PFPeA	2706-90-3	ND	2.01		B9K0012	11-Nov-19	1.28 g	20-Nov-19 02:15	1
PFBS	375-73-5	ND	2.01		B9K0012	11-Nov-19	1.28 g	20-Nov-19 02:15	1
4:2 FTS	757124-72-4	ND	2.01		B9K0012	11-Nov-19	1.28 g	20-Nov-19 02:15	1
PFHxA	307-24-4	ND	2.01		B9K0012	11-Nov-19	1.28 g	20-Nov-19 02:15	1
PFPeS	2706-91-4	ND	2.01		B9K0012	11-Nov-19	1.28 g	20-Nov-19 02:15	1
PFHpA	375-85-9	ND	2.01		B9K0012	11-Nov-19	1.28 g	20-Nov-19 02:15	1
PFHxS	355-46-4	ND	2.01		B9K0012	11-Nov-19	1.28 g	20-Nov-19 02:15	1
6:2 FTS	27619-97-2	ND	2.01		B9K0012	11-Nov-19	1.28 g	20-Nov-19 02:15	1
PFOA	335-67-1	ND	2.01		B9K0012	11-Nov-19	1.28 g	20-Nov-19 02:15	1
PFHpS	375-92-8	ND	2.01		B9K0012	11-Nov-19	1.28 g	20-Nov-19 02:15	1
PFNA	375-95-1	ND	2.01		B9K0012	11-Nov-19	1.28 g	20-Nov-19 02:15	1
PFOSA	754-91-6	ND	2.01		B9K0012	11-Nov-19	1.28 g	20-Nov-19 02:15	1
PFOS	1763-23-1	ND	2.01		B9K0012	11-Nov-19	1.28 g	20-Nov-19 02:15	1
PFDA	335-76-2	ND	2.01		B9K0012	11-Nov-19	1.28 g	20-Nov-19 02:15	1
8:2 FTS	39108-34-4	ND	2.01		B9K0012	11-Nov-19	1.28 g	20-Nov-19 02:15	1
MeFOSAA	2355-31-9	ND	2.01		B9K0012	11-Nov-19	1.28 g	20-Nov-19 02:15	1
EtFOSAA	2991-50-6	ND	2.01		B9K0012	11-Nov-19	1.28 g	20-Nov-19 02:15	1
PFUnA	2058-94-8	ND	2.01		B9K0012	11-Nov-19	1.28 g	20-Nov-19 02:15	1
PFDS	335-77-3	ND	2.01		B9K0012	11-Nov-19	1.28 g	20-Nov-19 02:15	1
PFDoA	307-55-1	ND	2.01		B9K0012	11-Nov-19	1.28 g	20-Nov-19 02:15	1
PFTrDA	72629-94-8	ND	2.01		B9K0012	11-Nov-19	1.28 g	20-Nov-19 02:15	1
PFTeDA	376-06-7	ND	2.01		B9K0012	11-Nov-19	1.28 g	20-Nov-19 02:15	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	139	50 - 150		B9K0012	11-Nov-19	1.28 g	20-Nov-19 02:15	1
13C3-PFPeA	IS	70.4	50 - 150		B9K0012	11-Nov-19	1.28 g	20-Nov-19 02:15	1
13C3-PFBS	IS	83.0	50 - 150		B9K0012	11-Nov-19	1.28 g	20-Nov-19 02:15	1
13C2-4:2 FTS	IS	98.7	50 - 150		B9K0012	11-Nov-19	1.28 g	20-Nov-19 02:15	1
13C2-PFHxA	IS	71.9	50 - 150		B9K0012	11-Nov-19	1.28 g	20-Nov-19 02:15	1
13C4-PFHpA	IS	71.0	50 - 150		B9K0012	11-Nov-19	1.28 g	20-Nov-19 02:15	1
13C3-PFHxS	IS	94.3	50 - 150		B9K0012	11-Nov-19	1.28 g	20-Nov-19 02:15	1
13C2-6:2 FTS	IS	78.7	50 - 150		B9K0012	11-Nov-19	1.28 g	20-Nov-19 02:15	1
13C5-PFNA	IS	62.1	50 - 150		B9K0012	11-Nov-19	1.28 g	20-Nov-19 02:15	1
13C8-PFOSA	IS	35.3	50 - 150	H	B9K0012	11-Nov-19	1.28 g	20-Nov-19 02:15	1
13C2-PFOA	IS	67.5	50 - 150		B9K0012	11-Nov-19	1.28 g	20-Nov-19 02:15	1
13C8-PFOS	IS	87.2	50 - 150		B9K0012	11-Nov-19	1.28 g	20-Nov-19 02:15	1
13C2-PFDA	IS	60.6	50 - 150		B9K0012	11-Nov-19	1.28 g	20-Nov-19 02:15	1
13C2-8:2 FTS	IS	95.7	50 - 150		B9K0012	11-Nov-19	1.28 g	20-Nov-19 02:15	1

Sample ID: L3-2-10 **PFAS Isotope Dilution Method**

Client Data				**Laboratory Data**	
Name:	Woodard & Curran	Matrix:	Soil	Lab Sample:	1903824-13
Project:	SJC PFAS Investigation	Date Collected:	23-Oct-19 13:20	Date Received:	25-Oct-19 08:40
Location:	3			% Solids:	77.9
				Column:	BEH C18

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
d3-MeFOSAA	IS	61.0	50 - 150		B9K0012	11-Nov-19	1.28 g	20-Nov-19 02:15	1
13C2-PFUnA	IS	54.0	50 - 150		B9K0012	11-Nov-19	1.28 g	20-Nov-19 02:15	1
d5-EtFOSAA	IS	64.3	50 - 150		B9K0012	11-Nov-19	1.28 g	20-Nov-19 02:15	1
13C2-PFDoA	IS	54.0	50 - 150		B9K0012	11-Nov-19	1.28 g	20-Nov-19 02:15	1
13C2-PFTeDA	IS	56.2	50 - 150		B9K0012	11-Nov-19	1.28 g	20-Nov-19 02:15	1

RL - Reporting limit

The results are reported in dry weight.
The sample size is reported in wet weight.
Results reported to RL.

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

Sample ID: L8/9-1-1 **PFAS Isotope Dilution Method**

Client Data				**Laboratory Data**			
Name:	Woodard & Curran	Matrix:	Soil	Lab Sample:	1903824-14	Column:	BEH C18
Project:	SJC PFAS Investigation	Date Collected:	24-Oct-19 08:11	Date Received:	25-Oct-19 08:40		
Location:	8/9			% Solids:	89.2		

Analyte	CAS Number	Conc. (ng/g)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	ND	2.00		B9K0012	11-Nov-19	1.12 g	20-Nov-19 02:25	1
PFPeA	2706-90-3	ND	2.00		B9K0012	11-Nov-19	1.12 g	20-Nov-19 02:25	1
PFBS	375-73-5	ND	2.00		B9K0012	11-Nov-19	1.12 g	20-Nov-19 02:25	1
4:2 FTS	757124-72-4	ND	2.00		B9K0012	11-Nov-19	1.12 g	20-Nov-19 02:25	1
PFHxA	307-24-4	ND	2.00		B9K0012	11-Nov-19	1.12 g	20-Nov-19 02:25	1
PFPeS	2706-91-4	ND	2.00		B9K0012	11-Nov-19	1.12 g	20-Nov-19 02:25	1
PFHpA	375-85-9	ND	2.00		B9K0012	11-Nov-19	1.12 g	20-Nov-19 02:25	1
PFHxS	355-46-4	ND	2.00		B9K0012	11-Nov-19	1.12 g	20-Nov-19 02:25	1
6:2 FTS	27619-97-2	ND	2.00		B9K0012	11-Nov-19	1.12 g	20-Nov-19 02:25	1
PFOA	335-67-1	ND	2.00		B9K0012	11-Nov-19	1.12 g	20-Nov-19 02:25	1
PFHpS	375-92-8	ND	2.00		B9K0012	11-Nov-19	1.12 g	20-Nov-19 02:25	1
PFNA	375-95-1	ND	2.00		B9K0012	11-Nov-19	1.12 g	20-Nov-19 02:25	1
PFOSA	754-91-6	ND	2.00		B9K0012	11-Nov-19	1.12 g	20-Nov-19 02:25	1
PFOS	1763-23-1	ND	2.00		B9K0012	11-Nov-19	1.12 g	20-Nov-19 02:25	1
PFDA	335-76-2	ND	2.00		B9K0012	11-Nov-19	1.12 g	20-Nov-19 02:25	1
8:2 FTS	39108-34-4	ND	2.00		B9K0012	11-Nov-19	1.12 g	20-Nov-19 02:25	1
MeFOSAA	2355-31-9	ND	2.00		B9K0012	11-Nov-19	1.12 g	20-Nov-19 02:25	1
EtFOSAA	2991-50-6	ND	2.00		B9K0012	11-Nov-19	1.12 g	20-Nov-19 02:25	1
PFUnA	2058-94-8	ND	2.00		B9K0012	11-Nov-19	1.12 g	20-Nov-19 02:25	1
PFDS	335-77-3	ND	2.00		B9K0012	11-Nov-19	1.12 g	20-Nov-19 02:25	1
PFDoA	307-55-1	ND	2.00		B9K0012	11-Nov-19	1.12 g	20-Nov-19 02:25	1
PFTrDA	72629-94-8	ND	2.00		B9K0012	11-Nov-19	1.12 g	20-Nov-19 02:25	1
PFTeDA	376-06-7	ND	2.00		B9K0012	11-Nov-19	1.12 g	20-Nov-19 02:25	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	160	50 - 150	H	B9K0012	11-Nov-19	1.12 g	20-Nov-19 02:25	1
13C3-PFPeA	IS	80.1	50 - 150		B9K0012	11-Nov-19	1.12 g	20-Nov-19 02:25	1
13C3-PFBS	IS	85.7	50 - 150		B9K0012	11-Nov-19	1.12 g	20-Nov-19 02:25	1
13C2-4:2 FTS	IS	83.1	50 - 150		B9K0012	11-Nov-19	1.12 g	20-Nov-19 02:25	1
13C2-PFHxA	IS	79.3	50 - 150		B9K0012	11-Nov-19	1.12 g	20-Nov-19 02:25	1
13C4-PFHpA	IS	75.6	50 - 150		B9K0012	11-Nov-19	1.12 g	20-Nov-19 02:25	1
13C3-PFHxS	IS	93.4	50 - 150		B9K0012	11-Nov-19	1.12 g	20-Nov-19 02:25	1
13C2-6:2 FTS	IS	84.7	50 - 150		B9K0012	11-Nov-19	1.12 g	20-Nov-19 02:25	1
13C5-PFNA	IS	68.1	50 - 150		B9K0012	11-Nov-19	1.12 g	20-Nov-19 02:25	1
13C8-PFOSA	IS	47.8	50 - 150	H	B9K0012	11-Nov-19	1.12 g	20-Nov-19 02:25	1
13C2-PFOA	IS	68.7	50 - 150		B9K0012	11-Nov-19	1.12 g	20-Nov-19 02:25	1
13C8-PFOS	IS	88.0	50 - 150		B9K0012	11-Nov-19	1.12 g	20-Nov-19 02:25	1
13C2-PFDA	IS	71.8	50 - 150		B9K0012	11-Nov-19	1.12 g	20-Nov-19 02:25	1
13C2-8:2 FTS	IS	103	50 - 150		B9K0012	11-Nov-19	1.12 g	20-Nov-19 02:25	1

Sample ID: L8/9-1-1 | **PFAS Isotope Dilution Method**

Client Data				**Laboratory Data**			
Name:	Woodard & Curran	Matrix:	Soil	Lab Sample:	1903824-14	Column:	BEH C18
Project:	SJC PFAS Investigation	Date Collected:	24-Oct-19 08:11	Date Received:	25-Oct-19 08:40		
Location:	8/9			% Solids:	89.2		

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
d3-MeFOSAA	IS	69.8	50 - 150		B9K0012	11-Nov-19	1.12 g	20-Nov-19 02:25	1
13C2-PFUnA	IS	77.8	50 - 150		B9K0012	11-Nov-19	1.12 g	20-Nov-19 02:25	1
d5-EtFOSAA	IS	67.5	50 - 150		B9K0012	11-Nov-19	1.12 g	20-Nov-19 02:25	1
13C2-PFDoA	IS	62.9	50 - 150		B9K0012	11-Nov-19	1.12 g	20-Nov-19 02:25	1
13C2-PFTeDA	IS	30.7	50 - 150	H	B9K0012	11-Nov-19	1.12 g	20-Nov-19 02:25	1

RL - Reporting limit

The results are reported in dry weight.
The sample size is reported in wet weight.
Results reported to RL.

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

Sample ID: L8/9-1-5 **PFAS Isotope Dilution Method**

Client Data				Laboratory Data			
Name:	Woodard & Curran	Matrix:	Soil	Lab Sample:	1903824-15	Column:	BEH C18
Project:	SJC PFAS Investigation	Date Collected:	24-Oct-19 08:15	Date Received:	25-Oct-19 08:40		
Location:	8/9			% Solids:	74.9		

Analyte	CAS Number	Conc. (ng/g)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	ND	2.01		B9K0012	11-Nov-19	1.33 g	20-Nov-19 02:36	1
PFPeA	2706-90-3	ND	2.01		B9K0012	11-Nov-19	1.33 g	20-Nov-19 02:36	1
PFBS	375-73-5	ND	2.01		B9K0012	11-Nov-19	1.33 g	20-Nov-19 02:36	1
4:2 FTS	757124-72-4	ND	2.01		B9K0012	11-Nov-19	1.33 g	20-Nov-19 02:36	1
PFHxA	307-24-4	ND	2.01		B9K0012	11-Nov-19	1.33 g	20-Nov-19 02:36	1
PFPeS	2706-91-4	ND	2.01		B9K0012	11-Nov-19	1.33 g	20-Nov-19 02:36	1
PFHpA	375-85-9	ND	2.01		B9K0012	11-Nov-19	1.33 g	20-Nov-19 02:36	1
PFHxS	355-46-4	ND	2.01		B9K0012	11-Nov-19	1.33 g	20-Nov-19 02:36	1
6:2 FTS	27619-97-2	ND	2.01		B9K0012	11-Nov-19	1.33 g	20-Nov-19 02:36	1
PFOA	335-67-1	ND	2.01		B9K0012	11-Nov-19	1.33 g	20-Nov-19 02:36	1
PFHpS	375-92-8	ND	2.01		B9K0012	11-Nov-19	1.33 g	20-Nov-19 02:36	1
PFNA	375-95-1	ND	2.01		B9K0012	11-Nov-19	1.33 g	20-Nov-19 02:36	1
PFOSA	754-91-6	ND	2.01		B9K0012	11-Nov-19	1.33 g	20-Nov-19 02:36	1
PFOS	1763-23-1	ND	2.01		B9K0012	11-Nov-19	1.33 g	20-Nov-19 02:36	1
PFDA	335-76-2	ND	2.01		B9K0012	11-Nov-19	1.33 g	20-Nov-19 02:36	1
8:2 FTS	39108-34-4	ND	2.01		B9K0012	11-Nov-19	1.33 g	20-Nov-19 02:36	1
MeFOSAA	2355-31-9	ND	2.01		B9K0012	11-Nov-19	1.33 g	20-Nov-19 02:36	1
EtFOSAA	2991-50-6	ND	2.01		B9K0012	11-Nov-19	1.33 g	20-Nov-19 02:36	1
PFUnA	2058-94-8	ND	2.01		B9K0012	11-Nov-19	1.33 g	20-Nov-19 02:36	1
PFDS	335-77-3	ND	2.01		B9K0012	11-Nov-19	1.33 g	20-Nov-19 02:36	1
PFDoA	307-55-1	ND	2.01		B9K0012	11-Nov-19	1.33 g	20-Nov-19 02:36	1
PFTrDA	72629-94-8	ND	2.01		B9K0012	11-Nov-19	1.33 g	20-Nov-19 02:36	1
PFTeDA	376-06-7	ND	2.01		B9K0012	11-Nov-19	1.33 g	20-Nov-19 02:36	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	151	50 - 150	H	B9K0012	11-Nov-19	1.33 g	20-Nov-19 02:36	1
13C3-PFPeA	IS	79.0	50 - 150		B9K0012	11-Nov-19	1.33 g	20-Nov-19 02:36	1
13C3-PFBS	IS	86.5	50 - 150		B9K0012	11-Nov-19	1.33 g	20-Nov-19 02:36	1
13C2-4:2 FTS	IS	77.9	50 - 150		B9K0012	11-Nov-19	1.33 g	20-Nov-19 02:36	1
13C2-PFHxA	IS	79.7	50 - 150		B9K0012	11-Nov-19	1.33 g	20-Nov-19 02:36	1
13C4-PFHpA	IS	75.7	50 - 150		B9K0012	11-Nov-19	1.33 g	20-Nov-19 02:36	1
13C3-PFHxS	IS	88.8	50 - 150		B9K0012	11-Nov-19	1.33 g	20-Nov-19 02:36	1
13C2-6:2 FTS	IS	87.1	50 - 150		B9K0012	11-Nov-19	1.33 g	20-Nov-19 02:36	1
13C5-PFNA	IS	66.6	50 - 150		B9K0012	11-Nov-19	1.33 g	20-Nov-19 02:36	1
13C8-PFOSA	IS	48.3	50 - 150	H	B9K0012	11-Nov-19	1.33 g	20-Nov-19 02:36	1
13C2-PFOA	IS	67.8	50 - 150		B9K0012	11-Nov-19	1.33 g	20-Nov-19 02:36	1
13C8-PFOS	IS	85.9	50 - 150		B9K0012	11-Nov-19	1.33 g	20-Nov-19 02:36	1
13C2-PFDA	IS	67.8	50 - 150		B9K0012	11-Nov-19	1.33 g	20-Nov-19 02:36	1
13C2-8:2 FTS	IS	86.3	50 - 150		B9K0012	11-Nov-19	1.33 g	20-Nov-19 02:36	1

Sample ID: L8/9-1-5

PFAS Isotope Dilution Method

Client Data

Name:	Woodard & Curran	Matrix:	Soil
Project:	SJC PFAS Investigation	Date Collected:	24-Oct-19 08:15
Location:	8/9		

Laboratory Data

Lab Sample:	1903824-15	Column:	BEH C18
Date Received:	25-Oct-19 08:40		
% Solids:	74.9		

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
d3-MeFOSAA	IS	53.0	50 - 150		B9K0012	11-Nov-19	1.33 g	20-Nov-19 02:36	1
13C2-PFUnA	IS	68.5	50 - 150		B9K0012	11-Nov-19	1.33 g	20-Nov-19 02:36	1
d5-EtFOSAA	IS	51.2	50 - 150		B9K0012	11-Nov-19	1.33 g	20-Nov-19 02:36	1
13C2-PFDoA	IS	66.3	50 - 150		B9K0012	11-Nov-19	1.33 g	20-Nov-19 02:36	1
13C2-PFTeDA	IS	45.8	50 - 150	H	B9K0012	11-Nov-19	1.33 g	20-Nov-19 02:36	1

RL - Reporting limit

The results are reported in dry weight.
The sample size is reported in wet weight.
Results reported to RL.

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

Sample ID: L8/9-1-10 **PFAS Isotope Dilution Method**

Client Data				**Laboratory Data**			
Name:	Woodard & Curran	Matrix:	Soil	Lab Sample:	1903824-16	Column:	BEH C18
Project:	SJC PFAS Investigation	Date Collected:	24-Oct-19 08:19	Date Received:	25-Oct-19 08:40		
Location:	8/9			% Solids:	89.0		

Analyte	CAS Number	Conc. (ng/g)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	ND	1.99		B9K0012	11-Nov-19	1.13 g	20-Nov-19 02:46	1
PFPeA	2706-90-3	ND	1.99		B9K0012	11-Nov-19	1.13 g	20-Nov-19 02:46	1
PFBS	375-73-5	ND	1.99		B9K0012	11-Nov-19	1.13 g	20-Nov-19 02:46	1
4:2 FTS	757124-72-4	ND	1.99		B9K0012	11-Nov-19	1.13 g	20-Nov-19 02:46	1
PFHxA	307-24-4	ND	1.99		B9K0012	11-Nov-19	1.13 g	20-Nov-19 02:46	1
PFPeS	2706-91-4	ND	1.99		B9K0012	11-Nov-19	1.13 g	20-Nov-19 02:46	1
PFHpA	375-85-9	ND	1.99		B9K0012	11-Nov-19	1.13 g	20-Nov-19 02:46	1
PFHxS	355-46-4	ND	1.99		B9K0012	11-Nov-19	1.13 g	20-Nov-19 02:46	1
6:2 FTS	27619-97-2	ND	1.99		B9K0012	11-Nov-19	1.13 g	20-Nov-19 02:46	1
PFOA	335-67-1	ND	1.99		B9K0012	11-Nov-19	1.13 g	20-Nov-19 02:46	1
PFHpS	375-92-8	ND	1.99		B9K0012	11-Nov-19	1.13 g	20-Nov-19 02:46	1
PFNA	375-95-1	ND	1.99		B9K0012	11-Nov-19	1.13 g	20-Nov-19 02:46	1
PFOSA	754-91-6	ND	1.99		B9K0012	11-Nov-19	1.13 g	20-Nov-19 02:46	1
PFOS	1763-23-1	ND	1.99		B9K0012	11-Nov-19	1.13 g	20-Nov-19 02:46	1
PFDA	335-76-2	ND	1.99		B9K0012	11-Nov-19	1.13 g	20-Nov-19 02:46	1
8:2 FTS	39108-34-4	ND	1.99		B9K0012	11-Nov-19	1.13 g	20-Nov-19 02:46	1
MeFOSAA	2355-31-9	ND	1.99		B9K0012	11-Nov-19	1.13 g	20-Nov-19 02:46	1
EtFOSAA	2991-50-6	ND	1.99		B9K0012	11-Nov-19	1.13 g	20-Nov-19 02:46	1
PFUnA	2058-94-8	ND	1.99		B9K0012	11-Nov-19	1.13 g	20-Nov-19 02:46	1
PFDS	335-77-3	ND	1.99		B9K0012	11-Nov-19	1.13 g	20-Nov-19 02:46	1
PFDoA	307-55-1	ND	1.99		B9K0012	11-Nov-19	1.13 g	20-Nov-19 02:46	1
PFTrDA	72629-94-8	ND	1.99		B9K0012	11-Nov-19	1.13 g	20-Nov-19 02:46	1
PFTeDA	376-06-7	ND	1.99		B9K0012	11-Nov-19	1.13 g	20-Nov-19 02:46	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	155	50 - 150	H	B9K0012	11-Nov-19	1.13 g	20-Nov-19 02:46	1
13C3-PFPeA	IS	76.7	50 - 150		B9K0012	11-Nov-19	1.13 g	20-Nov-19 02:46	1
13C3-PFBS	IS	87.6	50 - 150		B9K0012	11-Nov-19	1.13 g	20-Nov-19 02:46	1
13C2-4:2 FTS	IS	86.8	50 - 150		B9K0012	11-Nov-19	1.13 g	20-Nov-19 02:46	1
13C2-PFHxA	IS	78.6	50 - 150		B9K0012	11-Nov-19	1.13 g	20-Nov-19 02:46	1
13C4-PFHpA	IS	78.3	50 - 150		B9K0012	11-Nov-19	1.13 g	20-Nov-19 02:46	1
13C3-PFHxS	IS	95.8	50 - 150		B9K0012	11-Nov-19	1.13 g	20-Nov-19 02:46	1
13C2-6:2 FTS	IS	83.7	50 - 150		B9K0012	11-Nov-19	1.13 g	20-Nov-19 02:46	1
13C5-PFNA	IS	71.8	50 - 150		B9K0012	11-Nov-19	1.13 g	20-Nov-19 02:46	1
13C8-PFOSA	IS	25.2	50 - 150	H	B9K0012	11-Nov-19	1.13 g	20-Nov-19 02:46	1
13C2-PFOA	IS	79.9	50 - 150		B9K0012	11-Nov-19	1.13 g	20-Nov-19 02:46	1
13C8-PFOS	IS	86.7	50 - 150		B9K0012	11-Nov-19	1.13 g	20-Nov-19 02:46	1
13C2-PFDA	IS	68.7	50 - 150		B9K0012	11-Nov-19	1.13 g	20-Nov-19 02:46	1
13C2-8:2 FTS	IS	91.2	50 - 150		B9K0012	11-Nov-19	1.13 g	20-Nov-19 02:46	1

Sample ID: L8/9-1-10 **PFAS Isotope Dilution Method**

Client Data				**Laboratory Data**			
Name:	Woodard & Curran	Matrix:	Soil	Lab Sample:	1903824-16	Column:	BEH C18
Project:	SJC PFAS Investigation	Date Collected:	24-Oct-19 08:19	Date Received:	25-Oct-19 08:40		
Location:	8/9			% Solids:	89.0		

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
d3-MeFOSAA	IS	58.8	50 - 150		B9K0012	11-Nov-19	1.13 g	20-Nov-19 02:46	1
13C2-PFUnA	IS	69.5	50 - 150		B9K0012	11-Nov-19	1.13 g	20-Nov-19 02:46	1
d5-EtFOSAA	IS	45.0	50 - 150	H	B9K0012	11-Nov-19	1.13 g	20-Nov-19 02:46	1
13C2-PFDoA	IS	64.4	50 - 150		B9K0012	11-Nov-19	1.13 g	20-Nov-19 02:46	1
13C2-PFTeDA	IS	53.9	50 - 150		B9K0012	11-Nov-19	1.13 g	20-Nov-19 02:46	1

RL - Reporting limit

The results are reported in dry weight.
The sample size is reported in wet weight.
Results reported to RL.

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

Sample ID: L8/9-2-1 **PFAS Isotope Dilution Method**

Client Data				**Laboratory Data**			
Name:	Woodard & Curran	Matrix:	Soil	Lab Sample:	1903824-17	Column:	BEH C18
Project:	SJC PFAS Investigation	Date Collected:	24-Oct-19 08:33	Date Received:	25-Oct-19 08:40		
Location:	8/9			% Solids:	85.8		

Analyte	CAS Number	Conc. (ng/g)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	ND	1.99		B9K0012	11-Nov-19	1.17 g	20-Nov-19 02:57	1
PFPeA	2706-90-3	ND	1.99		B9K0012	11-Nov-19	1.17 g	20-Nov-19 02:57	1
PFBS	375-73-5	ND	1.99		B9K0012	11-Nov-19	1.17 g	20-Nov-19 02:57	1
4:2 FTS	757124-72-4	ND	1.99		B9K0012	11-Nov-19	1.17 g	20-Nov-19 02:57	1
PFHxA	307-24-4	ND	1.99		B9K0012	11-Nov-19	1.17 g	20-Nov-19 02:57	1
PFPeS	2706-91-4	ND	1.99		B9K0012	11-Nov-19	1.17 g	20-Nov-19 02:57	1
PFHpA	375-85-9	ND	1.99		B9K0012	11-Nov-19	1.17 g	20-Nov-19 02:57	1
PFHxS	355-46-4	ND	1.99		B9K0012	11-Nov-19	1.17 g	20-Nov-19 02:57	1
6:2 FTS	27619-97-2	ND	1.99		B9K0012	11-Nov-19	1.17 g	20-Nov-19 02:57	1
PFOA	335-67-1	ND	1.99		B9K0012	11-Nov-19	1.17 g	20-Nov-19 02:57	1
PFHpS	375-92-8	ND	1.99		B9K0012	11-Nov-19	1.17 g	20-Nov-19 02:57	1
PFNA	375-95-1	ND	1.99		B9K0012	11-Nov-19	1.17 g	20-Nov-19 02:57	1
PFOSA	754-91-6	ND	1.99		B9K0012	11-Nov-19	1.17 g	20-Nov-19 02:57	1
PFOS	1763-23-1	ND	1.99		B9K0012	11-Nov-19	1.17 g	20-Nov-19 02:57	1
PFDA	335-76-2	ND	1.99		B9K0012	11-Nov-19	1.17 g	20-Nov-19 02:57	1
8:2 FTS	39108-34-4	ND	1.99		B9K0012	11-Nov-19	1.17 g	20-Nov-19 02:57	1
MeFOSAA	2355-31-9	ND	1.99		B9K0012	11-Nov-19	1.17 g	20-Nov-19 02:57	1
EtFOSAA	2991-50-6	ND	1.99		B9K0012	11-Nov-19	1.17 g	20-Nov-19 02:57	1
PFUnA	2058-94-8	ND	1.99		B9K0012	11-Nov-19	1.17 g	20-Nov-19 02:57	1
PFDS	335-77-3	ND	1.99		B9K0012	11-Nov-19	1.17 g	20-Nov-19 02:57	1
PFDoA	307-55-1	ND	1.99		B9K0012	11-Nov-19	1.17 g	20-Nov-19 02:57	1
PFTrDA	72629-94-8	ND	1.99		B9K0012	11-Nov-19	1.17 g	20-Nov-19 02:57	1
PFTeDA	376-06-7	ND	1.99		B9K0012	11-Nov-19	1.17 g	20-Nov-19 02:57	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	147	50 - 150		B9K0012	11-Nov-19	1.17 g	20-Nov-19 02:57	1
13C3-PFPeA	IS	76.3	50 - 150		B9K0012	11-Nov-19	1.17 g	20-Nov-19 02:57	1
13C3-PFBS	IS	79.8	50 - 150		B9K0012	11-Nov-19	1.17 g	20-Nov-19 02:57	1
13C2-4:2 FTS	IS	82.8	50 - 150		B9K0012	11-Nov-19	1.17 g	20-Nov-19 02:57	1
13C2-PFHxA	IS	76.9	50 - 150		B9K0012	11-Nov-19	1.17 g	20-Nov-19 02:57	1
13C4-PFHpA	IS	74.8	50 - 150		B9K0012	11-Nov-19	1.17 g	20-Nov-19 02:57	1
13C3-PFHxS	IS	72.1	50 - 150		B9K0012	11-Nov-19	1.17 g	20-Nov-19 02:57	1
13C2-6:2 FTS	IS	70.7	50 - 150		B9K0012	11-Nov-19	1.17 g	20-Nov-19 02:57	1
13C5-PFNA	IS	60.4	50 - 150		B9K0012	11-Nov-19	1.17 g	20-Nov-19 02:57	1
13C8-PFOSA	IS	45.1	50 - 150	H	B9K0012	11-Nov-19	1.17 g	20-Nov-19 02:57	1
13C2-PFOA	IS	68.4	50 - 150		B9K0012	11-Nov-19	1.17 g	20-Nov-19 02:57	1
13C8-PFOS	IS	71.1	50 - 150		B9K0012	11-Nov-19	1.17 g	20-Nov-19 02:57	1
13C2-PFDA	IS	55.0	50 - 150		B9K0012	11-Nov-19	1.17 g	20-Nov-19 02:57	1
13C2-8:2 FTS	IS	87.4	50 - 150		B9K0012	11-Nov-19	1.17 g	20-Nov-19 02:57	1

Sample ID: L8/9-2-1 **PFAS Isotope Dilution Method**

Client Data				**Laboratory Data**			
Name:	Woodard & Curran	Matrix:	Soil	Lab Sample:	1903824-17	Column:	BEH C18
Project:	SJC PFAS Investigation	Date Collected:	24-Oct-19 08:33	Date Received:	25-Oct-19 08:40		
Location:	8/9			% Solids:	85.8		

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
d3-MeFOSAA	IS	50.9	50 - 150		B9K0012	11-Nov-19	1.17 g	20-Nov-19 02:57	1
13C2-PFUnA	IS	58.4	50 - 150		B9K0012	11-Nov-19	1.17 g	20-Nov-19 02:57	1
d5-EtFOSAA	IS	50.4	50 - 150		B9K0012	11-Nov-19	1.17 g	20-Nov-19 02:57	1
13C2-PFDoA	IS	57.7	50 - 150		B9K0012	11-Nov-19	1.17 g	20-Nov-19 02:57	1
13C2-PFTeDA	IS	45.8	50 - 150	H	B9K0012	11-Nov-19	1.17 g	20-Nov-19 02:57	1

RL - Reporting limit

The results are reported in dry weight.
The sample size is reported in wet weight.
Results reported to RL.

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

Sample ID: L8/9-2-5 **PFAS Isotope Dilution Method**

Client Data

Name:	Woodard & Curran	Matrix:	Soil
Project:	SJC PFAS Investigation	Date Collected:	24-Oct-19 08:37
Location:	8/9		

Laboratory Data

Lab Sample:	1903824-18	Column:	BEH C18
Date Received:	25-Oct-19 08:40		
% Solids:	74.2		

Analyte	CAS Number	Conc. (ng/g)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	ND	2.00		B9K0012	11-Nov-19	1.35 g	20-Nov-19 03:07	1
PFPeA	2706-90-3	ND	2.00		B9K0012	11-Nov-19	1.35 g	20-Nov-19 03:07	1
PFBS	375-73-5	ND	2.00		B9K0012	11-Nov-19	1.35 g	20-Nov-19 03:07	1
4:2 FTS	757124-72-4	ND	2.00		B9K0012	11-Nov-19	1.35 g	20-Nov-19 03:07	1
PFHxA	307-24-4	ND	2.00		B9K0012	11-Nov-19	1.35 g	20-Nov-19 03:07	1
PFPeS	2706-91-4	ND	2.00		B9K0012	11-Nov-19	1.35 g	20-Nov-19 03:07	1
PFHpA	375-85-9	ND	2.00		B9K0012	11-Nov-19	1.35 g	20-Nov-19 03:07	1
PFHxS	355-46-4	ND	2.00		B9K0012	11-Nov-19	1.35 g	20-Nov-19 03:07	1
6:2 FTS	27619-97-2	ND	2.00		B9K0012	11-Nov-19	1.35 g	20-Nov-19 03:07	1
PFOA	335-67-1	ND	2.00		B9K0012	11-Nov-19	1.35 g	20-Nov-19 03:07	1
PFHpS	375-92-8	ND	2.00		B9K0012	11-Nov-19	1.35 g	20-Nov-19 03:07	1
PFNA	375-95-1	ND	2.00		B9K0012	11-Nov-19	1.35 g	20-Nov-19 03:07	1
PFOSA	754-91-6	ND	2.00		B9K0012	11-Nov-19	1.35 g	20-Nov-19 03:07	1
PFOS	1763-23-1	ND	2.00		B9K0012	11-Nov-19	1.35 g	20-Nov-19 03:07	1
PFDA	335-76-2	ND	2.00		B9K0012	11-Nov-19	1.35 g	20-Nov-19 03:07	1
8:2 FTS	39108-34-4	ND	2.00		B9K0012	11-Nov-19	1.35 g	20-Nov-19 03:07	1
MeFOSAA	2355-31-9	ND	2.00		B9K0012	11-Nov-19	1.35 g	20-Nov-19 03:07	1
EtFOSAA	2991-50-6	ND	2.00		B9K0012	11-Nov-19	1.35 g	20-Nov-19 03:07	1
PFUnA	2058-94-8	ND	2.00		B9K0012	11-Nov-19	1.35 g	20-Nov-19 03:07	1
PFDS	335-77-3	ND	2.00		B9K0012	11-Nov-19	1.35 g	20-Nov-19 03:07	1
PFDoA	307-55-1	ND	2.00		B9K0012	11-Nov-19	1.35 g	20-Nov-19 03:07	1
PFTrDA	72629-94-8	ND	2.00		B9K0012	11-Nov-19	1.35 g	20-Nov-19 03:07	1
PFTeDA	376-06-7	ND	2.00		B9K0012	11-Nov-19	1.35 g	20-Nov-19 03:07	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	143	50 - 150		B9K0012	11-Nov-19	1.35 g	20-Nov-19 03:07	1
13C3-PFPeA	IS	76.2	50 - 150		B9K0012	11-Nov-19	1.35 g	20-Nov-19 03:07	1
13C3-PFBS	IS	83.2	50 - 150		B9K0012	11-Nov-19	1.35 g	20-Nov-19 03:07	1
13C2-4:2 FTS	IS	83.0	50 - 150		B9K0012	11-Nov-19	1.35 g	20-Nov-19 03:07	1
13C2-PFHxA	IS	76.1	50 - 150		B9K0012	11-Nov-19	1.35 g	20-Nov-19 03:07	1
13C4-PFHpA	IS	73.1	50 - 150		B9K0012	11-Nov-19	1.35 g	20-Nov-19 03:07	1
13C3-PFHxS	IS	81.8	50 - 150		B9K0012	11-Nov-19	1.35 g	20-Nov-19 03:07	1
13C2-6:2 FTS	IS	69.7	50 - 150		B9K0012	11-Nov-19	1.35 g	20-Nov-19 03:07	1
13C5-PFNA	IS	60.4	50 - 150		B9K0012	11-Nov-19	1.35 g	20-Nov-19 03:07	1
13C8-PFOSA	IS	27.4	50 - 150	H	B9K0012	11-Nov-19	1.35 g	20-Nov-19 03:07	1
13C2-PFOA	IS	68.7	50 - 150		B9K0012	11-Nov-19	1.35 g	20-Nov-19 03:07	1
13C8-PFOS	IS	81.8	50 - 150		B9K0012	11-Nov-19	1.35 g	20-Nov-19 03:07	1
13C2-PFDA	IS	55.6	50 - 150		B9K0012	11-Nov-19	1.35 g	20-Nov-19 03:07	1
13C2-8:2 FTS	IS	65.7	50 - 150		B9K0012	11-Nov-19	1.35 g	20-Nov-19 03:07	1

Sample ID: L8/9-2-5

PFAS Isotope Dilution Method

Client Data				**Laboratory Data**			
Name:	Woodard & Curran	Matrix:	Soil	Lab Sample:	1903824-18	Column:	BEH C18
Project:	SJC PFAS Investigation	Date Collected:	24-Oct-19 08:37	Date Received:	25-Oct-19 08:40		
Location:	8/9			% Solids:	74.2		

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
d3-MeFOSAA	IS	61.9	50 - 150		B9K0012	11-Nov-19	1.35 g	20-Nov-19 03:07	1
13C2-PFUnA	IS	68.2	50 - 150		B9K0012	11-Nov-19	1.35 g	20-Nov-19 03:07	1
d5-EtFOSAA	IS	55.9	50 - 150		B9K0012	11-Nov-19	1.35 g	20-Nov-19 03:07	1
13C2-PFDoA	IS	57.5	50 - 150		B9K0012	11-Nov-19	1.35 g	20-Nov-19 03:07	1
13C2-PFTeDA	IS	48.1	50 - 150	H	B9K0012	11-Nov-19	1.35 g	20-Nov-19 03:07	1

RL - Reporting limit

The results are reported in dry weight.
The sample size is reported in wet weight.
Results reported to RL.

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

Sample ID: L8/9-2-10 **PFAS Isotope Dilution Method**

Client Data

Name:	Woodard & Curran	Matrix:	Soil
Project:	SJC PFAS Investigation	Date Collected:	24-Oct-19 08:41
Location:	8/9		

Laboratory Data

Lab Sample:	1903824-19	Column:	BEH C18
Date Received:	25-Oct-19 08:40		
% Solids:	87.9		

Analyte	CAS Number	Conc. (ng/g)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	ND	1.98		B9K0012	11-Nov-19	1.15 g	20-Nov-19 03:18	1
PFPeA	2706-90-3	ND	1.98		B9K0012	11-Nov-19	1.15 g	20-Nov-19 03:18	1
PFBS	375-73-5	ND	1.98		B9K0012	11-Nov-19	1.15 g	20-Nov-19 03:18	1
4:2 FTS	757124-72-4	ND	1.98		B9K0012	11-Nov-19	1.15 g	20-Nov-19 03:18	1
PFHxA	307-24-4	ND	1.98		B9K0012	11-Nov-19	1.15 g	20-Nov-19 03:18	1
PFPeS	2706-91-4	ND	1.98		B9K0012	11-Nov-19	1.15 g	20-Nov-19 03:18	1
PFHpA	375-85-9	ND	1.98		B9K0012	11-Nov-19	1.15 g	20-Nov-19 03:18	1
PFHxS	355-46-4	ND	1.98		B9K0012	11-Nov-19	1.15 g	20-Nov-19 03:18	1
6:2 FTS	27619-97-2	ND	1.98		B9K0012	11-Nov-19	1.15 g	20-Nov-19 03:18	1
PFOA	335-67-1	ND	1.98		B9K0012	11-Nov-19	1.15 g	20-Nov-19 03:18	1
PFHpS	375-92-8	ND	1.98		B9K0012	11-Nov-19	1.15 g	20-Nov-19 03:18	1
PFNA	375-95-1	ND	1.98		B9K0012	11-Nov-19	1.15 g	20-Nov-19 03:18	1
PFOSA	754-91-6	ND	1.98		B9K0012	11-Nov-19	1.15 g	20-Nov-19 03:18	1
PFOS	1763-23-1	ND	1.98		B9K0012	11-Nov-19	1.15 g	20-Nov-19 03:18	1
PFDA	335-76-2	ND	1.98		B9K0012	11-Nov-19	1.15 g	20-Nov-19 03:18	1
8:2 FTS	39108-34-4	ND	1.98		B9K0012	11-Nov-19	1.15 g	20-Nov-19 03:18	1
MeFOSAA	2355-31-9	ND	1.98		B9K0012	11-Nov-19	1.15 g	20-Nov-19 03:18	1
EtFOSAA	2991-50-6	ND	1.98		B9K0012	11-Nov-19	1.15 g	20-Nov-19 03:18	1
PFUnA	2058-94-8	ND	1.98		B9K0012	11-Nov-19	1.15 g	20-Nov-19 03:18	1
PFDS	335-77-3	ND	1.98		B9K0012	11-Nov-19	1.15 g	20-Nov-19 03:18	1
PFDoA	307-55-1	ND	1.98		B9K0012	11-Nov-19	1.15 g	20-Nov-19 03:18	1
PFTrDA	72629-94-8	ND	1.98		B9K0012	11-Nov-19	1.15 g	20-Nov-19 03:18	1
PFTeDA	376-06-7	ND	1.98		B9K0012	11-Nov-19	1.15 g	20-Nov-19 03:18	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	149	50 - 150		B9K0012	11-Nov-19	1.15 g	20-Nov-19 03:18	1
13C3-PFPeA	IS	74.2	50 - 150		B9K0012	11-Nov-19	1.15 g	20-Nov-19 03:18	1
13C3-PFBS	IS	80.0	50 - 150		B9K0012	11-Nov-19	1.15 g	20-Nov-19 03:18	1
13C2-4:2 FTS	IS	79.7	50 - 150		B9K0012	11-Nov-19	1.15 g	20-Nov-19 03:18	1
13C2-PFHxA	IS	74.8	50 - 150		B9K0012	11-Nov-19	1.15 g	20-Nov-19 03:18	1
13C4-PFHpA	IS	78.3	50 - 150		B9K0012	11-Nov-19	1.15 g	20-Nov-19 03:18	1
13C3-PFHxS	IS	90.3	50 - 150		B9K0012	11-Nov-19	1.15 g	20-Nov-19 03:18	1
13C2-6:2 FTS	IS	75.9	50 - 150		B9K0012	11-Nov-19	1.15 g	20-Nov-19 03:18	1
13C5-PFNA	IS	66.1	50 - 150		B9K0012	11-Nov-19	1.15 g	20-Nov-19 03:18	1
13C8-PFOSA	IS	23.4	50 - 150	H	B9K0012	11-Nov-19	1.15 g	20-Nov-19 03:18	1
13C2-PFOA	IS	71.8	50 - 150		B9K0012	11-Nov-19	1.15 g	20-Nov-19 03:18	1
13C8-PFOS	IS	81.1	50 - 150		B9K0012	11-Nov-19	1.15 g	20-Nov-19 03:18	1
13C2-PFDA	IS	58.0	50 - 150		B9K0012	11-Nov-19	1.15 g	20-Nov-19 03:18	1
13C2-8:2 FTS	IS	88.0	50 - 150		B9K0012	11-Nov-19	1.15 g	20-Nov-19 03:18	1

Sample ID: L8/9-2-10

PFAS Isotope Dilution Method

Client Data

Name:	Woodard & Curran	Matrix:	Soil
Project:	SJC PFAS Investigation	Date Collected:	24-Oct-19 08:41
Location:	8/9		

Laboratory Data

Lab Sample:	1903824-19	Column:	BEH C18
Date Received:	25-Oct-19 08:40		
% Solids:	87.9		

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
d3-MeFOSAA	IS	58.5	50 - 150		B9K0012	11-Nov-19	1.15 g	20-Nov-19 03:18	1
13C2-PFUnA	IS	59.6	50 - 150		B9K0012	11-Nov-19	1.15 g	20-Nov-19 03:18	1
d5-EtFOSAA	IS	46.2	50 - 150	H	B9K0012	11-Nov-19	1.15 g	20-Nov-19 03:18	1
13C2-PFDoA	IS	60.1	50 - 150		B9K0012	11-Nov-19	1.15 g	20-Nov-19 03:18	1
13C2-PFTeDA	IS	55.4	50 - 150		B9K0012	11-Nov-19	1.15 g	20-Nov-19 03:18	1

RL - Reporting limit

The results are reported in dry weight.
The sample size is reported in wet weight.
Results reported to RL.

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

Sample ID: L8/9-3-1 **PFAS Isotope Dilution Method**

Client Data

Name: Woodard & Curran
Project: SJC PFAS Investigation
Location: 8/9
Matrix: Soil
Date Collected: 24-Oct-19 08:56

Laboratory Data

Lab Sample: 1903824-20
Date Received: 25-Oct-19 08:40
% Solids: 86.2
Column: BEH C18

Analyte	CAS Number	Conc. (ng/g)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	2.10	2.00		B9K0012	11-Nov-19	1.16 g	20-Nov-19 03:28	1
PFPeA	2706-90-3	15.5	2.00		B9K0012	11-Nov-19	1.16 g	20-Nov-19 03:28	1
PFBS	375-73-5	ND	2.00		B9K0012	11-Nov-19	1.16 g	20-Nov-19 03:28	1
4:2 FTS	757124-72-4	ND	2.00		B9K0012	11-Nov-19	1.16 g	20-Nov-19 03:28	1
PFHxA	307-24-4	10.2	2.00		B9K0012	11-Nov-19	1.16 g	20-Nov-19 03:28	1
PFPeS	2706-91-4	ND	2.00		B9K0012	11-Nov-19	1.16 g	20-Nov-19 03:28	1
PFHpA	375-85-9	3.58	2.00		B9K0012	11-Nov-19	1.16 g	20-Nov-19 03:28	1
PFHxS	355-46-4	ND	2.00		B9K0012	11-Nov-19	1.16 g	20-Nov-19 03:28	1
6:2 FTS	27619-97-2	161	2.00		B9K0012	11-Nov-19	1.16 g	20-Nov-19 03:28	1
PFOA	335-67-1	ND	2.00		B9K0012	11-Nov-19	1.16 g	20-Nov-19 03:28	1
PFHpS	375-92-8	ND	2.00		B9K0012	11-Nov-19	1.16 g	20-Nov-19 03:28	1
PFNA	375-95-1	ND	2.00		B9K0012	11-Nov-19	1.16 g	20-Nov-19 03:28	1
PFOSA	754-91-6	ND	2.00		B9K0012	11-Nov-19	1.16 g	20-Nov-19 03:28	1
PFOS	1763-23-1	ND	2.00		B9K0012	11-Nov-19	1.16 g	20-Nov-19 03:28	1
PFDA	335-76-2	ND	2.00		B9K0012	11-Nov-19	1.16 g	20-Nov-19 03:28	1
8:2 FTS	39108-34-4	ND	2.00		B9K0012	11-Nov-19	1.16 g	20-Nov-19 03:28	1
MeFOSAA	2355-31-9	ND	2.00		B9K0012	11-Nov-19	1.16 g	20-Nov-19 03:28	1
EtFOSAA	2991-50-6	ND	2.00		B9K0012	11-Nov-19	1.16 g	20-Nov-19 03:28	1
PFUnA	2058-94-8	ND	2.00		B9K0012	11-Nov-19	1.16 g	20-Nov-19 03:28	1
PFDS	335-77-3	ND	2.00		B9K0012	11-Nov-19	1.16 g	20-Nov-19 03:28	1
PFDoA	307-55-1	ND	2.00		B9K0012	11-Nov-19	1.16 g	20-Nov-19 03:28	1
PFTrDA	72629-94-8	ND	2.00		B9K0012	11-Nov-19	1.16 g	20-Nov-19 03:28	1
PFTeDA	376-06-7	ND	2.00		B9K0012	11-Nov-19	1.16 g	20-Nov-19 03:28	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	142	50 - 150		B9K0012	11-Nov-19	1.16 g	20-Nov-19 03:28	1
13C3-PFPeA	IS	69.6	50 - 150		B9K0012	11-Nov-19	1.16 g	20-Nov-19 03:28	1
13C3-PFBS	IS	91.6	50 - 150		B9K0012	11-Nov-19	1.16 g	20-Nov-19 03:28	1
13C2-4:2 FTS	IS	90.1	50 - 150		B9K0012	11-Nov-19	1.16 g	20-Nov-19 03:28	1
13C2-PFHxA	IS	70.2	50 - 150		B9K0012	11-Nov-19	1.16 g	20-Nov-19 03:28	1
13C4-PFHpA	IS	66.6	50 - 150		B9K0012	11-Nov-19	1.16 g	20-Nov-19 03:28	1
13C3-PFHxS	IS	94.5	50 - 150		B9K0012	11-Nov-19	1.16 g	20-Nov-19 03:28	1
13C2-6:2 FTS	IS	68.5	50 - 150		B9K0012	11-Nov-19	1.16 g	20-Nov-19 03:28	1
13C5-PFNA	IS	56.1	50 - 150		B9K0012	11-Nov-19	1.16 g	20-Nov-19 03:28	1
13C8-PFOSA	IS	31.0	50 - 150	H	B9K0012	11-Nov-19	1.16 g	20-Nov-19 03:28	1
13C2-PFOA	IS	63.2	50 - 150		B9K0012	11-Nov-19	1.16 g	20-Nov-19 03:28	1
13C8-PFOS	IS	81.9	50 - 150		B9K0012	11-Nov-19	1.16 g	20-Nov-19 03:28	1
13C2-PFDA	IS	58.5	50 - 150		B9K0012	11-Nov-19	1.16 g	20-Nov-19 03:28	1
13C2-8:2 FTS	IS	67.3	50 - 150		B9K0012	11-Nov-19	1.16 g	20-Nov-19 03:28	1

Sample ID: L8/9-3-1 **PFAS Isotope Dilution Method**

Client Data

Name:	Woodard & Curran	Matrix:	Soil
Project:	SJC PFAS Investigation	Date Collected:	24-Oct-19 08:56
Location:	8/9		

Laboratory Data

Lab Sample:	1903824-20	Column:	BEH C18
Date Received:	25-Oct-19 08:40		
% Solids:	86.2		

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
d3-MeFOSAA	IS	68.2	50 - 150		B9K0012	11-Nov-19	1.16 g	20-Nov-19 03:28	1
13C2-PFUnA	IS	61.9	50 - 150		B9K0012	11-Nov-19	1.16 g	20-Nov-19 03:28	1
d5-EtFOSAA	IS	72.5	50 - 150		B9K0012	11-Nov-19	1.16 g	20-Nov-19 03:28	1
13C2-PFDoA	IS	59.6	50 - 150		B9K0012	11-Nov-19	1.16 g	20-Nov-19 03:28	1
13C2-PFTeDA	IS	44.6	50 - 150	H	B9K0012	11-Nov-19	1.16 g	20-Nov-19 03:28	1

RL - Reporting limit

The results are reported in dry weight.
The sample size is reported in wet weight.
Results reported to RL.

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

DATA QUALIFIERS & ABBREVIATIONS

B	This compound was also detected in the method blank
Conc.	Concentration
CRS	Cleanup Recovery Standard
D	Dilution
DL	Detection limit
E	The associated compound concentration exceeded the calibration range of the instrument
H	Recovery and/or RPD was outside laboratory acceptance limits
I	Chemical Interference
IS	Internal Standard
J	The amount detected is below the Reporting Limit/LOQ
LOD	Limit of Detection
LOQ	Limit of Quantitation
M	Estimated Maximum Possible Concentration (CA Region 2 projects only)
NA	Not applicable
ND	Not Detected
OPR	Ongoing Precision and Recovery sample
P	The reported concentration may include contribution from chlorinated diphenyl ether(s).
Q	The ion transition ratio is outside of the acceptance criteria.
RL	Reporting Limit
TEQ	Toxic Equivalency
U	Not Detected (specific projects only)
*	See Cover Letter

Unless otherwise noted, solid sample results are reported in dry weight. Tissue samples are reported in wet weight.

Vista Analytical Laboratory Certifications

Accrediting Authority	Certificate Number
Alaska Department of Environmental Conservation	17-013
Arkansas Department of Environmental Quality	19-013-0
California Department of Health – ELAP	2892
DoD ELAP - A2LA Accredited - ISO/IEC 17025:2005	3091.01
Florida Department of Health	E87777-23
Hawaii Department of Health	N/A
Louisiana Department of Environmental Quality	01977
Maine Department of Health	2018017
Massachusetts Department of Environmental Protection	N/A
Michigan Department of Environmental Quality	9932
Minnesota Department of Health	1521520
New Hampshire Environmental Accreditation Program	207718-B
New Jersey Department of Environmental Protection	190001
New York Department of Health	11411
Oregon Laboratory Accreditation Program	4042-010
Pennsylvania Department of Environmental Protection	016
Texas Commission on Environmental Quality	T104704189-19-10
Vermont Department of Health	VT-4042
Virginia Department of General Services	10272
Washington Department of Ecology	C584-19
Wisconsin Department of Natural Resources	998036160

Current certificates and lists of licensed parameters are located in the Quality Assurance office and are available upon request.

NELAP Accredited Test Methods

MATRIX: Air	
Description of Test	**Method**
Determination of Polychlorinated p-Dioxins & Polychlorinated Dibenzofurans	EPA 23
Determination of Polychlorinated p-Dioxins & Polychlorinated Dibenzofurans	EPA TO-9A

MATRIX: Biological Tissue	
Description of Test	**Method**
Tetra- through Octa-Chlorinated Dioxins and Furans by Isotope Dilution GC/HRMS	EPA 1613B
Brominated Diphenyl Ethers by HRGC/HRMS	EPA 1614A
Chlorinated Biphenyl Congeners in Water, Soil, Sediment, and Tissue by GC/HRMS	EPA 1668A/C
Pesticides in Water, Soil, Sediment, Biosolids, and Tissue by HRGC/HRMS	EPA 1699
Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/MS/MS	EPA 537
Polychlorinated Dibenzo-p-Dioxins and Polychlorinated Dibenzofurans by GC/HRMS	EPA 8280A/B
Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by GC/HRMS	EPA 8290/8290A

MATRIX: Drinking Water	
Description of Test	**Method**
2,3,7,8-Tetrachlorodibenzo- p-dioxin (2,3,7,8-TCDD) GC/HRMS	EPA 1613/1613B
1,4-Dioxane (1,4-Diethyleneoxide) analysis by GC/HRMS	EPA 522
Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/MS/MS	EPA 537
Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/MS/MS	ISO 25101 2009

MATRIX: Non-Potable Water	
Description of Test	**Method**
Tetra- through Octa-Chlorinated Dioxins and Furans by Isotope Dilution GC/HRMS	EPA 1613B
Brominated Diphenyl Ethers by HRGC/HRMS	EPA 1614A
Chlorinated Biphenyl Congeners in Water, Soil, Sediment, and Tissue by GC/HRMS	EPA 1668A/C
Pesticides in Water, Soil, Sediment, Biosolids, and Tissue by HRGC/HRMS	EPA 1699
Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/MS/MS	EPA 537
Dioxin by GC/HRMS	EPA 613
Polychlorinated Dibenzo-p-Dioxins and Polychlorinated Dibenzofurans by GC/HRMS	EPA 8280A/B
Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by GC/HRMS	EPA 8290/8290A

MATRIX: Solids	
Description of Test	**Method**
Tetra-Octa Chlorinated Dioxins and Furans by Isotope Dilution GC/HRMS	EPA 1613
Tetra- through Octa-Chlorinated Dioxins and Furans by Isotope Dilution GC/HRMS	EPA 1613B
Brominated Diphenyl Ethers by HRGC/HRMS	EPA 1614A
Chlorinated Biphenyl Congeners in Water, Soil, Sediment, and Tissue by GC/HRMS	EPA 1668A/C
Pesticides in Water, Soil, Sediment, Biosolids, and Tissue by HRGC/HRMS	EPA 1699
Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/MS/MS	EPA 537
Polychlorinated Dibenzo-p-Dioxins and Polychlorinated Dibenzofurans by GC/HRMS	EPA 8280A/B
Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by GC/HRMS	EPA 8290/8290A

Vista

Print Form

CHAIN OF COSTODY RECORD

FOR LABORATORY USE ONLY

Laboratory Project ID: 1903824
Temp 0.6 °C
Storage ID: WR-2, R-13
Storage Secured: Yes ☑ No ☐

TAT: (Check One)
Standard ☒ 21 days
Rush (surcharge may apply)
○ 14 days ○ 7 days Specify:

Project I.D.: SJC PFAS Investigation P.O. #: 0232401.01 Sampler: KA/CL (Name)

Invoice to: Name Company Address City State Zip Ph# Fax #

Relinquished by: (Printed Name and Signature) Caleb Lucy Date: 10/24/19 Time: 17:30 Received by: (Signature and Printed Name) Fed Ex Date: 10/24/2019 Time:

Relinquished by: (Printed Name and Signature) FEDEX Date: 10/25/19 Time: 08:40 Received by: (Signature and Printed Name) Hayden Ganas Date: 10/25/19 Time: 08:40

See "Sample Log-in Checklist" for additional sample information

SHIP TO: Vista Analytical Laboratory
1104 Windfield Way
El Dorado Hills, CA 95762
(916) 673-1520 • Fax (916) 673-0106

ATTN: Jade White-Dobbs

Method of Shipment: Fed Ex

Tracking No.:

Add Analysis(es) Requested

Sample ID	Date	Time	Location/Sample Description	Container(s) Quantity	Type	Matrix	EPA1613 2378-TCDD	EPA1613 2378-TCDD/TCDF	EPA1613 PCDD/PCDF	EPA8290 2378-TCDD	EPA8290 2378-TCDD/TCDF	EPA8290 PCDD/PCDF	EPA8280 2378-TCDD	EPA8280 2378-TCDD/TCDF	EPA8280 PCDD/PCDF	EPA1668 TOTALS	EPA1668 COPLANAR PCBs	EPA1668 209 CONGENERS	EPA1614 PBDE	CARB429 PAH	WHO-29	CA Airport PFAS List (23)
EB-4	10/24/19	1145	8/9	2	P	AQ																X
FB-5	10/24/19	0929	8/9	2	P	AQ																↓
L3-3-1	10/23/19	1228	3	1	PJ	SO																
FB-4	10/23/19	1201	~~8/9~~ 14	2	P	AQ																
L3-3-5	10/23/19	1230	3	1	PJ	SO																
L3-3-10	10/23/19	1232	3	1	PJ	SO																
L3-3-GW	10/23/19	1316	3	2	P	AQ																
L3-1-1	↓	1342	3	1	PJ	SO																
L3-1-5		1346	3	1	PJ	SO																
L3-1-10		1355	3	1	PJ	SO																

Special Instructions/Comments: GeoTracker EDF

SEND DOCUMENTATION AND RESULTS TO:

Name: Jim Strandberg
Company: Woodard and Curran, Inc.
Address: 2175 N. California Blvd, Ste. 315
City: Walnut Creek State: CA Zip: 94597
Phone: (510) 310-3776 Fax: (925) 627-4101
Email: jstrandberg@woodardcurran.com

Container Types: A = 1 Liter Amber, G = Glass Jar
P = PUF, T = MM5 Train, O = Other

***Bottle Preservative Type:** ☐ T = Thiosulfate,
☐ O = Other

Matrix Types: DW = Drinking Water, EF = Effluent, PP = Pulp/Paper,
SD = Sediment, SL = Sludge, SO = Soil, WW = Wastewater, B=Blood/Serum
O = Other

Vista

Print Form

CHAIN OF CUSTODY RECORD

FOR LABORATORY USE ONLY

Laboratory Project ID: 1903824

Temp 0.6 °C

Storage ID: WR-2, R-13

Storage Secured: Yes ☑ No ☐

TAT: (Check One)
Standard [✓ 21 days]
Rush (surcharge may apply)
○ 14 days ○ 7 days Specify:

Project I.D.: SJC PFAS Investigation P.O. #: 0232401.01 Sampler: KA/CL (Name)

Invoice to: Name Company Address City State Zip Ph# Fax #

Cal Ly Caleb Lucy 10/24/19 17:30 Cal Ly FedEx 10/24/2019

Relinquished by: (Printed Name and Signature) ↓ ↓ Date: ↓ Time: ↓ Received by: (Signature and Printed Name) ↓ ↓ Date: ↓ Time:

Relinquished by: (Printed Name and Signature) FEDEX Date: 10/25/19 Time: 08:40 Received by: (Signature and Printed Name) Hayden Canal Date: 10/25/19 Time: 08:40

See "Sample Log-in Checklist" for additional sample information

SHIP TO: Vista Analytical Laboratory
1104 Windfield Way
El Dorado Hills, CA 95762
(916) 673-1520 • Fax (916) 673-0106

ATTN: Jade White-Dobbs

Method of Shipment: Fed Ex

Tracking No.:

Add Analysis(es) Requested

				Container(s)			EPA1613			EPA8290			EPA8280				EPA1668		EPA1614	CARB429		
Sample ID	Date	Time	Location/Sample Description	Quantity	Type	Matrix	2378-TCDD	2378-TCDD/TCDF	PCDD/PCDF	2378-TCDD	2378-TCDD/TCDF	PCDD/PCDF	2378-TCDD	2378-TCDD/TCDF	PCDD/PCDF	TOTALS	COPLANAR PCBs	209 CONGENERS	PBDE	PAH	WHO-29	CA Airport PFAS List (23)
L3-2-1	10/23/19	1311	3	1	PJ	SO																X
L3-2-5	↓	1318	3	1	↓	↓																↓
L3-2-10	↓	1320	3	1	↓	↓																↓
L8/9-1-1	10/24/19	0811	8/9	1	↓	↓																↓
L8/9-1-5	↓	0815	8/9	1	↓	↓																↓
L8/9-1-10	↓	0819	8/9	1	↓	↓																↓
L8/9-2-1	↓	0833	8/9	1	↓	↓																↓
L8/9-2-5	↓	0837	8/9	1	↓	↓																↓
L8/9-2-10	↓	0841	8/9	1	↓	↓																↓
L8/9-3-1	↓	0856	8/9	1	↓	↓																↓

Special Instructions/Comments: GeoTracker EDF

SEND DOCUMENTATION AND RESULTS TO:

Name: Jim Strandberg
Company: Woodard + Curran
Address: 2175 N. California Blvd.; Ste. 315
City: Walnut Creek CA State: CA Zip: 94597
Phone: (510) 310-3776 Fax: (925) 627-4101
Email: jstrandberg@woodardcurran.com

Container Types: A = 1 Liter Amber, G = Glass Jar
P = PUF, T = MM5 Train, O = Other

***Bottle Preservative Type:** ☐ T = Thiosulfate,
☐ O = Other

Matrix Types: DW = Drinking Water, EF = Effluent, PP = Pulp/Paper,
SD = Sediment, SL = Sludge, SO = Soil, WW = Wastewater, B=Blood/Serum
O = Other

2

Vista
Analytical Laboratory

Sample Log-In Checklist

Page # 1 of 1

Vista Work Order #: 1903824 TAT Std

Samples Arrival:	**Date/Time** 10/25/19 08:40	**Initials:** HDG	**Location:** WR-2 **Shelf/Rack:** NA

Delivered By:	[✓ FedEx]	UPS	On Trac	GSO	DHL	Hand Delivered	Other

Preservation:	[✓ Ice]	Blue Ice	Dry Ice	None

Temp °C: 0.6 **(uncorrected)** **Temp °C:** 0.6 **(corrected)**	**Probe used: Y / [✓ N]**	**Thermometer ID:** IR-4

	YES	NO	NA
Shipping Container(s) Intact?	✓		
Shipping Custody Seals Intact?	✓		
Airbill #2 Trk # 7804 9906 8834	✓		
Shipping Documentation Present?	✓		
Shipping Container: Vista [✓ Client] Retain [✓ Return] Dispose			
Chain of Custody / Sample Documentation Present?	✓		
Chain of Custody / Sample Documentation Complete?	✓		
Holding Time Acceptable?	✓		

Logged In:	**Date/Time** 10/27/19 1451	**Initials:** KE	**Location:** WR-2 | R-13 **Shelf/Rack:** ~~DT~~ KE 10/27 R7 | A4

	YES	NO	NA
COC Anomaly/Sample Acceptance Form completed?		✓	✓

Comments:

ID.: LR – SLC *Rev No.: 4* *Rev Date: 10/08/2019* *Page: 1 of 1*

CoC/Label Reconciliation Report WO# 1903824

LabNumber	CoC Sample ID	Label ID matches COCID	Label ID doesn't match COCID	SampleAlias	Sampled	Label Sampled matches	Sampled doesn't match	Container	Container Correct	✓ BaseMatrix	Sample Comments
1903824-01	A EB-4	☑		8/9 ✓	24-Oct-19 11:45	☑		HDPE Bottle, 250 mL ✓	☑	Aqueous	
1903824-01	B EB-4	☑		8/9 ✓	24-Oct-19 11:45	☑		HDPE Bottle, 250 mL ✓	☑	Aqueous	
1903824-02	A FB-5	☑		8/9 SJC	24-Oct-19 09:29	☑		HDPE Bottle, 250 mL ✓	☑	Aqueous	
1903824-02	B FB-5	☑		8/9 SJC	24-Oct-19 09:29	☑		HDPE Bottle, 250 mL ✓	☑	Aqueous	
1903824-03	A L3-3-1	☑		3 ✓	23-Oct-19 12:28	☑		HDPE Jar, 6 oz ✓	☑	Solid	
1903824-04	A FB-4	☑		14 3	23-Oct-19 12:01	☑		HDPE Bottle, 250 mL ✓	☑	Aqueous	
1903824-04	B FB-4	☑		14 3	23-Oct-19 12:01	☑		HDPE Bottle, 250 mL	☑	Aqueous	
1903824-05	A L3-3-5	☑		3 ✓	23-Oct-19 12:30	☑		HDPE Jar, 6 oz	☑	Solid	
1903824-06	A L3-3-10	☑		3 ✓	23-Oct-19 12:32	☑		HDPE Jar, 6 oz	☑	Solid	
1903824-07	A L3-3-GW	☑		3 SJC	23-Oct-19 13:16	☑		HDPE Bottle, 250 mL	☑	Aqueous	
1903824-07	B L3-3-GW	☑		3 SJC	23-Oct-19 13:16	☑		HDPE Bottle, 250 mL	☑	Aqueous	
1903824-08	A L3-1-1	☑		3	23-Oct-19 13:42	☑		HDPE Jar, 6 oz	☑	Solid	
1903824-09	A L3-1-5	☑		3	23-Oct-19 13:46	☑		HDPE Jar, 6 oz	☑	Solid	
1903824-10	A L3-1-10	☑		3	23-Oct-19 13:55	☑		HDPE Jar, 6 oz	☑	Solid	
1903824-11	A L3-2-1	☑		3 ✓	23-Oct-19 13:11*	☐	*1316 on label	HDPE Jar, 6 oz	☑	Solid	
1903824-12	A L3-2-5	☑		3 ✓	23-Oct-19 13:18	☑		HDPE Jar, 6 oz	☑	Solid	
1903824-13	A L3-2-10	☑		3 ✓	23-Oct-19 13:20	☑		HDPE Jar, 6 oz	☑	Solid	
1903824-14	A L8/9-1-1	☑		8/9 SJC	24-Oct-19 08:11	☑		HDPE Jar, 6 oz	☑	Solid	
1903824-15	A L8/9-1-5	☑		8/9	24-Oct-19 08:15	☑		HDPE Jar, 6 oz	☑	Solid	
1903824-16	A L8/9-1-10	☑		8/9	24-Oct-19 08:19	☑		HDPE Jar, 6 oz	☑	Solid	
1903824-17	A L8/9-2-1	☑		8/9	24-Oct-19 08:33	☑		HDPE Jar, 6 oz	☑	Solid	
1903824-18	A L8/9-2-5	☑		8/9	24-Oct-19 08:37	☑		HDPE Jar, 6 oz	☑	Solid	
1903824-19	A L8/9-2-10	☑		8/9	24-Oct-19 08:41	☑		HDPE Jar, 6 oz	☑	Solid	
1903824-20	A L8/9-3-1	☑		8/9	24-Oct-19 08:56	☑		HDPE Jar, 6 oz	☑	Solid	

	Yes	No	NA
Sample Container Intact?	✓		
Sample Custody Seals Intact?			✓
Adequate Sample Volume?	✓		
Preservation Documented: Na2S2O3 Trizma [✓ None] Other		✓	✓
If Chlorinated or Drinking Water Samples, Acceptable Preservation?			✓

Comments: all samples received in cooler 2 of 2.

Verifed by/Date: MWS 10/28/19

December 12, 2019

Vista Work Order No. 1903825

Mr. Jim Strandberg
Woodard & Curran
2175 North California Boulevard, Suite 315
Walnut Creek, CA 94596

Dear Mr. Strandberg,

Enclosed are the results for the sample set received at Vista Analytical Laboratory on October 25, 2019 under your Project Name 'SJC PFAS Investigation'.

Vista Analytical Laboratory is committed to serving you effectively. If you require additional information, please contact me at 916-673-1520 or by email at mmaier@vista-analytical.com.

Thank you for choosing Vista as part of your analytical support team.

Sincerely,

Martha Maier
Laboratory Director

Vista Analytical Laboratory certifies that the report herein meets all the requirements set forth by NELAP for those applicable test methods. Results relate only to the samples as received by the laboratory. This report should not be reproduced except in full without the written approval of Vista.

Vista Work Order No. 1903825
Case Narrative

Sample Condition on Receipt:

Eight soil samples and four aqueous samples were received in good condition and within the method temperature requirements. The samples were received and stored securely in accordance with Vista standard operating procedures and EPA methodology. Sample "Trip Blank" was received but not listed on the COC. As directed, the sample was analyzed as an aqueous sample.

Analytical Notes:

PFAS Isotope Dilution Method-Aqueous

The aqueous samples were extracted and analyzed for a selected list of PFAS using Vista's PFAS Isotope Dilution Method. This method is listed on Vista's NELAP certificate as Modified EPA Method 537. The results for PFHxS, PFOA, PFOS, MeFOSAA, and EtFOSAA include both linear and branched isomers. Results for all other analytes include the linear isomers only.

Samples "L8/9-5-GW", "L8/9-4-GW", and "L8/9-40-GW" contained particulate and were centrifuged prior to extraction.

Holding Times

The samples were extracted and analyzed within the method hold times. The samples were re-extracted and the re-extractions were performed outside of the method hold times.

Quality Control

The Initial Calibration and Continuing Calibration Verifications met the method acceptance criteria.

A Method Blank and Laboratory Control Sample (LCS)/Laboratory Control Sample Duplicate (LCSD) were extracted and analyzed with the preparation batch. No analytes were detected in the Method Blank above the Reporting Limit. The LCS/LCSD recoveries were within the acceptance criteria.

Samples "L8/9-5-GW" and "L8/9-4-GW" were re-extracted due to internal standards not meeting the acceptance criteria. The re-extractions confirmed the original results and the original data have been reported.

The labeled standard recoveries outside the acceptance criteria are flagged with an "H" qualifier.

PFAS Isotope Dilution Method-Solid

The solid samples were extracted and analyzed for a selected list of PFAS using Vista's PFAS Isotope Dilution Method. This method is listed on Vista's NELAP certificate as Modified EPA Method 537. The results for PFHxS, PFOA, PFOS, MeFOSAA, and EtFOSAA include both linear and branched isomers. Results for all other analytes include the linear isomers only.

Holding Times

The samples were extracted and analyzed within the hold times.

Quality Control

The Initial Calibration and Continuing Calibration Verifications met the method acceptance criteria.

A Method Blank and Ongoing Precision and Recovery (OPR) sample were extracted and analyzed with each of the preparation batches. No analytes were detected in the Method Blanks above the Reporting Limit. The OPR recoveries were within the method acceptance criteria.

As requested, an MS/MSD was performed on sample "L8/9-4-10". The MS/MSD recoveries and RPDs were within the acceptance criteria.

The labeled standard recoveries outside the acceptance criteria are flagged with an "H" qualifier.

TABLE OF CONTENTS

Sample Inventory Report

Vista Sample ID	Client Sample ID	Sampled	Received	Components/Containers
1903825-01	L8/9-3-5	24-Oct-19 09:01	25-Oct-19 08:40	HDPE Jar, 6 oz
1903825-02	L8/9-3-10	24-Oct-19 09:04	25-Oct-19 08:40	HDPE Jar, 6 oz
1903825-03	L8/9-4-1	24-Oct-19 11:02	25-Oct-19 08:40	HDPE Jar, 6 oz
1903825-04	L8/9-4-5	24-Oct-19 11:05	25-Oct-19 08:40	HDPE Jar, 6 oz
1903825-05	L8/9-4-10	24-Oct-19 11:10	25-Oct-19 08:40	HDPE Jar, 6 oz
1903825-06	L8/9-5-1	24-Oct-19 09:38	25-Oct-19 08:40	HDPE Jar, 6 oz
1903825-07	L8/9-5-5	24-Oct-19 09:42	25-Oct-19 08:40	HDPE Jar, 6 oz
1903825-08	L8/9-5-10	24-Oct-19 09:47	25-Oct-19 08:40	HDPE Jar, 6 oz
1903825-09	L8/9-5-GW	24-Oct-19 10:15	25-Oct-19 08:40	HDPE Bottle, 250 mL
				HDPE Bottle, 250 mL
1903825-10	L8/9-4-GW	24-Oct-19 12:13	25-Oct-19 08:40	HDPE Bottle, 250 mL
				HDPE Bottle, 250 mL
1903825-11	L8/9-40-GW	24-Oct-19 12:13	25-Oct-19 08:40	HDPE Bottle, 250 mL
				HDPE Bottle, 250 mL
1903825-12	Trip Blank	18-Oct-19 00:00	25-Oct-19 08:40	HDPE Bottle, 250 mL
				HDPE Bottle, 250 mL

Vista Project: 1903825

Client Project: SJC PFAS Investigation

ANALYTICAL RESULTS

Sample ID: Method Blank **PFAS Isotope Dilution Method**

Client Data				**Laboratory Data**			
Name:	Woodard & Curran	Matrix:	Solid	Lab Sample:	B9K0047-BLK1	Column:	BEH C18
Project:	SJC PFAS Investigation						

Analyte	CAS Number	Conc. (ng/g)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	ND	2.00		B9K0047	12-Nov-19	1.00 g	20-Nov-19 05:13	1
PFPeA	2706-90-3	ND	2.00		B9K0047	12-Nov-19	1.00 g	20-Nov-19 05:13	1
PFBS	375-73-5	ND	2.00		B9K0047	12-Nov-19	1.00 g	20-Nov-19 05:13	1
4:2 FTS	757124-72-4	ND	2.00		B9K0047	12-Nov-19	1.00 g	20-Nov-19 05:13	1
PFHxA	307-24-4	ND	2.00		B9K0047	12-Nov-19	1.00 g	20-Nov-19 05:13	1
PFPeS	2706-91-4	ND	2.00		B9K0047	12-Nov-19	1.00 g	20-Nov-19 05:13	1
PFHpA	375-85-9	ND	2.00		B9K0047	12-Nov-19	1.00 g	20-Nov-19 05:13	1
PFHxS	355-46-4	ND	2.00		B9K0047	12-Nov-19	1.00 g	20-Nov-19 05:13	1
6:2 FTS	27619-97-2	ND	2.00		B9K0047	12-Nov-19	1.00 g	20-Nov-19 05:13	1
PFOA	335-67-1	ND	2.00		B9K0047	12-Nov-19	1.00 g	20-Nov-19 05:13	1
PFHpS	375-92-8	ND	2.00		B9K0047	12-Nov-19	1.00 g	20-Nov-19 05:13	1
PFNA	375-95-1	ND	2.00		B9K0047	12-Nov-19	1.00 g	20-Nov-19 05:13	1
PFOS	1763-23-1	ND	2.00		B9K0047	12-Nov-19	1.00 g	20-Nov-19 05:13	1
PFDA	335-76-2	ND	2.00		B9K0047	12-Nov-19	1.00 g	20-Nov-19 05:13	1
8:2 FTS	39108-34-4	ND	2.00		B9K0047	12-Nov-19	1.00 g	20-Nov-19 05:13	1
MeFOSAA	2355-31-9	ND	2.00		B9K0047	12-Nov-19	1.00 g	20-Nov-19 05:13	1
EtFOSAA	2991-50-6	ND	2.00		B9K0047	12-Nov-19	1.00 g	20-Nov-19 05:13	1
PFUnA	2058-94-8	ND	2.00		B9K0047	12-Nov-19	1.00 g	20-Nov-19 05:13	1
PFDS	335-77-3	ND	2.00		B9K0047	12-Nov-19	1.00 g	20-Nov-19 05:13	1
PFDoA	307-55-1	ND	2.00		B9K0047	12-Nov-19	1.00 g	20-Nov-19 05:13	1
PFTrDA	72629-94-8	ND	2.00		B9K0047	12-Nov-19	1.00 g	20-Nov-19 05:13	1
PFTeDA	376-06-7	ND	2.00		B9K0047	12-Nov-19	1.00 g	20-Nov-19 05:13	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	154	50 - 150	H	B9K0047	12-Nov-19	1.00 g	20-Nov-19 05:13	1
13C3-PFPeA	IS	72.9	50 - 150		B9K0047	12-Nov-19	1.00 g	20-Nov-19 05:13	1
13C3-PFBS	IS	88.9	50 - 150		B9K0047	12-Nov-19	1.00 g	20-Nov-19 05:13	1
13C2-4:2 FTS	IS	99.7	50 - 150		B9K0047	12-Nov-19	1.00 g	20-Nov-19 05:13	1
13C2-PFHxA	IS	66.7	50 - 150		B9K0047	12-Nov-19	1.00 g	20-Nov-19 05:13	1
13C4-PFHpA	IS	69.0	50 - 150		B9K0047	12-Nov-19	1.00 g	20-Nov-19 05:13	1
13C3-PFHxS	IS	103	50 - 150		B9K0047	12-Nov-19	1.00 g	20-Nov-19 05:13	1
13C2-6:2 FTS	IS	97.3	50 - 150		B9K0047	12-Nov-19	1.00 g	20-Nov-19 05:13	1
13C5-PFNA	IS	67.4	50 - 150		B9K0047	12-Nov-19	1.00 g	20-Nov-19 05:13	1
13C2-PFOA	IS	69.3	50 - 150		B9K0047	12-Nov-19	1.00 g	20-Nov-19 05:13	1
13C8-PFOS	IS	87.3	50 - 150		B9K0047	12-Nov-19	1.00 g	20-Nov-19 05:13	1
13C2-PFDA	IS	60.2	50 - 150		B9K0047	12-Nov-19	1.00 g	20-Nov-19 05:13	1
13C2-8:2 FTS	IS	115	50 - 150		B9K0047	12-Nov-19	1.00 g	20-Nov-19 05:13	1
d3-MeFOSAA	IS	57.3	50 - 150		B9K0047	12-Nov-19	1.00 g	20-Nov-19 05:13	1
13C2-PFUnA	IS	50.9	50 - 150		B9K0047	12-Nov-19	1.00 g	20-Nov-19 05:13	1

Sample ID: Method Blank **PFAS Isotope Dilution Method**

Client Data				**Laboratory Data**			
Name:	Woodard & Curran	Matrix:	Solid	Lab Sample:	B9K0047-BLK1	Column:	BEH C18
Project:	SJC PFAS Investigation						

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
d5-EtFOSAA	IS	54.3	50 - 150		B9K0047	12-Nov-19	1.00 g	20-Nov-19 05:13	1
13C2-PFDoA	IS	48.5	50 - 150	H	B9K0047	12-Nov-19	1.00 g	20-Nov-19 05:13	1
13C2-PFTeDA	IS	58.1	50 - 150		B9K0047	12-Nov-19	1.00 g	20-Nov-19 05:13	1

RL - Reporting limit

The results are reported in dry weight.
The sample size is reported in wet weight.
Results reported to RL.

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

Sample ID: OPR **PFAS Isotope Dilution Method**

Client Data

Name: Woodard & Curran
Project: SJC PFAS Investigation
Matrix: Solid

Laboratory Data

Lab Sample: B9K0047-BS1
Column: BEH C18

Analyte	CAS Number	Amt Found (ng/g)	Spike Amt	% Rec	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	9.64	10.0	96.4	71 - 135		B9K0047	12-Nov-19	1.00 g	20-Nov-19 05:24	1
PFPeA	2706-90-3	10.8	10.0	108	69 - 132		B9K0047	12-Nov-19	1.00 g	20-Nov-19 05:24	1
PFBS	375-73-5	10.0	10.0	100	72 - 128		B9K0047	12-Nov-19	1.00 g	20-Nov-19 05:24	1
4:2 FTS	757124-72-4	11.2	10.0	112	62 - 145		B9K0047	12-Nov-19	1.00 g	20-Nov-19 05:24	1
PFHxA	307-24-4	10.7	10.0	107	70 - 132		B9K0047	12-Nov-19	1.00 g	20-Nov-19 05:24	1
PFPeS	2706-91-4	9.65	10.0	96.5	73 - 123		B9K0047	12-Nov-19	1.00 g	20-Nov-19 05:24	1
PFHpA	375-85-9	9.93	10.0	99.3	71 - 131		B9K0047	12-Nov-19	1.00 g	20-Nov-19 05:24	1
PFHxS	355-46-4	8.77	10.0	87.7	67 - 130		B9K0047	12-Nov-19	1.00 g	20-Nov-19 05:24	1
6:2 FTS	27619-97-2	12.9	10.0	129	64 - 140		B9K0047	12-Nov-19	1.00 g	20-Nov-19 05:24	1
PFOA	335-67-1	10.5	10.0	105	69 - 133		B9K0047	12-Nov-19	1.00 g	20-Nov-19 05:24	1
PFHpS	375-92-8	10.3	10.0	103	70 - 132		B9K0047	12-Nov-19	1.00 g	20-Nov-19 05:24	1
PFNA	375-95-1	9.82	10.0	98.2	72 - 129		B9K0047	12-Nov-19	1.00 g	20-Nov-19 05:24	1
PFOS	1763-23-1	9.08	10.0	90.6	68 - 136		B9K0047	12-Nov-19	1.00 g	20-Nov-19 05:24	1
PFDA	335-76-2	10.1	10.0	101	69 - 133		B9K0047	12-Nov-19	1.00 g	20-Nov-19 05:24	1
8:2 FTS	39108-34-4	11.5	10.0	115	65 - 137		B9K0047	12-Nov-19	1.00 g	20-Nov-19 05:24	1
MeFOSAA	2355-31-9	9.41	10.0	94.1	63 - 144		B9K0047	12-Nov-19	1.00 g	20-Nov-19 05:24	1
EtFOSAA	2991-50-6	9.52	10.0	95.2	61 - 139		B9K0047	12-Nov-19	1.00 g	20-Nov-19 05:24	1
PFUnA	2058-94-8	11.1	10.0	111	64 - 136		B9K0047	12-Nov-19	1.00 g	20-Nov-19 05:24	1
PFDS	335-77-3	8.48	10.0	84.6	59 - 134		B9K0047	12-Nov-19	1.00 g	20-Nov-19 05:24	1
PFDoA	307-55-1	9.92	10.0	99.2	69 - 135		B9K0047	12-Nov-19	1.00 g	20-Nov-19 05:24	1
PFTrDA	72629-94-8	11.7	10.0	117	66 - 139		B9K0047	12-Nov-19	1.00 g	20-Nov-19 05:24	1
PFTeDA	376-06-7	11.0	10.0	110	69 - 133		B9K0047	12-Nov-19	1.00 g	20-Nov-19 05:24	1

Labeled Standards	Type	% Rec	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	99.9	50- 150		B9K0047	12-Nov-19	1.00 g	20-Nov-19 05:24	1
13C3-PFPeA	IS	51.0	50- 150		B9K0047	12-Nov-19	1.00 g	20-Nov-19 05:24	1
13C3-PFBS	IS	84.9	50- 150		B9K0047	12-Nov-19	1.00 g	20-Nov-19 05:24	1
13C2-4:2 FTS	IS	87.4	50- 150		B9K0047	12-Nov-19	1.00 g	20-Nov-19 05:24	1
13C2-PFHxA	IS	50.1	50- 150		B9K0047	12-Nov-19	1.00 g	20-Nov-19 05:24	1
13C4-PFHpA	IS	51.3	50- 150		B9K0047	12-Nov-19	1.00 g	20-Nov-19 05:24	1
13C3-PFHxS	IS	98.6	50- 150		B9K0047	12-Nov-19	1.00 g	20-Nov-19 05:24	1
13C2-6:2 FTS	IS	64.6	50- 150		B9K0047	12-Nov-19	1.00 g	20-Nov-19 05:24	1
13C5-PFNA	IS	53.2	50- 150		B9K0047	12-Nov-19	1.00 g	20-Nov-19 05:24	1
13C2-PFOA	IS	51.9	50- 150		B9K0047	12-Nov-19	1.00 g	20-Nov-19 05:24	1
13C8-PFOS	IS	87.4	50- 150		B9K0047	12-Nov-19	1.00 g	20-Nov-19 05:24	1
13C2-PFDA	IS	52.9	50- 150		B9K0047	12-Nov-19	1.00 g	20-Nov-19 05:24	1

Sample ID: OPR

PFAS Isotope Dilution Method

Client Data

Name: Woodard & Curran
Project: SJC PFAS Investigation
Matrix: Solid

Laboratory Data

Lab Sample: B9K0047-BS1
Column: BEH C18

Labeled Standards	Type	% Rec	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-8:2 FTS	IS	89.6	50 - 150		B9K0047	12-Nov-19	1.00 g	20-Nov-19 05:24	1
d3-MeFOSAA	IS	61.4	50 - 150		B9K0047	12-Nov-19	1.00 g	20-Nov-19 05:24	1
13C2-PFUnA	IS	51.6	50 - 150		B9K0047	12-Nov-19	1.00 g	20-Nov-19 05:24	1
d5-EtFOSAA	IS	56.4	50 - 150		B9K0047	12-Nov-19	1.00 g	20-Nov-19 05:24	1
13C2-PFDoA	IS	51.1	50 - 150		B9K0047	12-Nov-19	1.00 g	20-Nov-19 05:24	1
13C2-PFTeDA	IS	61.9	50 - 150		B9K0047	12-Nov-19	1.00 g	20-Nov-19 05:24	1

Sample ID: Method Blank **PFAS Isotope Dilution Method**

Client Data				**Laboratory Data**			
Name:	Woodard & Curran	Matrix:	Solid	Lab Sample:	B9K0201-BLK1	Column:	BEH C18
Project:	SJC PFAS Investigation						

Analyte	CAS Number	Conc. (ng/g)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	ND	1.00		B9K0201	26-Nov-19	2.00 g	06-Dec-19 19:46	1
PFOSA	754-91-6	ND	1.00		B9K0201	26-Nov-19	2.00 g	06-Dec-19 19:46	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	62.7	50 - 150		B9K0201	26-Nov-19	2.00 g	06-Dec-19 19:46	1
13C8-PFOSA	IS	29.5	50 - 150	H	B9K0201	26-Nov-19	2.00 g	06-Dec-19 19:46	1

RL - Reporting limit

The results are reported in dry weight.
The sample size is reported in wet weight.
Results reported to RL.

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

Sample ID: OPR

PFAS Isotope Dilution Method

Client Data				**Laboratory Data**			
Name:	Woodard & Curran	Matrix:	Solid	Lab Sample:	B9K0201-BS1	Column:	BEH C18
Project:	SJC PFAS Investigation						

Analyte	CAS Number	Amt Found (ng/g)	Spike Amt	% Rec	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	4.98	5.00	99.5	71 - 135		B9K0201	26-Nov-19	2.00 g	07-Dec-19 20:04	1
PFOSA	754-91-6	5.19	5.00	104	67 - 137		B9K0201	26-Nov-19	2.00 g	07-Dec-19 20:04	1

Labeled Standards	Type	% Rec	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	71.7	50- 150		B9K0201	26-Nov-19	2.00 g	07-Dec-19 20:04	1
13C8-PFOSA	IS	39.7	50- 150	H	B9K0201	26-Nov-19	2.00 g	07-Dec-19 20:04	1

Sample ID: L8/9-3-5 **PFAS Isotope Dilution Method**

Client Data				**Laboratory Data**			
Name:	Woodard & Curran	Matrix:	Soil	Lab Sample:	1903825-01	Column:	BEH C18
Project:	SJC PFAS Investigation	Date Collected:	24-Oct-19 09:01	Date Received:	25-Oct-19 08:40		
Location:	8/9			% Solids:	74.2		

Analyte	CAS Number	Conc. (ng/g)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	1.39	0.994		B9K0201	26-Nov-19	2.71 g	06-Dec-19 22:03	1
PFPeA	2706-90-3	5.93	1.98		B9K0047	12-Nov-19	1.36 g	20-Nov-19 07:51	1
PFBS	375-73-5	ND	1.98		B9K0047	12-Nov-19	1.36 g	20-Nov-19 07:51	1
4:2 FTS	757124-72-4	ND	1.98		B9K0047	12-Nov-19	1.36 g	20-Nov-19 07:51	1
PFHxA	307-24-4	ND	1.98		B9K0047	12-Nov-19	1.36 g	20-Nov-19 07:51	1
PFPeS	2706-91-4	ND	1.98		B9K0047	12-Nov-19	1.36 g	20-Nov-19 07:51	1
PFHpA	375-85-9	ND	1.98		B9K0047	12-Nov-19	1.36 g	20-Nov-19 07:51	1
PFHxS	355-46-4	ND	1.98		B9K0047	12-Nov-19	1.36 g	20-Nov-19 07:51	1
6:2 FTS	27619-97-2	ND	1.98		B9K0047	12-Nov-19	1.36 g	20-Nov-19 07:51	1
PFOA	335-67-1	ND	1.98		B9K0047	12-Nov-19	1.36 g	20-Nov-19 07:51	1
PFHpS	375-92-8	ND	1.98		B9K0047	12-Nov-19	1.36 g	20-Nov-19 07:51	1
PFNA	375-95-1	ND	1.98		B9K0047	12-Nov-19	1.36 g	20-Nov-19 07:51	1
PFOSA	754-91-6	ND	0.994		B9K0201	26-Nov-19	2.71 g	06-Dec-19 22:03	1
PFOS	1763-23-1	ND	1.98		B9K0047	12-Nov-19	1.36 g	20-Nov-19 07:51	1
PFDA	335-76-2	ND	1.98		B9K0047	12-Nov-19	1.36 g	20-Nov-19 07:51	1
8:2 FTS	39108-34-4	ND	1.98		B9K0047	12-Nov-19	1.36 g	20-Nov-19 07:51	1
MeFOSAA	2355-31-9	ND	1.98		B9K0047	12-Nov-19	1.36 g	20-Nov-19 07:51	1
EtFOSAA	2991-50-6	ND	1.98		B9K0047	12-Nov-19	1.36 g	20-Nov-19 07:51	1
PFUnA	2058-94-8	ND	1.98		B9K0047	12-Nov-19	1.36 g	20-Nov-19 07:51	1
PFDS	335-77-3	ND	1.98		B9K0047	12-Nov-19	1.36 g	20-Nov-19 07:51	1
PFDoA	307-55-1	ND	1.98		B9K0047	12-Nov-19	1.36 g	20-Nov-19 07:51	1
PFTrDA	72629-94-8	ND	1.98		B9K0047	12-Nov-19	1.36 g	20-Nov-19 07:51	1
PFTeDA	376-06-7	ND	1.98		B9K0047	12-Nov-19	1.36 g	20-Nov-19 07:51	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	72.2	50 - 150		B9K0201	26-Nov-19	2.71 g	06-Dec-19 22:03	1
13C3-PFPeA	IS	77.2	50 - 150		B9K0047	12-Nov-19	1.36 g	20-Nov-19 07:51	1
13C3-PFBS	IS	77.2	50 - 150		B9K0047	12-Nov-19	1.36 g	20-Nov-19 07:51	1
13C2-4:2 FTS	IS	80.5	50 - 150		B9K0047	12-Nov-19	1.36 g	20-Nov-19 07:51	1
13C2-PFHxA	IS	77.5	50 - 150		B9K0047	12-Nov-19	1.36 g	20-Nov-19 07:51	1
13C4-PFHpA	IS	70.5	50 - 150		B9K0047	12-Nov-19	1.36 g	20-Nov-19 07:51	1
13C3-PFHxS	IS	79.4	50 - 150		B9K0047	12-Nov-19	1.36 g	20-Nov-19 07:51	1
13C2-6:2 FTS	IS	71.1	50 - 150		B9K0047	12-Nov-19	1.36 g	20-Nov-19 07:51	1
13C5-PFNA	IS	60.4	50 - 150		B9K0047	12-Nov-19	1.36 g	20-Nov-19 07:51	1
13C8-PFOSA	IS	27.0	50 - 150	H	B9K0201	26-Nov-19	2.71 g	06-Dec-19 22:03	1
13C2-PFOA	IS	67.4	50 - 150		B9K0047	12-Nov-19	1.36 g	20-Nov-19 07:51	1
13C8-PFOS	IS	83.9	50 - 150		B9K0047	12-Nov-19	1.36 g	20-Nov-19 07:51	1
13C2-PFDA	IS	48.3	50 - 150	H	B9K0047	12-Nov-19	1.36 g	20-Nov-19 07:51	1
13C2-8:2 FTS	IS	78.1	50 - 150		B9K0047	12-Nov-19	1.36 g	20-Nov-19 07:51	1

Sample ID: L8/9-3-5 **PFAS Isotope Dilution Method**

Client Data				**Laboratory Data**			
Name:	Woodard & Curran	Matrix:	Soil	Lab Sample:	1903825-01	Column:	BEH C18
Project:	SJC PFAS Investigation	Date Collected:	24-Oct-19 09:01	Date Received:	25-Oct-19 08:40		
Location:	8/9			% Solids:	74.2		

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
d3-MeFOSAA	IS	69.8	50 - 150		B9K0047	12-Nov-19	1.36 g	20-Nov-19 07:51	1
13C2-PFUnA	IS	59.8	50 - 150		B9K0047	12-Nov-19	1.36 g	20-Nov-19 07:51	1
d5-EtFOSAA	IS	64.3	50 - 150		B9K0047	12-Nov-19	1.36 g	20-Nov-19 07:51	1
13C2-PFDoA	IS	57.5	50 - 150		B9K0047	12-Nov-19	1.36 g	20-Nov-19 07:51	1
13C2-PFTeDA	IS	43.8	50 - 150	H	B9K0047	12-Nov-19	1.36 g	20-Nov-19 07:51	1

RL - Reporting limit

The results are reported in dry weight.
The sample size is reported in wet weight.
Results reported to RL.

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

Sample ID: L8/9-3-10 **PFAS Isotope Dilution Method**

Client Data				**Laboratory Data**			
Name:	Woodard & Curran	Matrix:	Soil	Lab Sample:	1903825-02	Column:	BEH C18
Project:	SJC PFAS Investigation	Date Collected:	24-Oct-19 09:04	Date Received:	25-Oct-19 08:40		
Location:	8/9			% Solids:	86.5		

Analyte	CAS Number	Conc. (ng/g)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	ND	1.98		B9K0047	12-Nov-19	1.17 g	20-Nov-19 08:02	1
PFPeA	2706-90-3	9.21	1.98		B9K0047	12-Nov-19	1.17 g	20-Nov-19 08:02	1
PFBS	375-73-5	ND	1.98		B9K0047	12-Nov-19	1.17 g	20-Nov-19 08:02	1
4:2 FTS	757124-72-4	ND	1.98		B9K0047	12-Nov-19	1.17 g	20-Nov-19 08:02	1
PFHxA	307-24-4	4.29	1.98		B9K0047	12-Nov-19	1.17 g	20-Nov-19 08:02	1
PFPeS	2706-91-4	ND	1.98		B9K0047	12-Nov-19	1.17 g	20-Nov-19 08:02	1
PFHpA	375-85-9	ND	1.98		B9K0047	12-Nov-19	1.17 g	20-Nov-19 08:02	1
PFHxS	355-46-4	ND	1.98		B9K0047	12-Nov-19	1.17 g	20-Nov-19 08:02	1
6:2 FTS	27619-97-2	ND	1.98		B9K0047	12-Nov-19	1.17 g	20-Nov-19 08:02	1
PFOA	335-67-1	ND	1.98		B9K0047	12-Nov-19	1.17 g	20-Nov-19 08:02	1
PFHpS	375-92-8	ND	1.98		B9K0047	12-Nov-19	1.17 g	20-Nov-19 08:02	1
PFNA	375-95-1	ND	1.98		B9K0047	12-Nov-19	1.17 g	20-Nov-19 08:02	1
PFOSA	754-91-6	ND	0.997		B9K0201	26-Nov-19	2.32 g	06-Dec-19 22:34	1
PFOS	1763-23-1	ND	1.98		B9K0047	12-Nov-19	1.17 g	20-Nov-19 08:02	1
PFDA	335-76-2	ND	1.98		B9K0047	12-Nov-19	1.17 g	20-Nov-19 08:02	1
8:2 FTS	39108-34-4	ND	1.98		B9K0047	12-Nov-19	1.17 g	20-Nov-19 08:02	1
MeFOSAA	2355-31-9	ND	1.98		B9K0047	12-Nov-19	1.17 g	20-Nov-19 08:02	1
EtFOSAA	2991-50-6	ND	1.98		B9K0047	12-Nov-19	1.17 g	20-Nov-19 08:02	1
PFUnA	2058-94-8	ND	1.98		B9K0047	12-Nov-19	1.17 g	20-Nov-19 08:02	1
PFDS	335-77-3	ND	1.98		B9K0047	12-Nov-19	1.17 g	20-Nov-19 08:02	1
PFDoA	307-55-1	ND	1.98		B9K0047	12-Nov-19	1.17 g	20-Nov-19 08:02	1
PFTrDA	72629-94-8	ND	1.98		B9K0047	12-Nov-19	1.17 g	20-Nov-19 08:02	1
PFTeDA	376-06-7	ND	1.98		B9K0047	12-Nov-19	1.17 g	20-Nov-19 08:02	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	144	50 - 150		B9K0047	12-Nov-19	1.17 g	20-Nov-19 08:02	1
13C3-PFPeA	IS	75.0	50 - 150		B9K0047	12-Nov-19	1.17 g	20-Nov-19 08:02	1
13C3-PFBS	IS	82.0	50 - 150		B9K0047	12-Nov-19	1.17 g	20-Nov-19 08:02	1
13C2-4:2 FTS	IS	83.2	50 - 150		B9K0047	12-Nov-19	1.17 g	20-Nov-19 08:02	1
13C2-PFHxA	IS	74.1	50 - 150		B9K0047	12-Nov-19	1.17 g	20-Nov-19 08:02	1
13C4-PFHpA	IS	67.7	50 - 150		B9K0047	12-Nov-19	1.17 g	20-Nov-19 08:02	1
13C3-PFHxS	IS	88.2	50 - 150		B9K0047	12-Nov-19	1.17 g	20-Nov-19 08:02	1
13C2-6:2 FTS	IS	83.0	50 - 150		B9K0047	12-Nov-19	1.17 g	20-Nov-19 08:02	1
13C5-PFNA	IS	57.7	50 - 150		B9K0047	12-Nov-19	1.17 g	20-Nov-19 08:02	1
13C8-PFOSA	IS	50.7	50 - 150		B9K0201	26-Nov-19	2.32 g	06-Dec-19 22:34	1
13C2-PFOA	IS	66.7	50 - 150		B9K0047	12-Nov-19	1.17 g	20-Nov-19 08:02	1
13C8-PFOS	IS	79.7	50 - 150		B9K0047	12-Nov-19	1.17 g	20-Nov-19 08:02	1
13C2-PFDA	IS	59.7	50 - 150		B9K0047	12-Nov-19	1.17 g	20-Nov-19 08:02	1
13C2-8:2 FTS	IS	88.0	50 - 150		B9K0047	12-Nov-19	1.17 g	20-Nov-19 08:02	1

Sample ID: L8/9-3-10 **PFAS Isotope Dilution Method**

Client Data				**Laboratory Data**			
Name:	Woodard & Curran	Matrix:	Soil	Lab Sample:	1903825-02	Column:	BEH C18
Project:	SJC PFAS Investigation	Date Collected:	24-Oct-19 09:04	Date Received:	25-Oct-19 08:40		
Location:	8/9			% Solids:	86.5		

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
d3-MeFOSAA	IS	68.0	50 - 150		B9K0047	12-Nov-19	1.17 g	20-Nov-19 08:02	1
13C2-PFUnA	IS	60.1	50 - 150		B9K0047	12-Nov-19	1.17 g	20-Nov-19 08:02	1
d5-EtFOSAA	IS	60.0	50 - 150		B9K0047	12-Nov-19	1.17 g	20-Nov-19 08:02	1
13C2-PFDoA	IS	61.2	50 - 150		B9K0047	12-Nov-19	1.17 g	20-Nov-19 08:02	1
13C2-PFTeDA	IS	61.8	50 - 150		B9K0047	12-Nov-19	1.17 g	20-Nov-19 08:02	1

RL - Reporting limit

The results are reported in dry weight.
The sample size is reported in wet weight.
Results reported to RL.

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

Sample ID: L8/9-4-1 **PFAS Isotope Dilution Method**

Client Data				**Laboratory Data**			
Name:	Woodard & Curran	Matrix:	Soil	Lab Sample:	1903825-03	Column:	BEH C18
Project:	SJC PFAS Investigation	Date Collected:	24-Oct-19 11:02	Date Received:	25-Oct-19 08:40		
Location:	8/9			% Solids:	81.3		

Analyte	CAS Number	Conc. (ng/g)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	5.49	0.996		B9K0201	26-Nov-19	2.47 g	06-Dec-19 22:45	1
PFPeA	2706-90-3	23.7	1.97		B9K0047	12-Nov-19	1.25 g	20-Nov-19 08:12	1
PFBS	375-73-5	ND	1.97		B9K0047	12-Nov-19	1.25 g	20-Nov-19 08:12	1
4:2 FTS	757124-72-4	ND	1.97		B9K0047	12-Nov-19	1.25 g	20-Nov-19 08:12	1
PFHxA	307-24-4	15.6	1.97		B9K0047	12-Nov-19	1.25 g	20-Nov-19 08:12	1
PFPeS	2706-91-4	ND	1.97		B9K0047	12-Nov-19	1.25 g	20-Nov-19 08:12	1
PFHpA	375-85-9	2.51	1.97	Q	B9K0047	12-Nov-19	1.25 g	20-Nov-19 08:12	1
PFHxS	355-46-4	ND	1.97		B9K0047	12-Nov-19	1.25 g	20-Nov-19 08:12	1
6:2 FTS	27619-97-2	81.4	1.97		B9K0047	12-Nov-19	1.25 g	20-Nov-19 08:12	1
PFOA	335-67-1	ND	1.97		B9K0047	12-Nov-19	1.25 g	20-Nov-19 08:12	1
PFHpS	375-92-8	ND	1.97		B9K0047	12-Nov-19	1.25 g	20-Nov-19 08:12	1
PFNA	375-95-1	ND	1.97		B9K0047	12-Nov-19	1.25 g	20-Nov-19 08:12	1
PFOSA	754-91-6	ND	0.996		B9K0201	26-Nov-19	2.47 g	06-Dec-19 22:45	1
PFOS	1763-23-1	ND	1.97		B9K0047	12-Nov-19	1.25 g	20-Nov-19 08:12	1
PFDA	335-76-2	ND	1.97		B9K0047	12-Nov-19	1.25 g	20-Nov-19 08:12	1
8:2 FTS	39108-34-4	ND	1.97		B9K0047	12-Nov-19	1.25 g	20-Nov-19 08:12	1
MeFOSAA	2355-31-9	ND	1.97		B9K0047	12-Nov-19	1.25 g	20-Nov-19 08:12	1
EtFOSAA	2991-50-6	ND	1.97		B9K0047	12-Nov-19	1.25 g	20-Nov-19 08:12	1
PFUnA	2058-94-8	ND	1.97		B9K0047	12-Nov-19	1.25 g	20-Nov-19 08:12	1
PFDS	335-77-3	ND	1.97		B9K0047	12-Nov-19	1.25 g	20-Nov-19 08:12	1
PFDoA	307-55-1	ND	1.97		B9K0047	12-Nov-19	1.25 g	20-Nov-19 08:12	1
PFTrDA	72629-94-8	ND	1.97		B9K0047	12-Nov-19	1.25 g	20-Nov-19 08:12	1
PFTeDA	376-06-7	ND	1.97		B9K0047	12-Nov-19	1.25 g	20-Nov-19 08:12	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	74.5	50 - 150		B9K0201	26-Nov-19	2.47 g	06-Dec-19 22:45	1
13C3-PFPeA	IS	76.3	50 - 150		B9K0047	12-Nov-19	1.25 g	20-Nov-19 08:12	1
13C3-PFBS	IS	78.2	50 - 150		B9K0047	12-Nov-19	1.25 g	20-Nov-19 08:12	1
13C2-4:2 FTS	IS	87.4	50 - 150		B9K0047	12-Nov-19	1.25 g	20-Nov-19 08:12	1
13C2-PFHxA	IS	75.6	50 - 150		B9K0047	12-Nov-19	1.25 g	20-Nov-19 08:12	1
13C4-PFHpA	IS	74.0	50 - 150		B9K0047	12-Nov-19	1.25 g	20-Nov-19 08:12	1
13C3-PFHxS	IS	82.2	50 - 150		B9K0047	12-Nov-19	1.25 g	20-Nov-19 08:12	1
13C2-6:2 FTS	IS	69.6	50 - 150		B9K0047	12-Nov-19	1.25 g	20-Nov-19 08:12	1
13C5-PFNA	IS	64.7	50 - 150		B9K0047	12-Nov-19	1.25 g	20-Nov-19 08:12	1
13C8-PFOSA	IS	56.3	50 - 150		B9K0201	26-Nov-19	2.47 g	06-Dec-19 22:45	1
13C2-PFOA	IS	68.5	50 - 150		B9K0047	12-Nov-19	1.25 g	20-Nov-19 08:12	1
13C8-PFOS	IS	79.9	50 - 150		B9K0047	12-Nov-19	1.25 g	20-Nov-19 08:12	1
13C2-PFDA	IS	66.3	50 - 150		B9K0047	12-Nov-19	1.25 g	20-Nov-19 08:12	1
13C2-8:2 FTS	IS	83.4	50 - 150		B9K0047	12-Nov-19	1.25 g	20-Nov-19 08:12	1

Sample ID: L8/9-4-1

PFAS Isotope Dilution Method

Client Data				**Laboratory Data**			
Name:	Woodard & Curran	Matrix:	Soil	Lab Sample:	1903825-03	Column:	BEH C18
Project:	SJC PFAS Investigation	Date Collected:	24-Oct-19 11:02	Date Received:	25-Oct-19 08:40		
Location:	8/9			% Solids:	81.3		

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
d3-MeFOSAA	IS	60.2	50 - 150		B9K0047	12-Nov-19	1.25 g	20-Nov-19 08:12	1
13C2-PFUnA	IS	69.2	50 - 150		B9K0047	12-Nov-19	1.25 g	20-Nov-19 08:12	1
d5-EtFOSAA	IS	62.9	50 - 150		B9K0047	12-Nov-19	1.25 g	20-Nov-19 08:12	1
13C2-PFDoA	IS	55.0	50 - 150		B9K0047	12-Nov-19	1.25 g	20-Nov-19 08:12	1
13C2-PFTeDA	IS	27.6	50 - 150	H	B9K0047	12-Nov-19	1.25 g	20-Nov-19 08:12	1

RL - Reporting limit

The results are reported in dry weight.
The sample size is reported in wet weight.
Results reported to RL.

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

Sample ID: L8/9-4-5 **PFAS Isotope Dilution Method**

Client Data				**Laboratory Data**			
Name:	Woodard & Curran	Matrix:	Soil	Lab Sample:	1903825-04	Column:	BEH C18
Project:	SJC PFAS Investigation	Date Collected:	24-Oct-19 11:05	Date Received:	25-Oct-19 08:40		
Location:	8/9			% Solids:	77.5		

Analyte	CAS Number	Conc. (ng/g)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	ND	0.993		B9K0201	26-Nov-19	2.60 g	06-Dec-19 22:55	1
PFPeA	2706-90-3	ND	2.00		B9K0047	12-Nov-19	1.29 g	20-Nov-19 08:23	1
PFBS	375-73-5	ND	2.00		B9K0047	12-Nov-19	1.29 g	20-Nov-19 08:23	1
4:2 FTS	757124-72-4	ND	2.00		B9K0047	12-Nov-19	1.29 g	20-Nov-19 08:23	1
PFHxA	307-24-4	ND	2.00		B9K0047	12-Nov-19	1.29 g	20-Nov-19 08:23	1
PFPeS	2706-91-4	ND	2.00		B9K0047	12-Nov-19	1.29 g	20-Nov-19 08:23	1
PFHpA	375-85-9	ND	2.00		B9K0047	12-Nov-19	1.29 g	20-Nov-19 08:23	1
PFHxS	355-46-4	ND	2.00		B9K0047	12-Nov-19	1.29 g	20-Nov-19 08:23	1
6:2 FTS	27619-97-2	ND	2.00		B9K0047	12-Nov-19	1.29 g	20-Nov-19 08:23	1
PFOA	335-67-1	ND	2.00		B9K0047	12-Nov-19	1.29 g	20-Nov-19 08:23	1
PFHpS	375-92-8	ND	2.00		B9K0047	12-Nov-19	1.29 g	20-Nov-19 08:23	1
PFNA	375-95-1	ND	2.00		B9K0047	12-Nov-19	1.29 g	20-Nov-19 08:23	1
PFOSA	754-91-6	ND	0.993		B9K0201	26-Nov-19	2.60 g	06-Dec-19 22:55	1
PFOS	1763-23-1	ND	2.00		B9K0047	12-Nov-19	1.29 g	20-Nov-19 08:23	1
PFDA	335-76-2	ND	2.00		B9K0047	12-Nov-19	1.29 g	20-Nov-19 08:23	1
8:2 FTS	39108-34-4	ND	2.00		B9K0047	12-Nov-19	1.29 g	20-Nov-19 08:23	1
MeFOSAA	2355-31-9	ND	2.00		B9K0047	12-Nov-19	1.29 g	20-Nov-19 08:23	1
EtFOSAA	2991-50-6	ND	2.00		B9K0047	12-Nov-19	1.29 g	20-Nov-19 08:23	1
PFUnA	2058-94-8	ND	2.00		B9K0047	12-Nov-19	1.29 g	20-Nov-19 08:23	1
PFDS	335-77-3	ND	2.00		B9K0047	12-Nov-19	1.29 g	20-Nov-19 08:23	1
PFDoA	307-55-1	ND	2.00		B9K0047	12-Nov-19	1.29 g	20-Nov-19 08:23	1
PFTrDA	72629-94-8	ND	2.00		B9K0047	12-Nov-19	1.29 g	20-Nov-19 08:23	1
PFTeDA	376-06-7	ND	2.00		B9K0047	12-Nov-19	1.29 g	20-Nov-19 08:23	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	65.1	50 - 150		B9K0201	26-Nov-19	2.60 g	06-Dec-19 22:55	1
13C3-PFPeA	IS	89.8	50 - 150		B9K0047	12-Nov-19	1.29 g	20-Nov-19 08:23	1
13C3-PFBS	IS	91.1	50 - 150		B9K0047	12-Nov-19	1.29 g	20-Nov-19 08:23	1
13C2-4:2 FTS	IS	100	50 - 150		B9K0047	12-Nov-19	1.29 g	20-Nov-19 08:23	1
13C2-PFHxA	IS	88.4	50 - 150		B9K0047	12-Nov-19	1.29 g	20-Nov-19 08:23	1
13C4-PFHpA	IS	85.3	50 - 150		B9K0047	12-Nov-19	1.29 g	20-Nov-19 08:23	1
13C3-PFHxS	IS	93.0	50 - 150		B9K0047	12-Nov-19	1.29 g	20-Nov-19 08:23	1
13C2-6:2 FTS	IS	80.3	50 - 150		B9K0047	12-Nov-19	1.29 g	20-Nov-19 08:23	1
13C5-PFNA	IS	71.6	50 - 150		B9K0047	12-Nov-19	1.29 g	20-Nov-19 08:23	1
13C8-PFOSA	IS	54.9	50 - 150		B9K0201	26-Nov-19	2.60 g	06-Dec-19 22:55	1
13C2-PFOA	IS	77.5	50 - 150		B9K0047	12-Nov-19	1.29 g	20-Nov-19 08:23	1
13C8-PFOS	IS	89.5	50 - 150		B9K0047	12-Nov-19	1.29 g	20-Nov-19 08:23	1
13C2-PFDA	IS	60.3	50 - 150		B9K0047	12-Nov-19	1.29 g	20-Nov-19 08:23	1
13C2-8:2 FTS	IS	99.3	50 - 150		B9K0047	12-Nov-19	1.29 g	20-Nov-19 08:23	1

Sample ID: L8/9-4-5 **PFAS Isotope Dilution Method**

Client Data

Name:	Woodard & Curran	Matrix:	Soil
Project:	SJC PFAS Investigation	Date Collected:	24-Oct-19 11:05
Location:	8/9		

Laboratory Data

Lab Sample:	1903825-04	Column:	BEH C18
Date Received:	25-Oct-19 08:40		
% Solids:	77.5		

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
d3-MeFOSAA	IS	79.9	50 - 150		B9K0047	12-Nov-19	1.29 g	20-Nov-19 08:23	1
13C2-PFUnA	IS	68.1	50 - 150		B9K0047	12-Nov-19	1.29 g	20-Nov-19 08:23	1
d5-EtFOSAA	IS	69.5	50 - 150		B9K0047	12-Nov-19	1.29 g	20-Nov-19 08:23	1
13C2-PFDoA	IS	63.0	50 - 150		B9K0047	12-Nov-19	1.29 g	20-Nov-19 08:23	1
13C2-PFTeDA	IS	46.2	50 - 150	H	B9K0047	12-Nov-19	1.29 g	20-Nov-19 08:23	1

RL - Reporting limit

The results are reported in dry weight.
The sample size is reported in wet weight.
Results reported to RL.

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

Sample ID: L8/9-4-10 **PFAS Isotope Dilution Method**

Client Data				**Laboratory Data**			
Name:	Woodard & Curran	Matrix:	Soil	Lab Sample:	1903825-05	Column:	BEH C18
Project:	SJC PFAS Investigation	Date Collected:	24-Oct-19 11:10	Date Received:	25-Oct-19 08:40		
Location:	8/9			% Solids:	91.6		

Analyte	CAS Number	Conc. (ng/g)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	ND	1.00		B9K0201	26-Nov-19	2.18 g	06-Dec-19 23:06	1
PFPeA	2706-90-3	ND	1.93		B9K0047	12-Nov-19	1.13 g	20-Nov-19 08:33	1
PFBS	375-73-5	ND	1.93		B9K0047	12-Nov-19	1.13 g	20-Nov-19 08:33	1
4:2 FTS	757124-72-4	ND	1.93		B9K0047	12-Nov-19	1.13 g	20-Nov-19 08:33	1
PFHxA	307-24-4	ND	1.93		B9K0047	12-Nov-19	1.13 g	20-Nov-19 08:33	1
PFPeS	2706-91-4	ND	1.93		B9K0047	12-Nov-19	1.13 g	20-Nov-19 08:33	1
PFHpA	375-85-9	ND	1.93		B9K0047	12-Nov-19	1.13 g	20-Nov-19 08:33	1
PFHxS	355-46-4	ND	1.93		B9K0047	12-Nov-19	1.13 g	20-Nov-19 08:33	1
6:2 FTS	27619-97-2	ND	1.93		B9K0047	12-Nov-19	1.13 g	20-Nov-19 08:33	1
PFOA	335-67-1	ND	1.93		B9K0047	12-Nov-19	1.13 g	20-Nov-19 08:33	1
PFHpS	375-92-8	ND	1.93		B9K0047	12-Nov-19	1.13 g	20-Nov-19 08:33	1
PFNA	375-95-1	ND	1.93		B9K0047	12-Nov-19	1.13 g	20-Nov-19 08:33	1
PFOSA	754-91-6	ND	1.00		B9K0201	26-Nov-19	2.18 g	06-Dec-19 23:06	1
PFOS	1763-23-1	ND	1.93		B9K0047	12-Nov-19	1.13 g	20-Nov-19 08:33	1
PFDA	335-76-2	ND	1.93		B9K0047	12-Nov-19	1.13 g	20-Nov-19 08:33	1
8:2 FTS	39108-34-4	ND	1.93		B9K0047	12-Nov-19	1.13 g	20-Nov-19 08:33	1
MeFOSAA	2355-31-9	ND	1.93		B9K0047	12-Nov-19	1.13 g	20-Nov-19 08:33	1
EtFOSAA	2991-50-6	ND	1.93		B9K0047	12-Nov-19	1.13 g	20-Nov-19 08:33	1
PFUnA	2058-94-8	ND	1.93		B9K0047	12-Nov-19	1.13 g	20-Nov-19 08:33	1
PFDS	335-77-3	ND	1.93		B9K0047	12-Nov-19	1.13 g	20-Nov-19 08:33	1
PFDoA	307-55-1	ND	1.93		B9K0047	12-Nov-19	1.13 g	20-Nov-19 08:33	1
PFTrDA	72629-94-8	ND	1.93		B9K0047	12-Nov-19	1.13 g	20-Nov-19 08:33	1
PFTeDA	376-06-7	ND	1.93		B9K0047	12-Nov-19	1.13 g	20-Nov-19 08:33	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	75.1	50 - 150		B9K0201	26-Nov-19	2.18 g	06-Dec-19 23:06	1
13C3-PFPeA	IS	78.3	50 - 150		B9K0047	12-Nov-19	1.13 g	20-Nov-19 08:33	1
13C3-PFBS	IS	87.1	50 - 150		B9K0047	12-Nov-19	1.13 g	20-Nov-19 08:33	1
13C2-4:2 FTS	IS	87.0	50 - 150		B9K0047	12-Nov-19	1.13 g	20-Nov-19 08:33	1
13C2-PFHxA	IS	72.7	50 - 150		B9K0047	12-Nov-19	1.13 g	20-Nov-19 08:33	1
13C4-PFHpA	IS	74.8	50 - 150		B9K0047	12-Nov-19	1.13 g	20-Nov-19 08:33	1
13C3-PFHxS	IS	98.0	50 - 150		B9K0047	12-Nov-19	1.13 g	20-Nov-19 08:33	1
13C2-6:2 FTS	IS	76.4	50 - 150		B9K0047	12-Nov-19	1.13 g	20-Nov-19 08:33	1
13C5-PFNA	IS	69.0	50 - 150		B9K0047	12-Nov-19	1.13 g	20-Nov-19 08:33	1
13C8-PFOSA	IS	36.8	50 - 150	H	B9K0201	26-Nov-19	2.18 g	06-Dec-19 23:06	1
13C2-PFOA	IS	69.6	50 - 150		B9K0047	12-Nov-19	1.13 g	20-Nov-19 08:33	1
13C8-PFOS	IS	78.0	50 - 150		B9K0047	12-Nov-19	1.13 g	20-Nov-19 08:33	1
13C2-PFDA	IS	61.8	50 - 150		B9K0047	12-Nov-19	1.13 g	20-Nov-19 08:33	1
13C2-8:2 FTS	IS	70.4	50 - 150		B9K0047	12-Nov-19	1.13 g	20-Nov-19 08:33	1

Sample ID: L8/9-4-10 **PFAS Isotope Dilution Method**

Client Data				**Laboratory Data**			
Name:	Woodard & Curran	Matrix:	Soil	Lab Sample:	1903825-05	Column:	BEH C18
Project:	SJC PFAS Investigation	Date Collected:	24-Oct-19 11:10	Date Received:	25-Oct-19 08:40		
Location:	8/9			% Solids:	91.6		

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
d3-MeFOSAA	IS	57.7	50 - 150		B9K0047	12-Nov-19	1.13 g	20-Nov-19 08:33	1
13C2-PFUnA	IS	63.9	50 - 150		B9K0047	12-Nov-19	1.13 g	20-Nov-19 08:33	1
d5-EtFOSAA	IS	60.5	50 - 150		B9K0047	12-Nov-19	1.13 g	20-Nov-19 08:33	1
13C2-PFDoA	IS	58.4	50 - 150		B9K0047	12-Nov-19	1.13 g	20-Nov-19 08:33	1
13C2-PFTeDA	IS	67.4	50 - 150		B9K0047	12-Nov-19	1.13 g	20-Nov-19 08:33	1

RL - Reporting limit

The results are reported in dry weight.
The sample size is reported in wet weight.
Results reported to RL.

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

Sample ID: L8/9-4-10 **PFAS Isotope Dilution Method**

Name:	Woodard & Curran	Lab Sample:	B9K0047-MS1/B9K0047-MSD1	Source Lab Sample:	1903825-05
Project:	SJC PFAS Investigation	QC Batch:	B9K0047	Date Extracted:	12-Nov-19
Matrix:	Solid	Samp Size:	1.13/1.12 g	Column:	BEH C18

Analyte	CAS Number	Sample (ng/g)	MS (ng/g)	MS Spike	MS % Rec	MS Quals	MSD (ng/g)	MSD Spike	MSD % Rec	RPD	MSD Quals	%Rec Limits	RPD Limits	MS Analyzed	MS Dil	MSD Analyzed	MSD Dil
PFPeA	2706-90-3	ND	10.3	9.66	102		10.9	9.74	107	4.78		69-132	30	20-Nov-19 05:35	1	20-Nov-19 05:45	1
PFBS	375-73-5	ND	9.63	9.66	99.7		9.31	9.74	95.6	4.20		72-128	30	20-Nov-19 05:35	1	20-Nov-19 05:45	1
4:2 FTS	757124-72-4	ND	8.92	9.66	92.3		10.3	9.74	106	13.8		62-145	30	20-Nov-19 05:35	1	20-Nov-19 05:45	1
PFHxA	307-24-4	ND	9.43	9.66	97.6		9.07	9.74	93.1	4.72		70-132	30	20-Nov-19 05:35	1	20-Nov-19 05:45	1
PFPeS	2706-91-4	ND	10.2	9.66	105		10.0	9.74	103	1.92		73-123	30	20-Nov-19 05:35	1	20-Nov-19 05:45	1
PFHpA	375-85-9	ND	9.39	9.66	97.2		10.1	9.74	104	6.76		71-131	30	20-Nov-19 05:35	1	20-Nov-19 05:45	1
PFHxS	355-46-4	ND	9.80	9.66	101		9.42	9.74	96.7	4.35		67-130	30	20-Nov-19 05:35	1	20-Nov-19 05:45	1
6:2 FTS	27619-97-2	ND	11.4	9.66	114		9.37	9.74	92.4	20.9		64-140	30	20-Nov-19 05:35	1	20-Nov-19 05:45	1
PFOA	335-67-1	ND	9.52	9.66	98.6		10.2	9.74	104	5.33		69-133	30	20-Nov-19 05:35	1	20-Nov-19 05:45	1
PFHpS	375-92-8	ND	9.78	9.66	101		10.4	9.74	107	5.77		70-132	30	20-Nov-19 05:35	1	20-Nov-19 05:45	1
PFNA	375-95-1	ND	9.72	9.66	101		8.98	9.74	92.2	9.11		72-129	30	20-Nov-19 05:35	1	20-Nov-19 05:45	1
PFOS	1763-23-1	ND	9.72	9.68	100		10.5	9.76	107	6.76		68-136	30	20-Nov-19 05:35	1	20-Nov-19 05:45	1
PFDA	335-76-2	ND	9.27	9.66	96.0		10.2	9.74	104	8.00		69-133	30	20-Nov-19 05:35	1	20-Nov-19 05:45	1
8:2 FTS	39108-34-4	ND	12.6	9.66	130		12.7	9.74	130	0		65-137	30	20-Nov-19 05:35	1	20-Nov-19 05:45	1
MeFOSAA	2355-31-9	ND	8.34	9.66	86.3		9.28	9.74	95.2	9.81		63-144	30	20-Nov-19 05:35	1	20-Nov-19 05:45	1
EtFOSAA	2991-50-6	ND	10.4	9.66	108		9.05	9.74	92.9	15.0		61-139	30	20-Nov-19 05:35	1	20-Nov-19 05:45	1
PFUnA	2058-94-8	ND	10.5	9.66	109	Q	10.6	9.74	109	0		64-136	30	20-Nov-19 05:35	1	20-Nov-19 05:45	1
PFDS	335-77-3	ND	9.38	9.68	97.0		9.35	9.76	95.8	1.24		59-134	30	20-Nov-19 05:35	1	20-Nov-19 05:45	1
PFDoA	307-55-1	ND	10.6	9.66	110		9.57	9.74	98.3	11.2		69-135	30	20-Nov-19 05:35	1	20-Nov-19 05:45	1
PFTrDA	72629-94-8	ND	11.5	9.66	119		10.7	9.74	110	7.86		66-139	30	20-Nov-19 05:35	1	20-Nov-19 05:45	1
PFTeDA	376-06-7	ND	11.1	9.66	115		10.5	9.74	107	7.21		69-133	30	20-Nov-19 05:35	1	20-Nov-19 05:45	1

Labeled Standards	Type	MS % Rec	MS Quals	MSD % Rec	MSD Quals	Limits	MS Analyzed	MS Dil	MSD Analyzed	MSD Dil
13C3-PFPeA	IS	61.3		61.1		50-150	20-Nov-19 05:35	1	20-Nov-19 05:45	1
13C3-PFBS	IS	81.1		83.6		50-150	20-Nov-19 05:35	1	20-Nov-19 05:45	1
13C2-4:2 FTS	IS	84.2		87.0		50-150	20-Nov-19 05:35	1	20-Nov-19 05:45	1
13C2-PFHxA	IS	56.6		59.7		50-150	20-Nov-19 05:35	1	20-Nov-19 05:45	1
13C4-PFHpA	IS	48.4	H	50.6		50-150	20-Nov-19 05:35	1	20-Nov-19 05:45	1
13C3-PFHxS	IS	84.1		97.0		50-150	20-Nov-19 05:35	1	20-Nov-19 05:45	1
13C2-6:2 FTS	IS	72.8		84.8		50-150	20-Nov-19 05:35	1	20-Nov-19 05:45	1
13C5-PFNA	IS	43.5	H	44.0	H	50-150	20-Nov-19 05:35	1	20-Nov-19 05:45	1
13C2-PFOA	IS	45.8	H	47.2	H	50-150	20-Nov-19 05:35	1	20-Nov-19 05:45	1
13C8-PFOS	IS	84.4		78.2		50-150	20-Nov-19 05:35	1	20-Nov-19 05:45	1

Sample ID: L8/9-4-10 **PFAS Isotope Dilution Method**

Name:	Woodard & Curran	Lab Sample:	B9K0047-MS1/B9K0047-MSD1	Source Lab Sample:	1903825-05
Project:	SJC PFAS Investigation	QC Batch:	B9K0047	Date Extracted:	12-Nov-19
Matrix:	Solid	Samp Size:	1.13/1.12 g	Column:	BEH C18

Labeled Standards	Type	MS % Rec	MS Quals	MSD % Rec	MSD Quals	Limits	MS Analyzed	MS Dil	MSD Analyzed	MSD Dil
13C2-PFDA	IS	44.0	H	45.9	H	50-150	20-Nov-19 05:35	1	20-Nov-19 05:45	1
13C2-8:2 FTS	IS	74.3		67.4		50-150	20-Nov-19 05:35	1	20-Nov-19 05:45	1
d3-MeFOSAA	IS	60.3		60.2		50-150	20-Nov-19 05:35	1	20-Nov-19 05:45	1
13C2-PFUnA	IS	49.1	H	47.4	H	50-150	20-Nov-19 05:35	1	20-Nov-19 05:45	1
d5-EtFOSAA	IS	50.8		54.6		50-150	20-Nov-19 05:35	1	20-Nov-19 05:45	1
13C2-PFDoA	IS	51.1		59.5		50-150	20-Nov-19 05:35	1	20-Nov-19 05:45	1
13C2-PFTeDA	IS	59.3		65.2		50-150	20-Nov-19 05:35	1	20-Nov-19 05:45	1

Sample ID: L8/9-4-10 **PFAS Isotope Dilution Method**

Name:	Woodard & Curran	Lab Sample:	B9K0201-MS1/B9K0201-MSD1	Source Lab Sample:	1903825-05
Project:	SJC PFAS Investigation	QC Batch:	B9K0201	Date Extracted:	26-Nov-19
Matrix:	Solid	Samp Size:	2.21/2.20 g	Column:	BEH C18

Analyte	CAS Number	Sample (ng/g)	MS (ng/g)	MS Spike	MS % Rec	MS Quals	MSD (ng/g)	MSD Spike	MSD % Rec	RPD	MSD Quals	%Rec Limits	RPD Limits	MS Analyzed	MS Dil	MSD Analyzed	MSD Dil
PFBA	375-22-4	ND	4.87	4.94	94.3		5.11	4.96	98.9	4.76		71-135	30	07-Dec-19 20:15	1	07-Dec-19 20:25	1
PFOSA	754-91-6	ND	5.06	4.94	102		5.25	4.96	106	3.85		67-137	30	07-Dec-19 20:15	1	07-Dec-19 20:25	1

Labeled Standards	Type	MS % Rec	MS Quals	MSD % Rec	MSD Quals	Limits	MS Analyzed	MS Dil	MSD Analyzed	MSD Dil
13C3-PFBA	IS	81.9		70.7		50-150	07-Dec-19 20:15	1	07-Dec-19 20:25	1
13C8-PFOSA	IS	52.2		47.4	H	50-150	07-Dec-19 20:15	1	07-Dec-19 20:25	1

Sample ID: L8/9-5-1 **PFAS Isotope Dilution Method**

Client Data				**Laboratory Data**			
Name:	Woodard & Curran	Matrix:	Soil	Lab Sample:	1903825-06	Column:	BEH C18
Project:	SJC PFAS Investigation	Date Collected:	24-Oct-19 09:38	Date Received:	25-Oct-19 08:40		
Location:	8/9			% Solids:	85.2		

Analyte	CAS Number	Conc. (ng/g)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	7.95	0.999		B9K0201	26-Nov-19	2.35 g	06-Dec-19 23:16	1
PFPeA	2706-90-3	26.3	1.99		B9K0047	12-Nov-19	1.18 g	20-Nov-19 08:44	1
PFBS	375-73-5	ND	1.99		B9K0047	12-Nov-19	1.18 g	20-Nov-19 08:44	1
4:2 FTS	757124-72-4	ND	1.99		B9K0047	12-Nov-19	1.18 g	20-Nov-19 08:44	1
PFHxA	307-24-4	11.1	1.99		B9K0047	12-Nov-19	1.18 g	20-Nov-19 08:44	1
PFPeS	2706-91-4	ND	1.99		B9K0047	12-Nov-19	1.18 g	20-Nov-19 08:44	1
PFHpA	375-85-9	ND	1.99		B9K0047	12-Nov-19	1.18 g	20-Nov-19 08:44	1
PFHxS	355-46-4	ND	1.99		B9K0047	12-Nov-19	1.18 g	20-Nov-19 08:44	1
6:2 FTS	27619-97-2	2.53	1.99		B9K0047	12-Nov-19	1.18 g	20-Nov-19 08:44	1
PFOA	335-67-1	ND	1.99		B9K0047	12-Nov-19	1.18 g	20-Nov-19 08:44	1
PFHpS	375-92-8	ND	1.99		B9K0047	12-Nov-19	1.18 g	20-Nov-19 08:44	1
PFNA	375-95-1	ND	1.99		B9K0047	12-Nov-19	1.18 g	20-Nov-19 08:44	1
PFOSA	754-91-6	ND	0.999		B9K0201	26-Nov-19	2.35 g	06-Dec-19 23:16	1
PFOS	1763-23-1	ND	1.99		B9K0047	12-Nov-19	1.18 g	20-Nov-19 08:44	1
PFDA	335-76-2	ND	1.99		B9K0047	12-Nov-19	1.18 g	20-Nov-19 08:44	1
8:2 FTS	39108-34-4	ND	1.99		B9K0047	12-Nov-19	1.18 g	20-Nov-19 08:44	1
MeFOSAA	2355-31-9	ND	1.99		B9K0047	12-Nov-19	1.18 g	20-Nov-19 08:44	1
EtFOSAA	2991-50-6	ND	1.99		B9K0047	12-Nov-19	1.18 g	20-Nov-19 08:44	1
PFUnA	2058-94-8	ND	1.99		B9K0047	12-Nov-19	1.18 g	20-Nov-19 08:44	1
PFDS	335-77-3	ND	1.99		B9K0047	12-Nov-19	1.18 g	20-Nov-19 08:44	1
PFDoA	307-55-1	ND	1.99		B9K0047	12-Nov-19	1.18 g	20-Nov-19 08:44	1
PFTrDA	72629-94-8	ND	1.99		B9K0047	12-Nov-19	1.18 g	20-Nov-19 08:44	1
PFTeDA	376-06-7	ND	1.99		B9K0047	12-Nov-19	1.18 g	20-Nov-19 08:44	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	70.8	50 - 150		B9K0201	26-Nov-19	2.35 g	06-Dec-19 23:16	1
13C3-PFPeA	IS	90.1	50 - 150		B9K0047	12-Nov-19	1.18 g	20-Nov-19 08:44	1
13C3-PFBS	IS	86.4	50 - 150		B9K0047	12-Nov-19	1.18 g	20-Nov-19 08:44	1
13C2-4:2 FTS	IS	88.3	50 - 150		B9K0047	12-Nov-19	1.18 g	20-Nov-19 08:44	1
13C2-PFHxA	IS	86.8	50 - 150		B9K0047	12-Nov-19	1.18 g	20-Nov-19 08:44	1
13C4-PFHpA	IS	83.6	50 - 150		B9K0047	12-Nov-19	1.18 g	20-Nov-19 08:44	1
13C3-PFHxS	IS	112	50 - 150		B9K0047	12-Nov-19	1.18 g	20-Nov-19 08:44	1
13C2-6:2 FTS	IS	84.5	50 - 150		B9K0047	12-Nov-19	1.18 g	20-Nov-19 08:44	1
13C5-PFNA	IS	71.5	50 - 150		B9K0047	12-Nov-19	1.18 g	20-Nov-19 08:44	1
13C8-PFOSA	IS	34.8	50 - 150	H	B9K0201	26-Nov-19	2.35 g	06-Dec-19 23:16	1
13C2-PFOA	IS	81.8	50 - 150		B9K0047	12-Nov-19	1.18 g	20-Nov-19 08:44	1
13C8-PFOS	IS	91.5	50 - 150		B9K0047	12-Nov-19	1.18 g	20-Nov-19 08:44	1
13C2-PFDA	IS	66.8	50 - 150		B9K0047	12-Nov-19	1.18 g	20-Nov-19 08:44	1
13C2-8:2 FTS	IS	81.6	50 - 150		B9K0047	12-Nov-19	1.18 g	20-Nov-19 08:44	1

Sample ID: L8/9-5-1 **PFAS Isotope Dilution Method**

Client Data			
Name:	Woodard & Curran	Matrix:	Soil
Project:	SJC PFAS Investigation	Date Collected:	24-Oct-19 09:38
Location:	8/9		

Laboratory Data			
Lab Sample:	1903825-06	Column:	BEH C18
Date Received:	25-Oct-19 08:40		
% Solids:	85.2		

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
d3-MeFOSAA	IS	67.5	50 - 150		B9K0047	12-Nov-19	1.18 g	20-Nov-19 08:44	1
13C2-PFUnA	IS	66.4	50 - 150		B9K0047	12-Nov-19	1.18 g	20-Nov-19 08:44	1
d5-EtFOSAA	IS	72.1	50 - 150		B9K0047	12-Nov-19	1.18 g	20-Nov-19 08:44	1
13C2-PFDoA	IS	68.3	50 - 150		B9K0047	12-Nov-19	1.18 g	20-Nov-19 08:44	1
13C2-PFTeDA	IS	50.6	50 - 150		B9K0047	12-Nov-19	1.18 g	20-Nov-19 08:44	1

RL - Reporting limit

The results are reported in dry weight.
The sample size is reported in wet weight.
Results reported to RL.

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

Sample ID: L8/9-5-5 **PFAS Isotope Dilution Method**

Client Data				**Laboratory Data**			
Name:	Woodard & Curran	Matrix:	Soil	Lab Sample:	1903825-07	Column:	BEH C18
Project:	SJC PFAS Investigation	Date Collected:	24-Oct-19 09:42	Date Received:	25-Oct-19 08:40		
Location:	8/9			% Solids:	89.8		

Analyte	CAS Number	Conc. (ng/g)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	ND	0.999		B9K0201	26-Nov-19	2.23 g	06-Dec-19 23:27	1
PFPeA	2706-90-3	ND	1.95		B9K0047	12-Nov-19	1.14 g	20-Nov-19 08:54	1
PFBS	375-73-5	ND	1.95		B9K0047	12-Nov-19	1.14 g	20-Nov-19 08:54	1
4:2 FTS	757124-72-4	ND	1.95		B9K0047	12-Nov-19	1.14 g	20-Nov-19 08:54	1
PFHxA	307-24-4	ND	1.95		B9K0047	12-Nov-19	1.14 g	20-Nov-19 08:54	1
PFPeS	2706-91-4	ND	1.95		B9K0047	12-Nov-19	1.14 g	20-Nov-19 08:54	1
PFHpA	375-85-9	ND	1.95		B9K0047	12-Nov-19	1.14 g	20-Nov-19 08:54	1
PFHxS	355-46-4	ND	1.95		B9K0047	12-Nov-19	1.14 g	20-Nov-19 08:54	1
6:2 FTS	27619-97-2	ND	1.95		B9K0047	12-Nov-19	1.14 g	20-Nov-19 08:54	1
PFOA	335-67-1	ND	1.95		B9K0047	12-Nov-19	1.14 g	20-Nov-19 08:54	1
PFHpS	375-92-8	ND	1.95		B9K0047	12-Nov-19	1.14 g	20-Nov-19 08:54	1
PFNA	375-95-1	ND	1.95		B9K0047	12-Nov-19	1.14 g	20-Nov-19 08:54	1
PFOSA	754-91-6	ND	0.999		B9K0201	26-Nov-19	2.23 g	06-Dec-19 23:27	1
PFOS	1763-23-1	ND	1.95		B9K0047	12-Nov-19	1.14 g	20-Nov-19 08:54	1
PFDA	335-76-2	ND	1.95		B9K0047	12-Nov-19	1.14 g	20-Nov-19 08:54	1
8:2 FTS	39108-34-4	ND	1.95		B9K0047	12-Nov-19	1.14 g	20-Nov-19 08:54	1
MeFOSAA	2355-31-9	ND	1.95		B9K0047	12-Nov-19	1.14 g	20-Nov-19 08:54	1
EtFOSAA	2991-50-6	ND	1.95		B9K0047	12-Nov-19	1.14 g	20-Nov-19 08:54	1
PFUnA	2058-94-8	ND	1.95		B9K0047	12-Nov-19	1.14 g	20-Nov-19 08:54	1
PFDS	335-77-3	ND	1.95		B9K0047	12-Nov-19	1.14 g	20-Nov-19 08:54	1
PFDoA	307-55-1	ND	1.95		B9K0047	12-Nov-19	1.14 g	20-Nov-19 08:54	1
PFTrDA	72629-94-8	ND	1.95		B9K0047	12-Nov-19	1.14 g	20-Nov-19 08:54	1
PFTeDA	376-06-7	ND	1.95		B9K0047	12-Nov-19	1.14 g	20-Nov-19 08:54	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	71.0	50 - 150		B9K0201	26-Nov-19	2.23 g	06-Dec-19 23:27	1
13C3-PFPeA	IS	74.1	50 - 150		B9K0047	12-Nov-19	1.14 g	20-Nov-19 08:54	1
13C3-PFBS	IS	85.3	50 - 150		B9K0047	12-Nov-19	1.14 g	20-Nov-19 08:54	1
13C2-4:2 FTS	IS	84.2	50 - 150		B9K0047	12-Nov-19	1.14 g	20-Nov-19 08:54	1
13C2-PFHxA	IS	74.5	50 - 150		B9K0047	12-Nov-19	1.14 g	20-Nov-19 08:54	1
13C4-PFHpA	IS	71.3	50 - 150		B9K0047	12-Nov-19	1.14 g	20-Nov-19 08:54	1
13C3-PFHxS	IS	87.0	50 - 150		B9K0047	12-Nov-19	1.14 g	20-Nov-19 08:54	1
13C2-6:2 FTS	IS	67.7	50 - 150		B9K0047	12-Nov-19	1.14 g	20-Nov-19 08:54	1
13C5-PFNA	IS	64.3	50 - 150		B9K0047	12-Nov-19	1.14 g	20-Nov-19 08:54	1
13C8-PFOSA	IS	47.0	50 - 150	H	B9K0201	26-Nov-19	2.23 g	06-Dec-19 23:27	1
13C2-PFOA	IS	67.3	50 - 150		B9K0047	12-Nov-19	1.14 g	20-Nov-19 08:54	1
13C8-PFOS	IS	90.7	50 - 150		B9K0047	12-Nov-19	1.14 g	20-Nov-19 08:54	1
13C2-PFDA	IS	63.1	50 - 150		B9K0047	12-Nov-19	1.14 g	20-Nov-19 08:54	1
13C2-8:2 FTS	IS	75.9	50 - 150		B9K0047	12-Nov-19	1.14 g	20-Nov-19 08:54	1

Sample ID: L8/9-5-5

PFAS Isotope Dilution Method

Client Data				**Laboratory Data**			
Name:	Woodard & Curran	Matrix:	Soil	Lab Sample:	1903825-07	Column:	BEH C18
Project:	SJC PFAS Investigation	Date Collected:	24-Oct-19 09:42	Date Received:	25-Oct-19 08:40		
Location:	8/9			% Solids:	89.8		

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
d3-MeFOSAA	IS	66.0	50 - 150		B9K0047	12-Nov-19	1.14 g	20-Nov-19 08:54	1
13C2-PFUnA	IS	60.7	50 - 150		B9K0047	12-Nov-19	1.14 g	20-Nov-19 08:54	1
d5-EtFOSAA	IS	64.9	50 - 150		B9K0047	12-Nov-19	1.14 g	20-Nov-19 08:54	1
13C2-PFDoA	IS	59.6	50 - 150		B9K0047	12-Nov-19	1.14 g	20-Nov-19 08:54	1
13C2-PFTeDA	IS	69.0	50 - 150		B9K0047	12-Nov-19	1.14 g	20-Nov-19 08:54	1

RL - Reporting limit

The results are reported in dry weight.
The sample size is reported in wet weight.
Results reported to RL.

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

Sample ID: L8/9-5-10 **PFAS Isotope Dilution Method**

Client Data

Name:	Woodard & Curran	Matrix:	Soil
Project:	SJC PFAS Investigation	Date Collected:	24-Oct-19 09:47
Location:	8/9		

Laboratory Data

Lab Sample:	1903825-08	Column:	BEH C18
Date Received:	25-Oct-19 08:40		
% Solids:	91.8		

Analyte	CAS Number	Conc. (ng/g)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	ND	0.994		B9K0201	26-Nov-19	2.19 g	06-Dec-19 23:37	1
PFPeA	2706-90-3	ND	1.96		B9K0047	12-Nov-19	1.11 g	20-Nov-19 09:05	1
PFBS	375-73-5	ND	1.96		B9K0047	12-Nov-19	1.11 g	20-Nov-19 09:05	1
4:2 FTS	757124-72-4	ND	1.96		B9K0047	12-Nov-19	1.11 g	20-Nov-19 09:05	1
PFHxA	307-24-4	ND	1.96		B9K0047	12-Nov-19	1.11 g	20-Nov-19 09:05	1
PFPeS	2706-91-4	ND	1.96		B9K0047	12-Nov-19	1.11 g	20-Nov-19 09:05	1
PFHpA	375-85-9	ND	1.96		B9K0047	12-Nov-19	1.11 g	20-Nov-19 09:05	1
PFHxS	355-46-4	ND	1.96		B9K0047	12-Nov-19	1.11 g	20-Nov-19 09:05	1
6:2 FTS	27619-97-2	ND	1.96		B9K0047	12-Nov-19	1.11 g	20-Nov-19 09:05	1
PFOA	335-67-1	ND	1.96		B9K0047	12-Nov-19	1.11 g	20-Nov-19 09:05	1
PFHpS	375-92-8	ND	1.96		B9K0047	12-Nov-19	1.11 g	20-Nov-19 09:05	1
PFNA	375-95-1	ND	1.96		B9K0047	12-Nov-19	1.11 g	20-Nov-19 09:05	1
PFOSA	754-91-6	ND	0.994		B9K0201	26-Nov-19	2.19 g	06-Dec-19 23:37	1
PFOS	1763-23-1	ND	1.96		B9K0047	12-Nov-19	1.11 g	20-Nov-19 09:05	1
PFDA	335-76-2	ND	1.96		B9K0047	12-Nov-19	1.11 g	20-Nov-19 09:05	1
8:2 FTS	39108-34-4	ND	1.96		B9K0047	12-Nov-19	1.11 g	20-Nov-19 09:05	1
MeFOSAA	2355-31-9	ND	1.96		B9K0047	12-Nov-19	1.11 g	20-Nov-19 09:05	1
EtFOSAA	2991-50-6	ND	1.96		B9K0047	12-Nov-19	1.11 g	20-Nov-19 09:05	1
PFUnA	2058-94-8	ND	1.96		B9K0047	12-Nov-19	1.11 g	20-Nov-19 09:05	1
PFDS	335-77-3	ND	1.96		B9K0047	12-Nov-19	1.11 g	20-Nov-19 09:05	1
PFDoA	307-55-1	ND	1.96		B9K0047	12-Nov-19	1.11 g	20-Nov-19 09:05	1
PFTrDA	72629-94-8	ND	1.96		B9K0047	12-Nov-19	1.11 g	20-Nov-19 09:05	1
PFTeDA	376-06-7	ND	1.96		B9K0047	12-Nov-19	1.11 g	20-Nov-19 09:05	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	57.5	50 - 150		B9K0201	26-Nov-19	2.19 g	06-Dec-19 23:37	1
13C3-PFPeA	IS	78.3	50 - 150		B9K0047	12-Nov-19	1.11 g	20-Nov-19 09:05	1
13C3-PFBS	IS	92.1	50 - 150		B9K0047	12-Nov-19	1.11 g	20-Nov-19 09:05	1
13C2-4:2 FTS	IS	86.6	50 - 150		B9K0047	12-Nov-19	1.11 g	20-Nov-19 09:05	1
13C2-PFHxA	IS	74.5	50 - 150		B9K0047	12-Nov-19	1.11 g	20-Nov-19 09:05	1
13C4-PFHpA	IS	68.5	50 - 150		B9K0047	12-Nov-19	1.11 g	20-Nov-19 09:05	1
13C3-PFHxS	IS	86.1	50 - 150		B9K0047	12-Nov-19	1.11 g	20-Nov-19 09:05	1
13C2-6:2 FTS	IS	78.2	50 - 150		B9K0047	12-Nov-19	1.11 g	20-Nov-19 09:05	1
13C5-PFNA	IS	61.7	50 - 150		B9K0047	12-Nov-19	1.11 g	20-Nov-19 09:05	1
13C8-PFOSA	IS	22.2	50 - 150	H	B9K0201	26-Nov-19	2.19 g	06-Dec-19 23:37	1
13C2-PFOA	IS	70.3	50 - 150		B9K0047	12-Nov-19	1.11 g	20-Nov-19 09:05	1
13C8-PFOS	IS	81.3	50 - 150		B9K0047	12-Nov-19	1.11 g	20-Nov-19 09:05	1
13C2-PFDA	IS	54.5	50 - 150		B9K0047	12-Nov-19	1.11 g	20-Nov-19 09:05	1
13C2-8:2 FTS	IS	81.1	50 - 150		B9K0047	12-Nov-19	1.11 g	20-Nov-19 09:05	1

Sample ID: L8/9-5-10

PFAS Isotope Dilution Method

Client Data				**Laboratory Data**			
Name:	Woodard & Curran	Matrix:	Soil	Lab Sample:	1903825-08	Column:	BEH C18
Project:	SJC PFAS Investigation	Date Collected:	24-Oct-19 09:47	Date Received:	25-Oct-19 08:40		
Location:	8/9			% Solids:	91.8		

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
d3-MeFOSAA	IS	63.0	50 - 150		B9K0047	12-Nov-19	1.11 g	20-Nov-19 09:05	1
13C2-PFUnA	IS	57.4	50 - 150		B9K0047	12-Nov-19	1.11 g	20-Nov-19 09:05	1
d5-EtFOSAA	IS	67.7	50 - 150		B9K0047	12-Nov-19	1.11 g	20-Nov-19 09:05	1
13C2-PFDoA	IS	54.7	50 - 150		B9K0047	12-Nov-19	1.11 g	20-Nov-19 09:05	1
13C2-PFTeDA	IS	57.3	50 - 150		B9K0047	12-Nov-19	1.11 g	20-Nov-19 09:05	1

RL - Reporting limit

The results are reported in dry weight.
The sample size is reported in wet weight.
Results reported to RL.

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

Sample ID: Method Blank **PFAS Isotope Dilution Method**

Client Data				**Laboratory Data**			
Name:	Woodard & Curran	Matrix:	Aqueous	Lab Sample:	B9J0302-BLK1	Column:	BEH C18
Project:	SJC PFAS Investigation						

Analyte	CAS Number	Conc. (ng/L)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	ND	2.00		B9J0302	01-Nov-19	0.250 L	11-Nov-19 22:28	1
PFPeA	2706-90-3	ND	2.00		B9J0302	01-Nov-19	0.250 L	11-Nov-19 22:28	1
PFBS	375-73-5	ND	2.00		B9J0302	01-Nov-19	0.250 L	11-Nov-19 22:28	1
4:2 FTS	757124-72-4	ND	2.00		B9J0302	01-Nov-19	0.250 L	11-Nov-19 22:28	1
PFHxA	307-24-4	ND	2.00		B9J0302	01-Nov-19	0.250 L	11-Nov-19 22:28	1
PFPeS	2706-91-4	ND	2.00		B9J0302	01-Nov-19	0.250 L	11-Nov-19 22:28	1
PFHpA	375-85-9	ND	2.00		B9J0302	01-Nov-19	0.250 L	11-Nov-19 22:28	1
PFHxS	355-46-4	ND	2.00		B9J0302	01-Nov-19	0.250 L	11-Nov-19 22:28	1
6:2 FTS	27619-97-2	ND	2.00		B9J0302	01-Nov-19	0.250 L	11-Nov-19 22:28	1
PFOA	335-67-1	ND	2.00		B9J0302	01-Nov-19	0.250 L	11-Nov-19 22:28	1
PFHpS	375-92-8	ND	2.00		B9J0302	01-Nov-19	0.250 L	11-Nov-19 22:28	1
PFNA	375-95-1	ND	2.00		B9J0302	01-Nov-19	0.250 L	11-Nov-19 22:28	1
PFOSA	754-91-6	ND	2.00		B9J0302	01-Nov-19	0.250 L	11-Nov-19 22:28	1
PFOS	1763-23-1	ND	2.00		B9J0302	01-Nov-19	0.250 L	11-Nov-19 22:28	1
PFDA	335-76-2	ND	2.00		B9J0302	01-Nov-19	0.250 L	11-Nov-19 22:28	1
8:2 FTS	39108-34-4	ND	2.00		B9J0302	01-Nov-19	0.250 L	11-Nov-19 22:28	1
MeFOSAA	2355-31-9	ND	2.00		B9J0302	01-Nov-19	0.250 L	11-Nov-19 22:28	1
EtFOSAA	2991-50-6	ND	2.00		B9J0302	01-Nov-19	0.250 L	11-Nov-19 22:28	1
PFUnA	2058-94-8	ND	2.00		B9J0302	01-Nov-19	0.250 L	11-Nov-19 22:28	1
PFDS	335-77-3	ND	2.00		B9J0302	01-Nov-19	0.250 L	11-Nov-19 22:28	1
PFDoA	307-55-1	ND	2.00		B9J0302	01-Nov-19	0.250 L	11-Nov-19 22:28	1
PFTrDA	72629-94-8	ND	2.00		B9J0302	01-Nov-19	0.250 L	11-Nov-19 22:28	1
PFTeDA	376-06-7	ND	2.00		B9J0302	01-Nov-19	0.250 L	11-Nov-19 22:28	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	115	50 - 150		B9J0302	01-Nov-19	0.250 L	11-Nov-19 22:28	1
13C3-PFPeA	IS	86.7	50 - 150		B9J0302	01-Nov-19	0.250 L	11-Nov-19 22:28	1
13C3-PFBS	IS	95.0	50 - 150		B9J0302	01-Nov-19	0.250 L	11-Nov-19 22:28	1
13C2-4:2 FTS	IS	98.0	50 - 150		B9J0302	01-Nov-19	0.250 L	11-Nov-19 22:28	1
13C2-PFHxA	IS	83.5	50 - 150		B9J0302	01-Nov-19	0.250 L	11-Nov-19 22:28	1
13C4-PFHpA	IS	89.2	50 - 150		B9J0302	01-Nov-19	0.250 L	11-Nov-19 22:28	1
13C3-PFHxS	IS	93.5	50 - 150		B9J0302	01-Nov-19	0.250 L	11-Nov-19 22:28	1
13C2-6:2 FTS	IS	88.9	50 - 150		B9J0302	01-Nov-19	0.250 L	11-Nov-19 22:28	1
13C5-PFNA	IS	94.2	50 - 150		B9J0302	01-Nov-19	0.250 L	11-Nov-19 22:28	1
13C8-PFOSA	IS	41.5	50 - 150	H	B9J0302	01-Nov-19	0.250 L	11-Nov-19 22:28	1
13C2-PFOA	IS	84.7	50 - 150		B9J0302	01-Nov-19	0.250 L	11-Nov-19 22:28	1
13C8-PFOS	IS	91.3	50 - 150		B9J0302	01-Nov-19	0.250 L	11-Nov-19 22:28	1
13C2-PFDA	IS	89.9	50 - 150		B9J0302	01-Nov-19	0.250 L	11-Nov-19 22:28	1
13C2-8:2 FTS	IS	97.5	50 - 150		B9J0302	01-Nov-19	0.250 L	11-Nov-19 22:28	1

Sample ID: Method Blank

PFAS Isotope Dilution Method

Client Data				**Laboratory Data**			
Name:	Woodard & Curran	Matrix:	Aqueous	Lab Sample:	B9J0302-BLK1	Column:	BEH C18
Project:	SJC PFAS Investigation						

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
d3-MeFOSAA	IS	77.2	50 - 150		B9J0302	01-Nov-19	0.250 L	11-Nov-19 22:28	1
13C2-PFUnA	IS	79.9	50 - 150		B9J0302	01-Nov-19	0.250 L	11-Nov-19 22:28	1
d5-EtFOSAA	IS	76.6	50 - 150		B9J0302	01-Nov-19	0.250 L	11-Nov-19 22:28	1
13C2-PFDoA	IS	72.0	50 - 150		B9J0302	01-Nov-19	0.250 L	11-Nov-19 22:28	1
13C2-PFTeDA	IS	72.2	50 - 150		B9J0302	01-Nov-19	0.250 L	11-Nov-19 22:28	1

RL - Reporting limit

Results reported to RL.

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

Sample ID: LCSD **PFAS Isotope Dilution Method**

Name:	Woodard & Curran	Lab Sample:	B9J0302-BS1/B9J0302-BSD1	Date Extracted:	01-Nov-19
Project:	SJC PFAS Investigation	QC Batch:	B9J0302	Column:	BEH C18
Matrix:	Aqueous	Samp Size:	0.250/0.250 L		

Analyte	CAS Number	LCS (ng/L)	LCS Spike	LCS % Rec	LCS Quals	LCSD (ng/L)	LCSD Spike	LCSD % Rec	RPD	LCSD Quals	%Rec Limits	RPD Limits	LCS Analyzed	LCS Dil	LCSD Analyzed	LCSD Dil
PFBA	375-22-4	40.9	40.0	102		38.7	40.0	96.6	5.67		73-129	30	11-Nov-19 22:39	1	11-Nov-19 22:50	1
PFPeA	2706-90-3	42.5	40.0	106		40.8	40.0	102	4.11		72-129	30	11-Nov-19 22:39	1	11-Nov-19 22:50	1
PFBS	375-73-5	42.4	40.0	106		38.1	40.0	95.2	10.7		72-130	30	11-Nov-19 22:39	1	11-Nov-19 22:50	1
4:2 FTS	757124-72-4	35.5	40.0	88.8		34.9	40.0	87.3	1.63		63-143	30	11-Nov-19 22:39	1	11-Nov-19 22:50	1
PFHxA	307-24-4	41.2	40.0	103		42.3	40.0	106	2.82		72-129	30	11-Nov-19 22:39	1	11-Nov-19 22:50	1
PFPeS	2706-91-4	37.5	40.0	93.8		34.0	40.0	84.9	9.94		71-127	30	11-Nov-19 22:39	1	11-Nov-19 22:50	1
PFHpA	375-85-9	43.7	40.0	109		41.7	40.0	104	4.60		72-130	30	11-Nov-19 22:39	1	11-Nov-19 22:50	1
PFHxS	355-46-4	35.0	40.0	87.4		34.5	40.0	86.4	1.18		68-131	30	11-Nov-19 22:39	1	11-Nov-19 22:50	1
6:2 FTS	27619-97-2	43.6	40.0	109		40.7	40.0	102	6.87		64-140	30	11-Nov-19 22:39	1	11-Nov-19 22:50	1
PFOA	335-67-1	36.0	40.0	90.0		36.6	40.0	91.6	1.67		71-133	30	11-Nov-19 22:39	1	11-Nov-19 22:50	1
PFHpS	375-92-8	44.5	40.0	111		43.1	40.0	108	3.19		69-134	30	11-Nov-19 22:39	1	11-Nov-19 22:50	1
PFNA	375-95-1	43.7	40.0	109		42.2	40.0	105	3.59		69-130	30	11-Nov-19 22:39	1	11-Nov-19 22:50	1
PFOSA	754-91-6	37.8	40.0	94.5		39.5	40.0	98.7	4.33		67-137	30	11-Nov-19 22:39	1	11-Nov-19 22:50	1
PFOS	1763-23-1	41.9	40.0	105		40.5	40.0	101	3.41		65-140	30	11-Nov-19 22:39	1	11-Nov-19 22:50	1
PFDA	335-76-2	40.7	40.0	102		41.0	40.0	103	0.785		71-129	30	11-Nov-19 22:39	1	11-Nov-19 22:50	1
8:2 FTS	39108-34-4	33.8	40.0	84.5		32.2	40.0	80.6	4.73		67-138	30	11-Nov-19 22:39	1	11-Nov-19 22:50	1
MeFOSAA	2355-31-9	35.3	40.0	88.1		35.5	40.0	88.8	0.794		65-136	30	11-Nov-19 22:39	1	11-Nov-19 22:50	1
EtFOSAA	2991-50-6	36.3	40.0	90.9		33.0	40.0	82.6	9.50		61-135	30	11-Nov-19 22:39	1	11-Nov-19 22:50	1
PFUnA	2058-94-8	42.1	40.0	105		42.2	40.0	106	0.426		69-133	30	11-Nov-19 22:39	1	11-Nov-19 22:50	1
PFDS	335-77-3	34.9	40.0	87.3		30.7	40.0	76.8	12.8		53-142	30	11-Nov-19 22:39	1	11-Nov-19 22:50	1
PFDoA	307-55-1	44.2	40.0	110		43.2	40.0	108	2.17		72-134	30	11-Nov-19 22:39	1	11-Nov-19 22:50	1
PFTrDA	72629-94-8	37.8	40.0	94.4		34.8	40.0	86.9	8.23		65-144	30	11-Nov-19 22:39	1	11-Nov-19 22:50	1
PFTeDA	376-06-7	42.6	40.0	106		41.9	40.0	105	1.56		71-132	30	11-Nov-19 22:39	1	11-Nov-19 22:50	1

Labeled Standards	Type	LCS % Rec	LCS Quals	LCSD % Rec	LCSD Quals	Limits	LCS Analyzed	LCS Dil	LCSD Analyzed	LCSD Dil
13C3-PFBA	IS	101		121		50-150	11-Nov-19 22:39	1	11-Nov-19 22:50	1
13C3-PFPeA	IS	77.3		91.3		50-150	11-Nov-19 22:39	1	11-Nov-19 22:50	1
13C3-PFBS	IS	85.8		110		50-150	11-Nov-19 22:39	1	11-Nov-19 22:50	1
13C2-4:2 FTS	IS	86.8		97.8		50-150	11-Nov-19 22:39	1	11-Nov-19 22:50	1
13C2-PFHxA	IS	78.8		86.5		50-150	11-Nov-19 22:39	1	11-Nov-19 22:50	1
13C4-PFHpA	IS	82.3		90.9		50-150	11-Nov-19 22:39	1	11-Nov-19 22:50	1
13C3-PFHxS	IS	92.0		103		50-150	11-Nov-19 22:39	1	11-Nov-19 22:50	1
13C2-6:2 FTS	IS	79.8		97.8		50-150	11-Nov-19 22:39	1	11-Nov-19 22:50	1

Sample ID: LCSD **PFAS Isotope Dilution Method**

Name:	Woodard & Curran	Lab Sample:	B9J0302-BS1/B9J0302-BSD1	Date Extracted:	01-Nov-19
Project:	SJC PFAS Investigation	QC Batch:	B9J0302	Column:	BEH C18
Matrix:	Aqueous	Samp Size:	0.250/0.250 L		

Labeled Standards	Type	LCS % Rec	LCS Quals	LCSD % Rec	LCSD Quals	Limits	LCS Analyzed	LCS Dil	LCSD Analyzed	LCSD Dil
13C5-PFNA	IS	88.3		102		50-150	11-Nov-19 22:39	1	11-Nov-19 22:50	1
13C8-PFOSA	IS	35.5	H	39.8	H	50-150	11-Nov-19 22:39	1	11-Nov-19 22:50	1
13C2-PFOA	IS	80.9		90.9		50-150	11-Nov-19 22:39	1	11-Nov-19 22:50	1
13C8-PFOS	IS	88.8		104		50-150	11-Nov-19 22:39	1	11-Nov-19 22:50	1
13C2-PFDA	IS	87.7		99.2		50-150	11-Nov-19 22:39	1	11-Nov-19 22:50	1
13C2-8:2 FTS	IS	91.0		104		50-150	11-Nov-19 22:39	1	11-Nov-19 22:50	1
d3-MeFOSAA	IS	69.4		74.9		50-150	11-Nov-19 22:39	1	11-Nov-19 22:50	1
13C2-PFUnA	IS	80.7		84.4		50-150	11-Nov-19 22:39	1	11-Nov-19 22:50	1
d5-EtFOSAA	IS	70.8		85.2		50-150	11-Nov-19 22:39	1	11-Nov-19 22:50	1
13C2-PFDoA	IS	66.9		71.6		50-150	11-Nov-19 22:39	1	11-Nov-19 22:50	1
13C2-PFTeDA	IS	73.0		60.4		50-150	11-Nov-19 22:39	1	11-Nov-19 22:50	1

Sample ID: L8/9-5-GW **PFAS Isotope Dilution Method**

Client Data				**Laboratory Data**			
Name:	Woodard & Curran	Matrix:	Aqueous	Lab Sample:	1903825-09	Column:	BEH C18
Project:	SJC PFAS Investigation	Date Collected:	24-Oct-19 10:15	Date Received:	25-Oct-19 08:40		
Location:	8/9						

Analyte	CAS Number	Conc. (ng/L)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	814	2.23		B9J0302	01-Nov-19	0.224 L	12-Nov-19 00:46	1
PFPeA	2706-90-3	4970	11.2	D	B9J0302	01-Nov-19	0.224 L	12-Dec-19 10:30	5
PFBS	375-73-5	44.5	2.23		B9J0302	01-Nov-19	0.224 L	12-Nov-19 00:46	1
4:2 FTS	757124-72-4	2.48	2.23		B9J0302	01-Nov-19	0.224 L	12-Nov-19 00:46	1
PFHxA	307-24-4	1620	2.23		B9J0302	01-Nov-19	0.224 L	12-Nov-19 00:46	1
PFPeS	2706-91-4	11.9	2.23		B9J0302	01-Nov-19	0.224 L	12-Nov-19 00:46	1
PFHpA	375-85-9	134	2.23		B9J0302	01-Nov-19	0.224 L	12-Nov-19 00:46	1
PFHxS	355-46-4	15.0	2.23		B9J0302	01-Nov-19	0.224 L	12-Nov-19 00:46	1
6:2 FTS	27619-97-2	560	2.23		B9J0302	01-Nov-19	0.224 L	12-Nov-19 00:46	1
PFOA	335-67-1	4.75	2.23		B9J0302	01-Nov-19	0.224 L	12-Nov-19 00:46	1
PFHpS	375-92-8	ND	2.23		B9J0302	01-Nov-19	0.224 L	12-Nov-19 00:46	1
PFNA	375-95-1	ND	2.23		B9J0302	01-Nov-19	0.224 L	12-Nov-19 00:46	1
PFOSA	754-91-6	ND	2.23		B9J0302	01-Nov-19	0.224 L	12-Nov-19 00:46	1
PFOS	1763-23-1	ND	2.23		B9J0302	01-Nov-19	0.224 L	12-Nov-19 00:46	1
PFDA	335-76-2	ND	2.23		B9J0302	01-Nov-19	0.224 L	12-Nov-19 00:46	1
8:2 FTS	39108-34-4	4.88	2.23		B9J0302	01-Nov-19	0.224 L	12-Nov-19 00:46	1
MeFOSAA	2355-31-9	ND	2.23		B9J0302	01-Nov-19	0.224 L	12-Nov-19 00:46	1
EtFOSAA	2991-50-6	ND	2.23		B9J0302	01-Nov-19	0.224 L	12-Nov-19 00:46	1
PFUnA	2058-94-8	ND	2.23		B9J0302	01-Nov-19	0.224 L	12-Nov-19 00:46	1
PFDS	335-77-3	ND	2.23		B9J0302	01-Nov-19	0.224 L	12-Nov-19 00:46	1
PFDoA	307-55-1	ND	2.23		B9J0302	01-Nov-19	0.224 L	12-Nov-19 00:46	1
PFTrDA	72629-94-8	ND	2.23		B9J0302	01-Nov-19	0.224 L	12-Nov-19 00:46	1
PFTeDA	376-06-7	ND	2.23		B9J0302	01-Nov-19	0.224 L	12-Nov-19 00:46	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	91.8	50 - 150		B9J0302	01-Nov-19	0.224 L	12-Nov-19 00:46	1
13C3-PFPeA	IS	82.0	50 - 150	D	B9J0302	01-Nov-19	0.224 L	12-Dec-19 10:30	5
13C3-PFBS	IS	115	50 - 150		B9J0302	01-Nov-19	0.224 L	12-Nov-19 00:46	1
13C2-4:2 FTS	IS	118	50 - 150		B9J0302	01-Nov-19	0.224 L	12-Nov-19 00:46	1
13C2-PFHxA	IS	96.4	50 - 150		B9J0302	01-Nov-19	0.224 L	12-Nov-19 00:46	1
13C4-PFHpA	IS	112	50 - 150		B9J0302	01-Nov-19	0.224 L	12-Nov-19 00:46	1
13C3-PFHxS	IS	114	50 - 150		B9J0302	01-Nov-19	0.224 L	12-Nov-19 00:46	1
13C2-6:2 FTS	IS	90.0	50 - 150		B9J0302	01-Nov-19	0.224 L	12-Nov-19 00:46	1
13C5-PFNA	IS	117	50 - 150		B9J0302	01-Nov-19	0.224 L	12-Nov-19 00:46	1
13C8-PFOSA	IS	51.5	50 - 150		B9J0302	01-Nov-19	0.224 L	12-Nov-19 00:46	1
13C2-PFOA	IS	111	50 - 150		B9J0302	01-Nov-19	0.224 L	12-Nov-19 00:46	1
13C8-PFOS	IS	112	50 - 150		B9J0302	01-Nov-19	0.224 L	12-Nov-19 00:46	1
13C2-PFDA	IS	109	50 - 150		B9J0302	01-Nov-19	0.224 L	12-Nov-19 00:46	1
13C2-8:2 FTS	IS	117	50 - 150		B9J0302	01-Nov-19	0.224 L	12-Nov-19 00:46	1

Sample ID: L8/9-5-GW

PFAS Isotope Dilution Method

Client Data				**Laboratory Data**			
Name:	Woodard & Curran	Matrix:	Aqueous	Lab Sample:	1903825-09	Column:	BEH C18
Project:	SJC PFAS Investigation	Date Collected:	24-Oct-19 10:15	Date Received:	25-Oct-19 08:40		
Location:	8/9						

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
d3-MeFOSAA	IS	93.0	50 - 150		B9J0302	01-Nov-19	0.224 L	12-Nov-19 00:46	1
13C2-PFUnA	IS	77.8	50 - 150		B9J0302	01-Nov-19	0.224 L	12-Nov-19 00:46	1
d5-EtFOSAA	IS	83.2	50 - 150		B9J0302	01-Nov-19	0.224 L	12-Nov-19 00:46	1
13C2-PFDoA	IS	44.9	50 - 150	H	B9J0302	01-Nov-19	0.224 L	12-Nov-19 00:46	1
13C2-PFTeDA	IS	4.30	50 - 150	H	B9J0302	01-Nov-19	0.224 L	12-Nov-19 00:46	1

RL - Reporting limit

Results reported to RL.

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

Sample ID: L8/9-4-GW **PFAS Isotope Dilution Method**

Client Data

Name:	Woodard & Curran	Matrix:	Aqueous
Project:	SJC PFAS Investigation	Date Collected:	24-Oct-19 12:13
Location:	8/9		

Laboratory Data

Lab Sample:	1903825-10	Column:	BEH C18
Date Received:	25-Oct-19 08:40		

Analyte	CAS Number	Conc. (ng/L)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	85.6	2.14		B9J0302	01-Nov-19	0.234 L	12-Nov-19 00:57	1
PFPeA	2706-90-3	231	2.14		B9J0302	01-Nov-19	0.234 L	12-Nov-19 00:57	1
PFBS	375-73-5	6.58	2.14		B9J0302	01-Nov-19	0.234 L	12-Nov-19 00:57	1
4:2 FTS	757124-72-4	ND	2.14		B9J0302	01-Nov-19	0.234 L	12-Nov-19 00:57	1
PFHxA	307-24-4	75.0	2.14		B9J0302	01-Nov-19	0.234 L	12-Nov-19 00:57	1
PFPeS	2706-91-4	ND	2.14		B9J0302	01-Nov-19	0.234 L	12-Nov-19 00:57	1
PFHpA	375-85-9	3.58	2.14	Q	B9J0302	01-Nov-19	0.234 L	12-Nov-19 00:57	1
PFHxS	355-46-4	ND	2.14		B9J0302	01-Nov-19	0.234 L	12-Nov-19 00:57	1
6:2 FTS	27619-97-2	81.3	2.14		B9J0302	01-Nov-19	0.234 L	12-Nov-19 00:57	1
PFOA	335-67-1	2.40	2.14		B9J0302	01-Nov-19	0.234 L	12-Nov-19 00:57	1
PFHpS	375-92-8	ND	2.14		B9J0302	01-Nov-19	0.234 L	12-Nov-19 00:57	1
PFNA	375-95-1	ND	2.14		B9J0302	01-Nov-19	0.234 L	12-Nov-19 00:57	1
PFOSA	754-91-6	ND	2.14		B9J0302	01-Nov-19	0.234 L	12-Nov-19 00:57	1
PFOS	1763-23-1	ND	2.14		B9J0302	01-Nov-19	0.234 L	12-Nov-19 00:57	1
PFDA	335-76-2	ND	2.14		B9J0302	01-Nov-19	0.234 L	12-Nov-19 00:57	1
8:2 FTS	39108-34-4	2.20	2.14		B9J0302	01-Nov-19	0.234 L	12-Nov-19 00:57	1
MeFOSAA	2355-31-9	ND	2.14		B9J0302	01-Nov-19	0.234 L	12-Nov-19 00:57	1
EtFOSAA	2991-50-6	ND	2.14		B9J0302	01-Nov-19	0.234 L	12-Nov-19 00:57	1
PFUnA	2058-94-8	ND	2.14		B9J0302	01-Nov-19	0.234 L	12-Nov-19 00:57	1
PFDS	335-77-3	ND	2.14		B9J0302	01-Nov-19	0.234 L	12-Nov-19 00:57	1
PFDoA	307-55-1	ND	2.14		B9J0302	01-Nov-19	0.234 L	12-Nov-19 00:57	1
PFTrDA	72629-94-8	ND	2.14		B9J0302	01-Nov-19	0.234 L	12-Nov-19 00:57	1
PFTeDA	376-06-7	ND	2.14		B9J0302	01-Nov-19	0.234 L	12-Nov-19 00:57	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	117	50 - 150		B9J0302	01-Nov-19	0.234 L	12-Nov-19 00:57	1
13C3-PFPeA	IS	144	50 - 150		B9J0302	01-Nov-19	0.234 L	12-Nov-19 00:57	1
13C3-PFBS	IS	156	50 - 150	H	B9J0302	01-Nov-19	0.234 L	12-Nov-19 00:57	1
13C2-4:2 FTS	IS	152	50 - 150	H	B9J0302	01-Nov-19	0.234 L	12-Nov-19 00:57	1
13C2-PFHxA	IS	150	50 - 150		B9J0302	01-Nov-19	0.234 L	12-Nov-19 00:57	1
13C4-PFHpA	IS	158	50 - 150	H	B9J0302	01-Nov-19	0.234 L	12-Nov-19 00:57	1
13C3-PFHxS	IS	153	50 - 150	H	B9J0302	01-Nov-19	0.234 L	12-Nov-19 00:57	1
13C2-6:2 FTS	IS	131	50 - 150		B9J0302	01-Nov-19	0.234 L	12-Nov-19 00:57	1
13C5-PFNA	IS	157	50 - 150	H	B9J0302	01-Nov-19	0.234 L	12-Nov-19 00:57	1
13C8-PFOSA	IS	59.5	50 - 150		B9J0302	01-Nov-19	0.234 L	12-Nov-19 00:57	1
13C2-PFOA	IS	143	50 - 150		B9J0302	01-Nov-19	0.234 L	12-Nov-19 00:57	1
13C8-PFOS	IS	152	50 - 150	H	B9J0302	01-Nov-19	0.234 L	12-Nov-19 00:57	1
13C2-PFDA	IS	149	50 - 150		B9J0302	01-Nov-19	0.234 L	12-Nov-19 00:57	1
13C2-8:2 FTS	IS	148	50 - 150		B9J0302	01-Nov-19	0.234 L	12-Nov-19 00:57	1

Sample ID: L8/9-4-GW

PFAS Isotope Dilution Method

Client Data

Name:	Woodard & Curran	Matrix:	Aqueous
Project:	SJC PFAS Investigation	Date Collected:	24-Oct-19 12:13
Location:	8/9		

Laboratory Data

Lab Sample:	1903825-10	Column:	BEH C18
Date Received:	25-Oct-19 08:40		

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
d3-MeFOSAA	IS	130	50 - 150		B9J0302	01-Nov-19	0.234 L	12-Nov-19 00:57	1
13C2-PFUnA	IS	135	50 - 150		B9J0302	01-Nov-19	0.234 L	12-Nov-19 00:57	1
d5-EtFOSAA	IS	129	50 - 150		B9J0302	01-Nov-19	0.234 L	12-Nov-19 00:57	1
13C2-PFDoA	IS	101	50 - 150		B9J0302	01-Nov-19	0.234 L	12-Nov-19 00:57	1
13C2-PFTeDA	IS	21.6	50 - 150	H	B9J0302	01-Nov-19	0.234 L	12-Nov-19 00:57	1

RL - Reporting limit

Results reported to RL.

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

Sample ID: L8/9-40-GW **PFAS Isotope Dilution Method**

Client Data				**Laboratory Data**			
Name:	Woodard & Curran	Matrix:	Aqueous	Lab Sample:	1903825-11	Column:	BEH C18
Project:	SJC PFAS Investigation	Date Collected:	24-Oct-19 12:13	Date Received:	25-Oct-19 08:40		
Location:	8/9						

Analyte	CAS Number	Conc. (ng/L)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	85.5	2.09		B9J0302	01-Nov-19	0.239 L	12-Nov-19 01:08	1
PFPeA	2706-90-3	232	2.09		B9J0302	01-Nov-19	0.239 L	12-Nov-19 01:08	1
PFBS	375-73-5	6.06	2.09		B9J0302	01-Nov-19	0.239 L	12-Nov-19 01:08	1
4:2 FTS	757124-72-4	ND	2.09		B9J0302	01-Nov-19	0.239 L	12-Nov-19 01:08	1
PFHxA	307-24-4	70.2	2.09		B9J0302	01-Nov-19	0.239 L	12-Nov-19 01:08	1
PFPeS	2706-91-4	ND	2.09		B9J0302	01-Nov-19	0.239 L	12-Nov-19 01:08	1
PFHpA	375-85-9	3.66	2.09	Q	B9J0302	01-Nov-19	0.239 L	12-Nov-19 01:08	1
PFHxS	355-46-4	ND	2.09		B9J0302	01-Nov-19	0.239 L	12-Nov-19 01:08	1
6:2 FTS	27619-97-2	79.6	2.09		B9J0302	01-Nov-19	0.239 L	12-Nov-19 01:08	1
PFOA	335-67-1	2.20	2.09		B9J0302	01-Nov-19	0.239 L	12-Nov-19 01:08	1
PFHpS	375-92-8	ND	2.09		B9J0302	01-Nov-19	0.239 L	12-Nov-19 01:08	1
PFNA	375-95-1	ND	2.09		B9J0302	01-Nov-19	0.239 L	12-Nov-19 01:08	1
PFOSA	754-91-6	ND	2.09		B9J0302	01-Nov-19	0.239 L	12-Nov-19 01:08	1
PFOS	1763-23-1	ND	2.09		B9J0302	01-Nov-19	0.239 L	12-Nov-19 01:08	1
PFDA	335-76-2	ND	2.09		B9J0302	01-Nov-19	0.239 L	12-Nov-19 01:08	1
8:2 FTS	39108-34-4	2.36	2.09		B9J0302	01-Nov-19	0.239 L	12-Nov-19 01:08	1
MeFOSAA	2355-31-9	ND	2.09		B9J0302	01-Nov-19	0.239 L	12-Nov-19 01:08	1
EtFOSAA	2991-50-6	ND	2.09		B9J0302	01-Nov-19	0.239 L	12-Nov-19 01:08	1
PFUnA	2058-94-8	ND	2.09		B9J0302	01-Nov-19	0.239 L	12-Nov-19 01:08	1
PFDS	335-77-3	ND	2.09		B9J0302	01-Nov-19	0.239 L	12-Nov-19 01:08	1
PFDoA	307-55-1	ND	2.09		B9J0302	01-Nov-19	0.239 L	12-Nov-19 01:08	1
PFTrDA	72629-94-8	ND	2.09		B9J0302	01-Nov-19	0.239 L	12-Nov-19 01:08	1
PFTeDA	376-06-7	ND	2.09		B9J0302	01-Nov-19	0.239 L	12-Nov-19 01:08	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	76.5	50 - 150		B9J0302	01-Nov-19	0.239 L	12-Nov-19 01:08	1
13C3-PFPeA	IS	98.6	50 - 150		B9J0302	01-Nov-19	0.239 L	12-Nov-19 01:08	1
13C3-PFBS	IS	106	50 - 150		B9J0302	01-Nov-19	0.239 L	12-Nov-19 01:08	1
13C2-4:2 FTS	IS	102	50 - 150		B9J0302	01-Nov-19	0.239 L	12-Nov-19 01:08	1
13C2-PFHxA	IS	96.6	50 - 150		B9J0302	01-Nov-19	0.239 L	12-Nov-19 01:08	1
13C4-PFHpA	IS	104	50 - 150		B9J0302	01-Nov-19	0.239 L	12-Nov-19 01:08	1
13C3-PFHxS	IS	99.5	50 - 150		B9J0302	01-Nov-19	0.239 L	12-Nov-19 01:08	1
13C2-6:2 FTS	IS	84.4	50 - 150		B9J0302	01-Nov-19	0.239 L	12-Nov-19 01:08	1
13C5-PFNA	IS	110	50 - 150		B9J0302	01-Nov-19	0.239 L	12-Nov-19 01:08	1
13C8-PFOSA	IS	58.0	50 - 150		B9J0302	01-Nov-19	0.239 L	12-Nov-19 01:08	1
13C2-PFOA	IS	98.7	50 - 150		B9J0302	01-Nov-19	0.239 L	12-Nov-19 01:08	1
13C8-PFOS	IS	108	50 - 150		B9J0302	01-Nov-19	0.239 L	12-Nov-19 01:08	1
13C2-PFDA	IS	103	50 - 150		B9J0302	01-Nov-19	0.239 L	12-Nov-19 01:08	1
13C2-8:2 FTS	IS	90.1	50 - 150		B9J0302	01-Nov-19	0.239 L	12-Nov-19 01:08	1

Sample ID: L8/9-40-GW **PFAS Isotope Dilution Method**

Client Data				**Laboratory Data**			
Name:	Woodard & Curran	Matrix:	Aqueous	Lab Sample:	1903825-11	Column:	BEH C18
Project:	SJC PFAS Investigation	Date Collected:	24-Oct-19 12:13	Date Received:	25-Oct-19 08:40		
Location:	8/9						

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
d3-MeFOSAA	IS	88.0	50 - 150		B9J0302	01-Nov-19	0.239 L	12-Nov-19 01:08	1
13C2-PFUnA	IS	94.8	50 - 150		B9J0302	01-Nov-19	0.239 L	12-Nov-19 01:08	1
d5-EtFOSAA	IS	98.4	50 - 150		B9J0302	01-Nov-19	0.239 L	12-Nov-19 01:08	1
13C2-PFDoA	IS	74.3	50 - 150		B9J0302	01-Nov-19	0.239 L	12-Nov-19 01:08	1
13C2-PFTeDA	IS	62.2	50 - 150		B9J0302	01-Nov-19	0.239 L	12-Nov-19 01:08	1

RL - Reporting limit

Results reported to RL.

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

Sample ID: Trip Blank **PFAS Isotope Dilution Method**

Client Data				**Laboratory Data**			
Name:	Woodard & Curran	Matrix:	Aqueous	Lab Sample:	1903825-12	Column:	BEH C18
Project:	SJC PFAS Investigation	Date Collected:	18-Oct-19 00:00	Date Received:	25-Oct-19 08:40		

Analyte	CAS Number	Conc. (ng/L)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	ND	2.02		B9J0302	01-Nov-19	0.247 L	12-Nov-19 01:18	1
PFPeA	2706-90-3	ND	2.02		B9J0302	01-Nov-19	0.247 L	12-Nov-19 01:18	1
PFBS	375-73-5	ND	2.02		B9J0302	01-Nov-19	0.247 L	12-Nov-19 01:18	1
4:2 FTS	757124-72-4	ND	2.02		B9J0302	01-Nov-19	0.247 L	12-Nov-19 01:18	1
PFHxA	307-24-4	ND	2.02		B9J0302	01-Nov-19	0.247 L	12-Nov-19 01:18	1
PFPeS	2706-91-4	ND	2.02		B9J0302	01-Nov-19	0.247 L	12-Nov-19 01:18	1
PFHpA	375-85-9	ND	2.02		B9J0302	01-Nov-19	0.247 L	12-Nov-19 01:18	1
PFHxS	355-46-4	ND	2.02		B9J0302	01-Nov-19	0.247 L	12-Nov-19 01:18	1
6:2 FTS	27619-97-2	ND	2.02		B9J0302	01-Nov-19	0.247 L	12-Nov-19 01:18	1
PFOA	335-67-1	ND	2.02		B9J0302	01-Nov-19	0.247 L	12-Nov-19 01:18	1
PFHpS	375-92-8	ND	2.02		B9J0302	01-Nov-19	0.247 L	12-Nov-19 01:18	1
PFNA	375-95-1	ND	2.02		B9J0302	01-Nov-19	0.247 L	12-Nov-19 01:18	1
PFOSA	754-91-6	ND	2.02		B9J0302	01-Nov-19	0.247 L	12-Nov-19 01:18	1
PFOS	1763-23-1	ND	2.02		B9J0302	01-Nov-19	0.247 L	12-Nov-19 01:18	1
PFDA	335-76-2	ND	2.02		B9J0302	01-Nov-19	0.247 L	12-Nov-19 01:18	1
8:2 FTS	39108-34-4	ND	2.02		B9J0302	01-Nov-19	0.247 L	12-Nov-19 01:18	1
MeFOSAA	2355-31-9	ND	2.02		B9J0302	01-Nov-19	0.247 L	12-Nov-19 01:18	1
EtFOSAA	2991-50-6	ND	2.02		B9J0302	01-Nov-19	0.247 L	12-Nov-19 01:18	1
PFUnA	2058-94-8	ND	2.02		B9J0302	01-Nov-19	0.247 L	12-Nov-19 01:18	1
PFDS	335-77-3	ND	2.02		B9J0302	01-Nov-19	0.247 L	12-Nov-19 01:18	1
PFDoA	307-55-1	ND	2.02		B9J0302	01-Nov-19	0.247 L	12-Nov-19 01:18	1
PFTrDA	72629-94-8	ND	2.02		B9J0302	01-Nov-19	0.247 L	12-Nov-19 01:18	1
PFTeDA	376-06-7	ND	2.02		B9J0302	01-Nov-19	0.247 L	12-Nov-19 01:18	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	131	50 - 150		B9J0302	01-Nov-19	0.247 L	12-Nov-19 01:18	1
13C3-PFPeA	IS	95.8	50 - 150		B9J0302	01-Nov-19	0.247 L	12-Nov-19 01:18	1
13C3-PFBS	IS	108	50 - 150		B9J0302	01-Nov-19	0.247 L	12-Nov-19 01:18	1
13C2-4:2 FTS	IS	105	50 - 150		B9J0302	01-Nov-19	0.247 L	12-Nov-19 01:18	1
13C2-PFHxA	IS	95.2	50 - 150		B9J0302	01-Nov-19	0.247 L	12-Nov-19 01:18	1
13C4-PFHpA	IS	96.3	50 - 150		B9J0302	01-Nov-19	0.247 L	12-Nov-19 01:18	1
13C3-PFHxS	IS	98.8	50 - 150		B9J0302	01-Nov-19	0.247 L	12-Nov-19 01:18	1
13C2-6:2 FTS	IS	91.9	50 - 150		B9J0302	01-Nov-19	0.247 L	12-Nov-19 01:18	1
13C5-PFNA	IS	108	50 - 150		B9J0302	01-Nov-19	0.247 L	12-Nov-19 01:18	1
13C8-PFOSA	IS	37.2	50 - 150	H	B9J0302	01-Nov-19	0.247 L	12-Nov-19 01:18	1
13C2-PFOA	IS	96.3	50 - 150		B9J0302	01-Nov-19	0.247 L	12-Nov-19 01:18	1
13C8-PFOS	IS	102	50 - 150		B9J0302	01-Nov-19	0.247 L	12-Nov-19 01:18	1
13C2-PFDA	IS	106	50 - 150		B9J0302	01-Nov-19	0.247 L	12-Nov-19 01:18	1
13C2-8:2 FTS	IS	110	50 - 150		B9J0302	01-Nov-19	0.247 L	12-Nov-19 01:18	1

Sample ID: Trip Blank **PFAS Isotope Dilution Method**

Client Data				**Laboratory Data**			
Name:	Woodard & Curran	Matrix:	Aqueous	Lab Sample:	1903825-12	Column:	BEH C18
Project:	SJC PFAS Investigation	Date Collected:	18-Oct-19 00:00	Date Received:	25-Oct-19 08:40		

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
d3-MeFOSAA	IS	83.7	50 - 150		B9J0302	01-Nov-19	0.247 L	12-Nov-19 01:18	1
13C2-PFUnA	IS	105	50 - 150		B9J0302	01-Nov-19	0.247 L	12-Nov-19 01:18	1
d5-EtFOSAA	IS	89.1	50 - 150		B9J0302	01-Nov-19	0.247 L	12-Nov-19 01:18	1
13C2-PFDoA	IS	86.6	50 - 150		B9J0302	01-Nov-19	0.247 L	12-Nov-19 01:18	1
13C2-PFTeDA	IS	80.6	50 - 150		B9J0302	01-Nov-19	0.247 L	12-Nov-19 01:18	1

RL - Reporting limit

Results reported to RL.

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

DATA QUALIFIERS & ABBREVIATIONS

B	This compound was also detected in the method blank
Conc.	Concentration
CRS	Cleanup Recovery Standard
D	Dilution
DL	Detection limit
E	The associated compound concentration exceeded the calibration range of the instrument
H	Recovery and/or RPD was outside laboratory acceptance limits
I	Chemical Interference
IS	Internal Standard
J	The amount detected is below the Reporting Limit/LOQ
LOD	Limit of Detection
LOQ	Limit of Quantitation
M	Estimated Maximum Possible Concentration (CA Region 2 projects only)
NA	Not applicable
ND	Not Detected
OPR	Ongoing Precision and Recovery sample
P	The reported concentration may include contribution from chlorinated diphenyl ether(s).
Q	The ion transition ratio is outside of the acceptance criteria.
RL	Reporting Limit
TEQ	Toxic Equivalency
U	Not Detected (specific projects only)
*	See Cover Letter

Unless otherwise noted, solid sample results are reported in dry weight. Tissue samples are reported in wet weight.

Vista Analytical Laboratory Certifications

Accrediting Authority	Certificate Number
Alaska Department of Environmental Conservation	17-013
Arkansas Department of Environmental Quality	19-013-0
California Department of Health – ELAP	2892
DoD ELAP - A2LA Accredited - ISO/IEC 17025:2005	3091.01
Florida Department of Health	E87777-23
Hawaii Department of Health	N/A
Louisiana Department of Environmental Quality	01977
Maine Department of Health	2018017
Massachusetts Department of Environmental Protection	N/A
Michigan Department of Environmental Quality	9932
Minnesota Department of Health	1521520
New Hampshire Environmental Accreditation Program	207718-B
New Jersey Department of Environmental Protection	190001
New York Department of Health	11411
Oregon Laboratory Accreditation Program	4042-010
Pennsylvania Department of Environmental Protection	016
Texas Commission on Environmental Quality	T104704189-19-10
Vermont Department of Health	VT-4042
Virginia Department of General Services	10272
Washington Department of Ecology	C584-19
Wisconsin Department of Natural Resources	998036160

Current certificates and lists of licensed parameters are located in the Quality Assurance office and are available upon request.

NELAP Accredited Test Methods

MATRIX: Air	
Description of Test	**Method**
Determination of Polychlorinated p-Dioxins & Polychlorinated Dibenzofurans	EPA 23
Determination of Polychlorinated p-Dioxins & Polychlorinated Dibenzofurans	EPA TO-9A

MATRIX: Biological Tissue	
Description of Test	**Method**
Tetra- through Octa-Chlorinated Dioxins and Furans by Isotope Dilution GC/HRMS	EPA 1613B
Brominated Diphenyl Ethers by HRGC/HRMS	EPA 1614A
Chlorinated Biphenyl Congeners in Water, Soil, Sediment, and Tissue by GC/HRMS	EPA 1668A/C
Pesticides in Water, Soil, Sediment, Biosolids, and Tissue by HRGC/HRMS	EPA 1699
Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/MS/MS	EPA 537
Polychlorinated Dibenzo-p-Dioxins and Polychlorinated Dibenzofurans by GC/HRMS	EPA 8280A/B
Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by GC/HRMS	EPA 8290/8290A

MATRIX: Drinking Water	
Description of Test	**Method**
2,3,7,8-Tetrachlorodibenzo- p-dioxin (2,3,7,8-TCDD) GC/HRMS	EPA 1613/1613B
1,4-Dioxane (1,4-Diethyleneoxide) analysis by GC/HRMS	EPA 522
Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/MS/MS	EPA 537
Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/MS/MS	ISO 25101 2009

MATRIX: Non-Potable Water	
Description of Test	**Method**
Tetra- through Octa-Chlorinated Dioxins and Furans by Isotope Dilution GC/HRMS	EPA 1613B
Brominated Diphenyl Ethers by HRGC/HRMS	EPA 1614A
Chlorinated Biphenyl Congeners in Water, Soil, Sediment, and Tissue by GC/HRMS	EPA 1668A/C
Pesticides in Water, Soil, Sediment, Biosolids, and Tissue by HRGC/HRMS	EPA 1699
Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/MS/MS	EPA 537
Dioxin by GC/HRMS	EPA 613
Polychlorinated Dibenzo-p-Dioxins and Polychlorinated Dibenzofurans by GC/HRMS	EPA 8280A/B
Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by GC/HRMS	EPA 8290/8290A

MATRIX: Solids	
Description of Test	**Method**
Tetra-Octa Chlorinated Dioxins and Furans by Isotope Dilution GC/HRMS	EPA 1613
Tetra- through Octa-Chlorinated Dioxins and Furans by Isotope Dilution GC/HRMS	EPA 1613B
Brominated Diphenyl Ethers by HRGC/HRMS	EPA 1614A
Chlorinated Biphenyl Congeners in Water, Soil, Sediment, and Tissue by GC/HRMS	EPA 1668A/C
Pesticides in Water, Soil, Sediment, Biosolids, and Tissue by HRGC/HRMS	EPA 1699
Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/MS/MS	EPA 537
Polychlorinated Dibenzo-p-Dioxins and Polychlorinated Dibenzofurans by GC/HRMS	EPA 8280A/B
Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by GC/HRMS	EPA 8290/8290A

Submit by Email

Print Form

Vista

CHAIN OF CUSTODY RECORD

FOR LABORATORY USE ONLY

Laboratory Project ID: 1903825 Temp 0.6 °C

Storage Secured: Yes ☑ No ☐

Storage ID: WR-2, R-13

TAT: (Check One)
Standard ○ 21 days
Rush (surcharge may apply)
○ 14 days ○ 7 days Specify: ___

Project I.D.: STC PFAS Investigation P.O. #: 0232401.01 Sampler: KA/CL (Name)

Invoice to: Name Company Address City State Zip Ph# Fax #

Relinquished by: (Printed Name and Signature) Eric Ly	Date: 10/24/2019	Time: 17:30	Received by: (Signature and Printed Name) Eric Ly Fed Ex	Date: 10/24/2019	Time:
Relinquished by: (Printed Name and Signature) FedEx	Date: 10/25/19	Time: 08:40	Received by: (Signature and Printed Name) Hayden Ganas	Date: 10/25/19	Time: 08:40

See "Sample Log-in Checklist" for additional sample information

SHIP TO: Vista Analytical Laboratory
1104 Windfield Way
El Dorado Hills, CA 95762
(916) 673-1520 • Fax (916) 673-0106

Method of Shipment: Fed EX

Tracking No.:

ATTN: Jade White-Dobbs

Add Analysis(es) Requested

				Container(s)			EPA1613			EPA8290			EPA8280			EPA1668			EPA1614	CARB429			
Sample ID	Date	Time	Location/Sample Description	Quantity	Type	Matrix	2378-TCDD	2378-TCDD/TCDF	PCDD/PCDF	2378-TCDD	2378-TCDD/TCDF	PCDD/PCDF	2378-TCDD	2378-TCDD/TCDF	PCDD/PCDF	TOTALS	COPLANAR PCBs	209 CONGENERS	PBDE	PAH	WHO-29		CA Airport PFAS List (23)
L8/9-3-5	10/24/19	0901	8/9	1	PJ	SO																	X
L8/9-3-10		0904	8/9																				
L8/9-4-1		1102	8/9																				
L8/9-4-5		1105	8/9																				
L8/9-4-10		1110	8/9																				
L8/9-5-1		0938	8/9																				
L8/9-5-5		0942	8/9																				
L8/9-5-10		0947	8/9	↓	↓	↓																	
L8/9-5-GW		1015	8/9	2	P	AQ																	
L8/9-4-GW	↓	1213	8/9	2																			↓
L8/9-40-GW	↓	1213	8/9	2	↓	↓																	↓

Special Instructions/Comments:

SEND DOCUMENTATION AND RESULTS TO:

Name: Jim Strandberg
Company: Woodard + Curran
Address: 2175 N. California Blvd., Ste. 315
City: Walnut Creek State: CA Zip: 94597
Phone: (510) 310-3776 Fax: (925) 627-4101
Email: jstrandberg@woodardcurran.com

Container Types: A = 1 Liter Amber, G = Glass Jar
P = PUF, T = MM5 Train, O = Other ___

***Bottle Preservative Type:** ☐ T = Thiosulfate,
☐ O = Other ___

Matrix Types: DW = Drinking Water, EF = Effluent, PP = Pulp/Paper, SD = Sediment, SL = Sludge, SO = Soil, WW = Wastewater, B=Blood/Serum
O = Other ___

Vista
Analytical Laboratory

Sample Log-In Checklist

Page # 1 **of** 1

Vista Work Order #: 1903825 **TAT** Std

Samples Arrival:	**Date/Time** 10/25/19 08:40	**Initials:** HDG	**Location:** WR-2 **Shelf/Rack:** NA

Delivered By:	[✓ FedEx]	UPS	On Trac	GSO	DHL	Hand Delivered	Other
Preservation:	[✓ Ice]	Blue Ice	Dry Ice	None			

Temp °C: 0.6 **(uncorrected)**	**Probe used:** Y / [✓ N]	**Thermometer ID:** IR-4
Temp °C: 0.6 **(corrected)**		

	YES	NO	NA
Shipping Container(s) Intact?	✓		
Shipping Custody Seals Intact?	✓		
Airbill #2 Trk # 7804 9906 8834	✓		
Shipping Documentation Present?	✓		
Shipping Container: Vista [✓ Client] Retain [✓ Return] Dispose			
Chain of Custody / Sample Documentation Present?	✓		
Chain of Custody / Sample Documentation Complete?	✓		
Holding Time Acceptable?	✓		

Logged In:	**Date/Time** 10/27/19 1502	**Initials:** KE	**Location:** WR-2 | R-13 **Shelf/Rack:** ~~D~~ KE 10/27 F7 | A4

	YES	NO	NA
COC Anomaly/Sample Acceptance Form completed?	✓		

Comments:

CoC/Label Reconciliation Report WO# 1903825

LabNumber	CoC Sample ID	Label ID matches COCID	Label ID doesn't match COCID	SampleAlias	Sampled	Label Sampled matches	Sampled doesn't match	Container ✓	Container Correct	BaseMatrix	✓Sample Comments
1903825-01	A L8/9-3-5	☑		8/9 SJC	24-Oct-19 09:01	☑		HDPE Jar, 6 oz	☑	Solid	
1903825-02	A L8/9-3-10	☑		8/9	24-Oct-19 09:04	☑		HDPE Jar, 6 oz	☑	Solid	
1903825-03	A L8/9-4-1	☑		8/9	24-Oct-19 11:02	☑		HDPE Jar, 6 oz	☑	Solid	
1903825-04	A L8/9-4-5	☑		8/9	24-Oct-19 11:05	☑		HDPE Jar, 6 oz	☑	Solid	
1903825-05	A L8/9-4-10	☑		8/9	24-Oct-19 11:10	☑		HDPE Jar, 6 oz	☑	Solid	
1903825-06	A L8/9-5-1	☑		8/9	24-Oct-19 09:38	☑		HDPE Jar, 6 oz	☑	Solid	
1903825-07	A L8/9-5-5	☑		8/9	24-Oct-19 09:42	☑		HDPE Jar, 6 oz	☑	Solid	
1903825-08	A L8/9-5-10	☑		8/9	24-Oct-19 09:47	☑		HDPE Jar, 6 oz	☑	Solid	
1903825-09	A L8/9-5-GW	☑		8/9 ✓	24-Oct-19 10:15	☑		HDPE Bottle, 250 mL	☑	Aqueous	
1903825-09	B L8/9-5-GW	☑		8/9 ✓	24-Oct-19 10:15	☑		HDPE Bottle, 250 mL	☑	Aqueous	
1903825-10	A L8/9-4-GW	☑		8/9 not on sample label	24-Oct-19 12:13	☑		HDPE Bottle, 250 mL	☑	Aqueous	
1903825-10	B L8/9-4-GW	☑		8/9	24-Oct-19 12:13	☑		HDPE Bottle, 250 mL	☑	Aqueous	
1903825-11	A L8/9-40-GW	☑		8/9 not on sample label	24-Oct-19 12:13	☑		HDPE Bottle, 250 mL	☑	Aqueous	
1903825-11	B L8/9-40-GW	☑		8/9	24-Oct-19 12:13	☑		HDPE Bottle, 250 mL	☑	Aqueous	

*12 a Trip Blank
*12 B Trip Blank

	Yes	No	NA
Sample Container Intact?	✓		
Sample Custody Seals Intact?			✓
Adequate Sample Volume?	✓		
Preservation Documented: Na2S2O3 Trizma [✓ None] Other		✓	✓
If Chlorinated or Drinking Water Samples, Acceptable Preservation?			✓

Comments: * Received 2-250mL HDPE bottles with sample ID "Trip Blank". Not listed on CoC.
Collection date: 10/18/19 no time on label
added to WO # with info. from labels.

all samples received in cooler 2 of 2.

Verifed by/Date: WWS 10/28/19

Printed: 10/27/2019 3:10:36PM

Chain of Custody Anomaly/Sample Acceptance Form

Vista
Analytical Laboratory

Client:	Woodard & Curran	Workorder Number:	1903825
Contact:	Jim Strandberg	Date Received:	25-Oct-19 08:40
Email:	JStrandberg@woodardcurran.com	Documented by/date:	MSparks/10-28-19
Phone:	(925) 627-4122		

Please review the following information and complete the Client Authorization section. To comply with NELAC regulations, we must receive authorization before proceeding with sample analysis.

☐ Sample Collection Date and/or Time not provided

☐ Temperature outside Method Requirement (WI-PHT)

Temperature ________°C Ice Present? Yes No Melted

☐ Sample ID Not Reconcilable

☐ Sample Holding Time Missed

☐ Insufficient Sample Size

☐ All Sample Container(s) Broken

☐ Drinking Water Incorrect Container Type

☐ Chain-of-Custody not received, illegible or destroyed

☒ **Other: see comments**

Comments/Samples Affected:

Received 2-250ml HDPE bottles with sample ID "Trip Blank" (collection date: 10-18-19/no time). Not listed on COC.

Client Authorization

Proceed with Analysis: [✓ YES] NO

Signature and Date 10/28/19

Client Comments/Instructions Per Kevin Almestead via phone on 10/28/19, okay to proceed.

APPENDIX E: DATA VALIDATION SUMMARY

COMMITMENT & INTEGRITY
DRIVE RESULTS

2175 N California Blvd | Suite 315
Walnut Creek, California 94596
www.woodardcurran.com

T 925.627.4100

This data validation summary outlines the Modified Tier I Plus data validation findings for the preliminary investigation activities that took place October 16 to 24, 2019 at the Norman Y. Mineta San José International Airport. The investigation included the collection of 10 groundwater samples which were submitted to Vista Analytical Laboratory for analysis of chloride, nitrate, and sulfate by EPA Method 300; total dissolved solids (TDS) by EPA Method 160.1; calcium, magnesium, potassium, and sodium by EPA Method 200.7; alkalinity as $CaCO_3$ by Standard Method SM2320B; and Per- & Polyfluoroalkyl Substances (PFAS) by modified EPA Method 537.1 using isotope dilution. Five field duplicates were collected for analysis of PFAS. The investigation also included the collection of 84 discrete soil samples for analysis of PFAS by modified EPA Method 537.1.

In accordance with the Work Plan (Woodard & Curran, 2019), the Modified Tier I Plus validation included a review of the following:

- Data completeness;
- Holding times;
- Sample preservation;
- Blank results;
- Surrogate recoveries (organics only);
- Matrix spike and matrix spike duplicate (MS/MSD) results;
- Field duplicates; and
- Laboratory control spike and laboratory control spike duplicate (LCS/LCSD) results.

Attachments 1 and 2 provide summaries of the data validation and qualifications for analysis of groundwater samples for general chemistry and PFAS, respectively.

General Chemistry Parameters

The data validation summarized below was performed on chloride, nitrate, sulfate, TDS, calcium, magnesium, potassium, sodium, and alkalinity analyses in groundwater in sample delivery groups (SDGs) 19J1246, 19J1293, 19J1452, 19J1536, 19J1611, 19K0437, 19K0439, 19K0440, 19K0442, and 19K0447 (Attachment 1)

Data Completeness

All data necessary to perform this validation were present.

Holding Times & Sample Preservation

All samples were preserved and extracted and/or analyzed within holding times with the following exceptions:

- All groundwater samples submitted for analysis of alkalinity (results reported as estimated [J qualification]); and
- L12-3-GW submitted for analysis of nitrate (J).

All samples were received at proper temperature. No other qualifications were applied to the data.

Blank Results

All method blanks were non-detect. No qualifications were applied to the data.

MS/MSD Results

All MS/MSD recoveries were within acceptable limits with the following exceptions:

- Magnesium and sodium for samples L8/9-5-GW and L8/9-4-GW;
- Sodium for samples L14-4-GW, L3-3-GW, L14-1-GW, and L14-2-GW;
- Calcium, magnesium, potassium, sodium for sample L4-2-GW;
- Calcium, potassium, sodium, and chloride for sample L12-3-GW; and
- Calcium, magnesium, potassium, sodium, sulfate, chloride, and nitrate for samples L10-1-GW, L10-10-GW (duplicate of L10-1-GW), and L11-3-GW.

Detected results for analytes listed above received a J qualification.

Field Duplicates

The following field duplicate pairs were included with the dataset:

- L4-2-GW/L4-20-GW;
- L8/9-4-GW/L8/9-40-GW;
- L10-1-GW/L10-10-GW;
- L12-3-GW/L12-30-GW; and
- L14-2-GW/L14-20-GW.

All field duplicate pairs met the acceptance criteria. No qualifications were applied.

LCS/LCSD Results

All LCS results met acceptance criteria except for calcium, magnesium, and potassium for samples L10-1-GW (and L10-10-GW) and L11-3-GW which were outside recovery limits. Detected results received a J qualification.

PFAS

The data validation summarized below was performed on PFAS analyses in soil and groundwater in SDGs 1903732, 1903734, 1903735, 1903773, 1903822, 1903823, 1903824, and 1903825 (Attachment 2).

Data Completeness

All data necessary to perform this validation were present.

Holding Times & Sample Preservation

All samples were preserved and extracted and/or analyzed within holding times. All samples were received at proper temperature. No qualifications were applied to the data.

Blank Results

All method blanks were non-detect. No qualifications were applied to the data.

Equipment blanks EB-3 and EB-4 were non-detect for all analytes. No qualifications were applied.

Field blanks FB-2, FB-4, and FB-5 were non-detect for all analytes. No qualifications were applied.

Surrogate Recoveries

All surrogates met acceptance criteria with the exceptions noted in Attachment 2. Detected results for samples and compounds indicated were qualified as estimated (J).

MS/MSD Results

MS/MSD recoveries and/or RPDs were within the acceptance criteria except for those noted in Attachment 2. Detected results of samples and compounds indicated were qualified as estimated (J).

Field Duplicates

The following field duplicate pairs were included with the dataset:

- L10-1-GW/L10-10-GW
- L12-3-GW/L12-30-GW
- L4-2-GW/L4-20-GW
- L14-2-GW/L14-20/GW
- L8/9-4-GW/L8/9-40-GW

All field duplicate pairs met the acceptance criteria. No qualifications were applied.

LCS/LCSD Results

All LCS results met acceptance criteria. No qualifications were applied.

Attachment 1:
Inorganics Data Validation Summary Table
San Jose International Airport PFAS Preliminary Investigation

Project: PFAS Completion Report	**W&C Project No.:** 0232401.01	**SDGs:** 19J1246, 19J1293, 19J1452, 19J1536, 19J1611, 19K0437, 19K0439, 19K0440, 19K0442, 19K0447
Medium: Groundwater	**Analyses:** 300, 160.1, 200.7, SM2320B	**Analytes:** Alkalinity, chloride, nitrate, sulfate, total dissolved solids, calcium, magnesium, potassium, and sodium
Samples: L10-1-GW, L11-3-GW, L12-3-GW, L4-2-GW, L3-3-GW, L14-4-GW, L14-1-GW, L14-2-GW, L8/9-5-GW, L8/9-4-GW		

Laboratory: Vista Analytical	**Date Validation Completed:** 1/15/2020	**Sample Collection Date:** 10/16/2019 – 10/24/2019	**Sample Analysis Date:** 10/18/2019 – 11/12/2019

QC Parameter	All in Spec. ?	Non-Compliant Results	Flag	Action/ Notes	Associated Samples
Holding Times	No	Alkalinity Nitrate	J J	Analyzed outside of hold time for alkalinity	ALL GW samples analyzed for alkalinity L12-3-GW
Detection Limits	Yes	None	--	No action	
% Solids	NA				
Preservation	Yes	None	--	No action	
Blanks					
Method Blank	Yes	None	--	No action	
Equipment/Field Blank	NA		--		
Other QC Results					
LCS/LCSD	No	Calcium, Magnesium, Potassium	J	LCS recovery outside limits	L10-1-GW, L10-10-GW, L11-3-GW
MS/MSD	No	Magnesium, Sodium Sodium Calcium, Magnesium, Potassium, Sodium Calcium, Potassium, Sodium, Chloride Calcium, Magnesium, Potassium, Sodium, Sulfate, Chloride, Nitrate	J	MS recovery outside limits	L8/9-5-GW, L8/9-4-GW L14-4-GW, L3-3-GW, L14-1-GW, L14-2-GW L4-2-GW L12-3-GW L10-1-GW, L10-10-GW, L11-3-GW
Field Duplicates L10-1-GW/L10-10-GW L12-3-GW/L12-30-GW L4-2-GW/L4-20-GW L14-2-GW/L14-20/GW L8/9-4-GW/L8/9-40-GW	Yes	None	--	No action	
Laboratory Replicates	NA				

Attachment 2:
Organics Data Validation Summary Table
San Jose International Airport PFAS Preliminary Investigation

Project: PFAS Completion Report	**W&C Project No.:** 0232401.01	**SDGs:** 1903732, 1903734, 1903735, 1903773, 1903822, 1903823, 1903824, 1903825	
Medium: Groundwater and Soil	**Analysis:** EPA Mod. 537.1	**Analytes:** PFAS	
Samples:			
Laboratory: Vista Analytical	**Date Validation Completed:** 1/15/2020	**Sample Collection Date:** 10/16/2019 – 10/24/2019	**Sample Analysis Date:** 10/18/2019 – 11/12/2019

QC Parameter	All in Spec.?	Non-Compliant Results	Flag	Action/ Notes	Associated Samples
Holding Times	Yes	None	--	No action	
Detection Limits	Yes	None	--	No action	
% Solids	Yes	None	--	No action	
Preservation	Yes	None	--	No action	
Blanks					
Method Blank	Yes	None	--	No action	
Equipment/Field Blank EB-4, FB-5, FB-4, EB-3, FB-2	Yes	None	--	No action	
Trip Blank Trip Blank	Yes	None	--	No action	
Other QC Results					
Surrogate Recoveries	No	PFOSA, PFDA, PFTeDA	J	Labeled standard recoveries outside acceptance criteria	L8/9-3-5
		PFTeDA			L8/9-4-1, L8/9-4-5, L3-3-GW, L14-20-GW, L14-1-GW, L10-2-10, L11-1-10
		PFOSA			L8/9-4-10, L8/9-5-1, L8/9-5-5, L8/9-5-5, L3-2-5, L3-2-10, L14-2-GW, L14-6-10, L10-3-1, L11-4-1, L11-4-10, L11-4-5, L11-1-5, L11-2-10, L11-3-1
		PFDoA, PFTeDA			L4-2-10, L12-4-10
		PFBS, 4:2 FTS, PFHxS, PFHpA,			L8/9-5-GW
		PFNA, PFOSA, PFTeDA			L8/9-4-GW
		PFBA, PFOSA			L3-3-1, L3-3-10, L3-1-1, L14-6-1, L14-2-10, L10-2-5
		PFBA			L3-3-5, L14-2-1, L14-2-5, L4-3-1
		PFBA, PFOSA, EtFOSAA			L3-1-5, L8/9-1-10
		PFOSA, PFUnA, EtFOSAA, PFDoA			L3-1-10, L3-2-1
		PFBA, PFOSA, PFTeDA			L8/9-1-1, L8/9-1-5, L10-3-5, L10-3-10, L10-1-1
		PFOSA, PFTeDA			L8/9-2-1, L8/9-2-5, L8/9-3-1, L11-3-10, L11-3-GW
		PFOSA, EtFOSAA			L8/9-2-10, L4-2-1
		PFBA, PFTeDA			L14-4-GW
		PFNA, PFOSA, PFOA, PFDA, PFUnA, PFTeDA			L14-3-1
		PFBA, PFNA, PFOSA, PFDA			L14-3-5
		PFHpA, PFNA, PFOSA, PFDA			L14-3-10
		PFNA, PFOSA, PFOA, PFDA, MeFOSAA, PFUnA, PFTeDA			L14-5-1
		PFNA, PFOSA, PFDA			L14-5-10
		PFBA, PFNA			L14-6-5
		PFBA, PFTeDA			L14-1-1

Attachment 2:
Organics Data Validation Summary Table
San Jose International Airport PFAS Preliminary Investigation

		PFOSA, PFDA			L14-1-5
		PFSOA, PFUnA, PFTeDA			L14-4-10, L12-1-10
		PFOSA, PFDA, PFUnA			L4-2-5
		PFBA, PFDoA, PFTeDA			L4-1-1
		PFOS			L4-20-GW
		PFOSA, PFUna, PFDoA, PFTeDA			L12-2-1, L12-1-1
		PFOSA, PFDA, MeFOSAA, PFUnA, PFDoA			L12-2-10
		PFDoA, PFTeDA			L12-4-1
		PFOSA, PFDA, PFUnA, PFTeDA			L12-4-5
		PFOSA, MeFOSAA, PFUnA			L12-3-5, L11-2-5
		PFOSA, PFUnA			L12-3-10
		6:2 FTS, PFTeDA			L10-2-1
		PFOSA, MeFOSAA, PFUnA, PFDoA, PFTeDA			L12-1-5
		6:2 FTS, PFOSA, PFUnA			L10-1-5
		PFOSA, MeFOSAA			L10-1-10
		PFBA, PFPeA, PFHpA, PFHxS, 6:2 FTS			L10-1-GW, L10-10-GW
LCS/LCSD	Yes	None	--	No action	
MS/MSD	No	PFPeS, 8:2 FTS	J	Recoveries and/or RPDs outside acceptance criteria	L3-3-1
		PFTrDA			L4-3-1
		PFBA, PFPeA, PFHxA, PFHxS, 6:2 FTS			L10-2-1
		6:2 FTS, PFHpS, PFOS, 8:2 FTS			L10-1-1
Field Duplicates L10-1-GW/L10-10-GW L12-3-GW/L12-30-GW L4-2-GW/L4-20-GW L14-2-GW/L14-20/GW L8/9-4-GW/L8/9-40-GW	Yes	None	--	No action	

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COMMITMENT & INTEGRITY DRIVE RESULTS

Attachment 3:

Woodard & Curran, *PFAS Phase Two Site Investigation Report*

June 14, 2022.

NORMAN Y. MINETA
SAN JOSE
INTERNATIONAL
AIRPORT
SILICON VALLEY'S AIRPORT

June 15, 2022

Michael Montgomery
Executive Officer
San Francisco Bay Regional Water Quality Control Board
1515 Clay Street, Suite 1400
Oakland, CA 94612

Subject: PFAS Phase Two Site Investigation Report for Norman Y. Mineta San Jose International Airport in Response to Request from Regional Water Quality Control Board

Please find attached the ***PFAS Phase Two Site Investigation Report*** for Mineta San Jose International Airport, in response to the Regional Water Quality Control Board's approval of the ***Phase Two Work Plan*** and the ***Addendum to the PFAS Site Investigation Work Plan for the Norman Y. Mineta San Jose International Airport*** dated September 30, 2021. This PFAS Phase Two Investigation Report satisfies the requirements outlined in the Phase Two Work Plan and the Addendum.

If you have any questions, please contact myself, Patrick Hansen, at 408-392-3626 or phansen@sjc.org.

I, Patrick Hansen, certify under penalty of law that this document and all attachments were prepared by me, or under my direction or supervision, and the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information.

Sincerely,

Patrick Hansen
Environmental Program Manager
Planning and Development Division, Mineta San Jose International Airport

Enclosure: PFAS Phase Two Site Investigation Report - June 14, 2022

Cc: Nicole Fry, San Francisco Bay Regional Water Quality Control Board
John Aitken, A.A.E., Director of Aviation, Mineta San Jose International Airport
Judy Ross, A.A.E., Assistant Director of Aviation, Mineta San Jose International Airport

1701 Airport Boulevard, Suite B-1130 • San José, CA 95110-1206 • Tel: 408.392.3600 • Fax: 408.441.4591 • www.flysanjose.com
CITY OF
SAN JOSE
CAPITAL OF SILICON VALLEY

Woodard
& Curran

PFAS PHASE TWO SITE INVESTIGATION REPORT

Norman Y. Mineta San José International Airport, San Jose, California

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0232401.07

Kimley-Horn and Associates

June 14, 2022

PFAS Phase 2 Site Investigation Report

Norman Y. Mineta San José International Airport
1701 Airport Blvd, San José, California

Prepared for

Kimley-Horn and Associates

Project No. 0232401.07

Amber Ritchie

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June 14, 2022
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James F. Strandberg, PG, CHG
Senior Project Manager

June 14, 2022
Date

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EXECUTIVE SUMMARY

Woodard & Curran has prepared this Per- and Polyfluoroalkyl Substances (PFAS) Phase Two Site Investigation Report (Completion Report) for the Norman Y. Mineta San José International Airport (SJC or the Airport) to present the results of implementing the *PFAS Site Investigation Work Plan* (Work Plan, Woodard & Curran, 2021b) and the *Addendum to the PFAS Site Investigation Work Plan* (Woodard & Curran, 2021c). The Airport submitted the Work Plan to the San Francisco Bay Regional Water Quality Control Board (Regional Water Board) on May 27, 2021, in response to the Regional Water Board's request to the Airport in a letter dated November 22, 2020 (Regional Water Board, 2020b). On June 18, 2021, the Regional Water Board approved the Work Plan via email subject to the condition of conducting soil and groundwater sampling at Location 7b, the bulk fuel terminal located at the Airport (Regional Water Board, 2021b).

On March 12, 2021, the State Water Resources Control Board (State Water Board) issued *Water Code Sections 13267 and 13383 Order WQ-2021-0006-DWQ Determination of the Presence of Per- and Polyfluoroalkyl Substances* (Fuel Terminal Order, State Water Board, 2021) to Swissport Fueling, Inc. Subsequently, at the request of SJC Fuel Company, LLC, the Regional Water Board approved a change to the respondent to the Fuel Terminal Order from Swissport to SJC Fuel. The Fuel Terminal Order also required the submittal of a site investigation work plan to the Regional Water Board.

On September 30, 2021, the Airport submitted the *Addendum to the PFAS Site Investigation Work Plan for the Norman Y. Mineta San José International Airport* (Addendum), prepared on its behalf and SJC Fuel's behalf by Woodard & Curran, under a separate agreement with SJC Fuel, to the Regional Water Board (Woodard & Curran, 2021c). On October 18, 2021, the Regional Water Board approved the Addendum in a letter to the Airport and SJC Fuel (Regional Water Board, 2021d). Investigation results for Location 7b are provided separately in Appendix A of this Completion Report.

Facility Information

The Airport is located on an approximately 1,050-acre site in Santa Clara County, California, bounded to the north by Highway 101, to the south by Highway 880, to the northeast by the Guadalupe River, and to the west by Coleman Avenue. The public Airport is owned and operated as a Department of the City of San José.

PFAS Investigation

The PFAS investigation at the Airport addressed five locations where Aqueous Film-Forming Foam (AFFF), a material that contains PFAS, was stored, used, and/or released by the Airport. AFFF is used for the suppression of fuel fires and is essential for the protection of life and property at airport facilities. Three of the five locations were sampled during the Preliminary Investigation. At these locations, additional groundwater samples were collected downgradient to delineate the extent of PFAS in groundwater and potential migration to the Guadalupe River:

Location 3: Former Fire Training Area 1.

Location 8/9: Ground Support Equipment Wash Rack and Oil-Water Separator.

Location 10: Dilute Discharges of AFFF.

In addition, groundwater samples were collected upgradient of **Location 4**, Former Fire Training Area 2, to identify groundwater impacts from potential unidentified sources of PFAS upgradient of the Airport. Sampling was also conducted at one new location, **Location 1/2**, Fire Station #20 and Building 1000, to investigate the potential presence of PFAS in the subsurface.

Six soil samples and 15 grab groundwater samples were collected in December 2021 and January 31, 2022. Stormwater samples were collected at Location 8/9 and Location 10 in December 2021. A sediment sample was collected at Location 10 in April 2021.

Solid and aqueous samples were analyzed for PFAS by Eurofins by modified USEPA Method 537 compliant with DOD Quality Systems Manual (QSM) for Environmental Laboratories Version 5.1 (or later) Table B-15. Samples were analyzed for the 23 PFAS that were required in Revised Table 1 of Order WQ-2019-0005-DWQ.

Physical and Hydrologic Setting

The topography of the Airport is essentially flat with surface water flow generally to the north and east. The Guadalupe River is the receiving water for stormwater discharges. Safe drains, which are closed during dry periods, have been installed in most storm drain inlets in the ramp areas.

The subsurface lithology at the five locations investigated consists of fine-grained silts and clays with varying amounts of fine-grained to gravelly sands. Static groundwater levels in the 15 temporary wells ranged from approximately 9 to 21 feet below ground surface (bgs). Well casing and screen in these temporary wells extended from 20 to 35 feet bgs. Groundwater was not encountered in four borings with depths of 40 to 45 feet bgs.

The Guadalupe River is the closest sensitive receptor to the Airport, located within approximately 150-200 feet downgradient of the northeastern boundary near Location 8/9 and the South Maintenance Yard fence line. Records obtained from a USGS gage installed in the Guadalupe River adjacent to the Airport for the period of 2008 to 2022 confirms the Guadalupe River is a gaining stream (i.e., the river gains water from inflow of groundwater).

Summary of Findings

Low concentrations of PFAS were detected in soil samples collected at depths of 1, 5, and 10 feet bgs at Location 1/2. Based on the fine-grained lithology, low PFAS concentrations in shallow soil are not expected to pose a risk to groundwater quality.

Shallow groundwater is not a source of drinking water at or near the Airport. Consequently, PFAS detections are compared to the conservative DRAFT Interim Final Environmental Screening Levels *(*ESLs) for PFOS and PFOA developed by the Regional Water Board (2020a). The Aquatic Habitat Ecotoxicity screening levels for PFOS and PFOA are the only relevant groundwater ESLs.

None of the concentrations of PFOA in groundwater exceeded the ecotoxicity ESL of 4,400 ng/L. Approximately two-thirds of the concentrations of PFOS in groundwater were below the ecotoxicity ESL of 75 ng/L. PFOS exceedances of the ESL were detected in two areas: Location 3 and Location 10. At Location 3, PFOS was detected at concentrations of 77 to 110 ng/L. Additional attenuation with migration toward and dilution within the Guadalupe River is expected from this location. At Location 10, PFOS was detected at concentrations ranging from 710 to 9,000 ng/L. PFOS was also detected in the stormwater sample collected at Location 10 at 1,900 ng/L.

These PFAS detections exhibit distinct and discernable AFFF source signatures:

- Legacy, PFOS-based AFFF;
- Modern, ‘C6’ fluorotelomer AFFF; and
- A combination of legacy and modern where both are likely to be present.

These patterns and characteristics indicate isolated, distinct sources of PFAS at the Airport rather than extensive or widespread PFAS across the Airport. Detection of PFAS upgradient of the Airport may be indicative of a PFAS plume migrating to the Airport.

1. INTRODUCTION

Woodard & Curran has prepared this Per- and Polyfluoroalkyl Substances (PFAS) Phase Two Site Investigation Report (Completion Report) for the Norman Y. Mineta San José International Airport (SJC or the Airport) to present the results of implementing the *PFAS Site Investigation Work Plan* (Work Plan, Woodard & Curran, 2021b) and the *Addendum to the PFAS Site Investigation Work Plan* (Woodard & Curran, 2021c). The Airport submitted the Work Plan to the San Francisco Bay Regional Water Quality Control Board (Regional Water Board) on May 27, 2021, in response to the Regional Water Board's request to the Airport in a letter dated November 22, 2020 (Regional Water Board, 2020b). On June 18, 2021, the Regional Water Board approved the Work Plan via email subject to the condition of conducting soil and groundwater sampling at Location 7b, the bulk fuel terminal located at the Airport (Regional Water Board, 2021b). A chronology of activities leading to the submittal of this Completion Report is provided below.

On March 20, 2019, the State Water Resources Control Board (State Water Board) issued Water Code Section 13267 Order WQ-2019-0005-DWQ *Determination of the Presence of Per- and Polyfluoroalkyl Substances* (Airport Order; State Water Board, 2019) to the Airport due to its storage and/or use of Aqueous Film-Forming Foam (AFFF), a material that contains PFAS.

On June 14, 2019, the Airport submitted the *PFAS Preliminary Investigation Work Plan* (Preliminary Investigation Work Plan), prepared on its behalf by Woodard & Curran, to the Regional Water Board (Woodard & Curran, 2019). Soil and groundwater sampling was proposed at 8 of 15 locations identified by the Airport where AFFF was stored, used, or released.

On July 18, 2019, the Regional Water Board provided a conditional approval of the Preliminary Investigation Work Plan to the Airport (Regional Water Board, 2019). The Regional Water Board also required the Airport to address specific comments provided with the conditional approval letter in a final report.

On January 31, 2020, the Airport submitted the *PFAS Preliminary Investigation Sampling & Analysis Completion Report* (Preliminary Completion Report), prepared on its behalf by Woodard & Curran, to the Regional Water Board (Woodard & Curran, 2020). The Preliminary Completion Report presented the results of implementing the Preliminary Investigation Work Plan and provided responses to the comments in the Regional Water Board's conditional approval letter dated July 18, 2019.

On November 22, 2020, as noted, the Regional Water Board approved the Preliminary Completion Report and requested a work plan to further evaluate the:

- Potential presence of incidental PFAS releases at locations where AFFF was stored, used, and/or released that were not previously sampled.
- Downgradient extent of PFAS impacts to groundwater noted in the Preliminary Completion Report.
- Potential PFAS impacts to the Guadalupe River and a domestic well located downgradient of the Airport.
- Collect stormwater and sediment samples from two locations.

One of the locations not previously sampled was Location 7b, the bulk fuel terminal located at 2500 Seaboard Avenue. The fuel terminal property is leased from the Airport by SJC Fuel Company, LLC (SJC Fuel) and operated by Swissport Fueling, Inc. (Swissport) under contract to SJC Fuel.

On March 12, 2021, the State Water Board issued *Water Code Sections 13267 and 13383 Order WQ-2021-0006-DWQ Determination of the Presence of Per- and Polyfluoroalkyl Substances* (Fuel Terminal Order, State Water Board, 2021) to Swissport Fueling, Inc. Subsequently, at the request of SJC Fuel Company, LLC, the Regional Water Board approved a change of the respondent to the Fuel Terminal Order from Swissport to SJC Fuel. The Fuel Terminal Order also required the submittal of a site investigation work plan to the Regional Water Board.

On March 18, 2021, the Regional Water Board (2021a) verbally approved the *PFAS Stormwater and Sediment Sampling Plan* (Stormwater Sampling Plan) for the Norman Y. Mineta San José International Airport prepared by Woodard & Curran and dated March 12, 2021 (Woodard & Curran, 2021a).

On May 27, 2021, the Airport submitted the Work Plan to the Regional Water Board in response to its request to the Airport in a letter dated November 22, 2020 (Regional Water Board, 2020b). On June 18, 2021, the Regional Water Board approved the Work Plan via email subject to the condition of conducting soil and groundwater sampling at Location 7b, the bulk fuel terminal located at the Airport (Regional Water Board, 2021b).

On August 2, 2021, the Airport, SJC Fuel, and the Regional Water Board held a virtual meeting to discuss approaches to streamline compliance with the Airport Order and the Fuel Terminal Order for the investigation of Location 7b. The Regional Water Board approved the submittal of one document by the Airport, an addendum to the Airport's approved Work Plan (Regional Water Board, 2021c).

On September 30, 2021, the Airport submitted the *Addendum to the PFAS Site Investigation Work Plan for the Norman Y. Mineta San José International Airport* (Addendum), prepared on its behalf and SJC Fuel's behalf by Woodard & Curran, under a separate agreement with SJC Fuel, to the Regional Water Board (Woodard & Curran, 2021c). On October 18, 2021, the Regional Water Board approved the Addendum in a letter to the Airport and SJC Fuel (Regional Water Board, 2021d). Investigation results for Location 7b are provided separately in the SJC Fuel Terminal PFAS Investigation Report in **Appendix A** of this Completion Report.

As required by the Airport Order and the Fuel Terminal Order, this Completion Report has been submitted to the State Water Board's GeoTracker database in a searchable electronic format. The submittal includes a transmittal letter from the Airport, text, tables, figures, and appendices in Portable Document Format (PDF) format (one PDF for the entire report) as well as in electronic data deliverable (EDD) format. The Completion Report, analytical laboratory reports, EDDs, monitoring well information (latitudes, longitudes, elevations, and water depth), site maps, and boring logs have been uploaded to GeoTracker via the Electronic Submittal of Information Portals, as stipulated by California Code of Regulations (Title 23, Section 3890, et. seq.).

2. SITE BACKGROUND

2.1 Location and General Characteristics

The Airport is located on an approximately 1,050-acre site in Santa Clara County, California, bounded to the north by Highway 101, to the south by Highway 880, to the northeast by the Guadalupe River, and to the west by Coleman Avenue (**Figure 1**). The public Airport is owned and operated as a Department of the City of San José. The Airport operates two runways, 12L/30R and 12R/30L, with dimensions of 11,000 feet by 150 feet. The east side of the Airport supports commercial flights that depart from Terminals A and B, while the west side of the Airport is dedicated to fixed based operators and general aviation. Cargo aircraft also utilize areas in the northeast and southeast of the Airport.

The topography of the Airport is essentially flat with surface water flow generally to the north and east. The Guadalupe River is the receiving water for stormwater discharges. Safe drains, which are closed during dry periods, have been installed in most storm drain inlets in the aircraft ramp areas.

2.2 PFAS Investigation Locations

As described in the Work Plan, the Site investigation addressed five locations where AFFF was stored, used, and/or released by the Airport and tenants. These five locations and the other 10 locations are shown on **Figure 2**. Three of the five locations were sampled during the Preliminary Investigation; two locations were not previously sampled. These locations and associated sampling plans are described below.

Location 1/2: Fire Station #20 and Building 1000. The AFFF stored in Building 1000 is handled in a small area southwest of the building and transferred into aircraft rescue and firefighting (ARFF) equipment positioned southwest of the Fire Station. The ARFF vehicles are parked in the Fire Station ready for deployment to respond to emergencies and for periodic equipment and personnel training. Consistent with the objectives of the Preliminary Investigation Work Plan, soil and groundwater sampling was planned to the southwest of Building 1000, a potential source area of PFAS due to the long-term handling of AFFF. Groundwater sampling was also planned downgradient of Building 1000 and the Fire Station (i.e., north) in the event impacted groundwater was detected in the source area.

Location 3: Former Fire Training Area 1. Groundwater sampling was planned downgradient (i.e., northeast) of the Airport adjacent to Airport Parkway to assess the extent of groundwater impacts towards sensitive receptors.

Location 4: Former Fire Training Area 2. Located near the southern Airport boundary, groundwater sampling was planned in Aviation Avenue to assess potential groundwater impacts upgradient (i.e., south) of the Airport. Groundwater sampling upgradient of this location was not included in the Preliminary Investigation.

Location 8/9: Ground Support Equipment Wash Rack and Oil-Water Separator. Groundwater sampling was planned downgradient (i.e., northeast) of the area in the south maintenance yard to assess the extent of groundwater impacts towards sensitive receptors.

Location 10: Dilute Discharges of AFFF. Groundwater sampling was planned downgradient (i.e., northeast) of the unpaved area along the Vehicle Service Road, and in leaseholds operated by Southwest Airlines and American Airlines to assess the extent of groundwater impacts towards sensitive receptors.

2.3 Sensitive Receptors

The Airport Order required the identification of sensitive receptors such as municipal supply wells, domestic wells, and surface water bodies within a one-mile radius of the locations where AFFF has been stored, used, or released by the Airport and tenants. Based on this assessment, two sensitive receptors were identified in the Preliminary Completion Report and Work Plan.

The Guadalupe River is the closest sensitive receptor to the Airport, located within approximately 150-200 feet downgradient of the northeastern boundary near Location 8/9 and the South Maintenance Yard fence line (**Figure 3**). The Guadalupe River is downgradient of Location 3 and Location 10 where PFAS concentrations in groundwater exceeded the Regional Water Board's *DRAFT Interim Final Environmental Screening Levels for PFOS and PFOA* (2020b) for protection of freshwater aquatic habitat. Acronyms used in this Completion Report for individual PFAS are provided in **Table 1**.

The second sensitive receptor was identified as a domestic water well located at 1993 Orchard Parkway less than one mile north of the Airport and potentially downgradient of Location 3. As part of this investigation, Woodard & Curran accessed the Department of Water Resources (DWR) online Well Completion Report Map Application to obtain the Well Completion Report (WCR). The WCR (WCR0103048 [legacy log E0085199]), however, indicates the domestic well is located at 1993 Orchard Road in Hollister, San Benito County. The latitude/longitude of 37.380860, -121.941330 confirms the well is located in Hollister. Apparently, the erroneous address resulted in the incorrect location of the well near the Airport. Therefore, the Guadalupe River is the only sensitive receptor within one mile of the Airport.

3. SITE INVESTIGATION ACTIVITIES

This section provides a summary of soil and groundwater sampling conducted in accordance with the Work Plan with minor deviations noted. Sediment sampling conducted in April 2021 is included with stormwater sampling conducted in December 2021.

3.1 Permitting, Access, Security, and Clearance

Woodard & Curran retained Bess Testlab, Inc. (Bess) of Hayward, California for permitting, utility clearance, and coring services. Bess coordinated with the City's Department of Public Works, Development Services Division to obtain Revocable Encroachment Permit 21-056639 RV for sampling activities in Airport Parkway and Aviation Avenue. The approved traffic control plan for work adjacent to Airport Parkway, downgradient of Location 3, consisted of signage and a lane shift. The approved plan consisted of signage and flagging for sampling activities in Aviation Avenue, upgradient of Location 4.

The Airport worked with the Airport Planning & Development Division to arrange for required escorting within the Airfield Operations Area. The Airport also coordinated access with Southwest Airlines and American Airlines for access to sampling locations downgradient of Location 10 on their leaseholds.

Woodard & Curran coordinated with the Airport and Bess to mark and clear drilling locations on Airport property. Woodard & Curran also coordinated with Bess and the driller to notify Underground Services Alert North 811 at least 72 hours prior to commencement of intrusive work to clear the drilling locations for subsurface utilities.

3.2 Soil Sampling

Woodard & Curran retained PeneCore Drilling Inc. of Woodland, California, a California-licensed water well driller (California C-57 License), for drilling and sampling services. A Woodard & Curran California-licensed Professional Geologist provided supervision of drilling and sampling activities.

Following the coring of surface pavement, soil borings were advanced with a GeoProbe® direct push rig to total boring depth. The 2 1/2-inch outer diameter core barrel was equipped with approximately 1 3/8-inch-diameter clear PVC liners for the collection of continuous core to total boring depth. Discrete soil samples were removed from the PVC liners with new, clean nitrile gloves and placed directly in 8-ounce High Density Polyethylene (HDPE) jars with an unlined HDPE cap provided by Eurofins Environment Testing Northern California (Eurofins) of Sacramento, California. Eurofins is certified through the National Environmental Laboratory Accreditation Program (NELAP) and California Environmental Laboratory Accreditation Program (CA ELAP). Each soil sample was assigned a unique sample identification number in the format "Location Number – Soil Boring Number – Sample Depth." For example, sample identification number L1/2-1-1 was used for the soil sample collected at Location 1/2, soil boring 1, at a depth of one-foot bgs. Soil sample containers were labelled using an Ultra-Fine Point Sharpie® with the sample identification number, date and time of sample collection, initials of the sampler(s), and requested analyses. Samples were stored with regular (wet) ice in an ice chest and dropped off at a Eurofins service center in San Jose, California under standard chain-of-custody procedures.

The soil borings were backfilled with a neat cement slurry from total depth to the bottom of the aggregate base beneath the surface pavement. The remaining portion of the borings was backfilled to ground surface with high-strength, rapid-set concrete colored to match the existing surface pavement. The boring locations were surveyed for northings and eastings and latitude and longitude in North American Datum of 1983 (NAD 83) and elevation in North American Vertical Datum (NAVD 88 datum) by California-licensed land surveyor Calvada Surveying, Inc. (Calvada) of Corona, California.

Woodard & Curran described the soil lithology using the Unified Soil Classification System (ASTM D2488) and the Munsell soil color charts. Information recorded on the lithologic logs included soil classification, grain size distribution, color, density or consistency and moisture content (**Appendix B**).

3.3 Groundwater Sampling

Grab groundwater samples were collected from temporary monitoring wells constructed with a 1-inch- or 3/4-inch-diameter Schedule 40 PVC blank casing with five feet of 0.010-inch factory slotted well screen at depths ranging from 25 to 35 feet bgs. Temporary well construction details are summarized in **Table 2**.

The temporary groundwater monitoring wells were purged and sampled in accordance with the *Per- and Polyfluoroalkyl Substances (PFAS) Sampling Guidelines for Non-Drinking Water* (PFAS Sampling Guidelines, State Water Board, 2020) and the Work Plan. A peristaltic pump was connected with HDPE tubing to an in-line flow cell which contained a multi-parameter instrument (YSI® ProDSS) to continuously measure field water quality parameters during purging. The HDPE tubing was set at the maximum intake depth of the peristaltic pump of 25 feet bgs. Field parameters measured using the multi-parameter instrument at approximately five-minute intervals included temperature, specific conductivity, pH, turbidity, oxidation-reduction potential, and dissolved oxygen. Initial and final depth to groundwater measurements were recorded with an electronic water-level interface probe (Solinst® Model 101) during purging.

Temporary groundwater monitoring wells were purged to reduce turbidity prior to sampling as specified in the Work Plan. Upon completion of purging, final field water quality parameter readings were recorded. After purging, the HDPE tubing was disconnected from the flow cell and discarded. New HDPE tubing was connected to the pump head tubing. Groundwater samples were collected from the new HDPE tubing directly into two 250-milliliter HPDE sample containers with unlined HDPE caps provided by Eurofins. At five temporary wells (L8/9-6, L8/9-7, L8/9-8, L8/9-9, and L10-8), slow recovery resulted in the groundwater surface dropping below the intake depth of the HDPE tubing during purging. Depth to water was monitored in these wells during recovery until the recharge volume was sufficient to fill the sample containers.

The grab groundwater samples were assigned a unique identification number in the format "Location Number – Soil Boring Number – GW." For example, sample identification number L4-2-GW was used for the groundwater sample collected from Location 4 at soil boring 2. Groundwater sample containers were labelled, stored in an ice chest, and dropped off at a Eurofins service center as noted for the soil samples. Field water quality sampling forms are provided in **Appendix C**.

Prior to removing the PVC well casing and screen from the temporary wells, the distance from the top of the casing to ground surface was measured. The soil borings were backfilled and patched and surveyed as described above.

3.4 Stormwater and Sediment Sampling

Based on a weather forecast predicting rain, SJC and Woodard & Curran mobilized to Location 8/9 and Location 10 on April 25, 2021, to collect stormwater samples following the procedures described in the

Stormwater Sampling Plan. However, precipitation runoff was insufficient to enable flow into the storm drains for sample collection. A sediment sample was collected from Location 10. On December 13, 2021, stormwater samples were collected at Location 8/9 and Location 10 following the procedures described in the Stormwater Sampling Plan.

3.5 Sample Collection by Location

Soil and groundwater samples were collected from December 6 to 10, 2021 and on January 31, 2022, at five locations. The schedule provided in the Work Plan was delayed due to seasonal precipitation, COVID-19, and the holidays.

Location 1/2: Fire Station #20 and Building 1000. Six soil samples were collected at borings L1/2-1 and L1/2-2, each at approximate depths of 1 foot, 5 feet, and 10 feet bgs (**Figure 4**). A grab groundwater sample was planned to be collected at L1/2-1, but groundwater was not encountered at the final drilling depth of 40 feet bgs, below the planned depth of 20 feet bgs. Similarly, groundwater was also not encountered at L1/2-3 at a depth of 40 feet bgs. As a result, two additional borings north of this location, L1/2-4 and L1/2-5, were not advanced. These locations are shown on Figure 6a of the Work Plan.

Location 3: Former Fire Training Area 1. Four temporary wells were installed adjacent to Airport Parkway for collection of grab groundwater samples (**Figure 5**). These wells, L3-4, L3-5, L3-6, and L3-7 were installed in borings advanced to depths of 30 feet, 35 feet, 30 feet, and 30 feet bgs, respectively.

Location 4: Former Fire Training Area 2. Three temporary wells were installed in Aviation Avenue for collection of grab groundwater samples upgradient of the Airport (**Figure 6**). The boring at UG-1 was advanced to 35 feet bgs, below the planned depth of 20 feet bgs, but groundwater was not encountered. Temporary wells UG-2 and UG-3 were installed in borings advanced to depths of 25 feet and 45 feet bgs.

Location 8/9: Ground Support Equipment Wash Rack and Oil-Water Separator. Four temporary wells L8/9-6, L8/9-7, L8/9-8, and L8/9-9 were installed to depths of 20 feet, 35 feet, 25 feet, and 35 feet bgs for collection of grab groundwater samples (**Figure 7**).

Location 10: Dilute Discharges of AFFF. Five temporary wells, L10-4, L10-5, L10-6, L10-7, and L10-8 were installed to depths of 25 feet, 25 feet, 25 feet, 35 feet, and 35 feet bgs for collection of grab groundwater samples (**Figure 8**).

3.6 Analytical Laboratory Testing

Solid and aqueous samples were analyzed for PFAS compounds by Eurofins by modified USEPA Method 537 compliant with the U.S. Department of Defense (DOD) Quality Systems Manual (QSM) for Environmental Laboratories Version 5.1 (or later) Table B-15 (USDOD, 2017). Samples were analyzed for the 23 PFAS compounds that were required in Revised Table 1 of the Airport Order. PFAS compounds that will be analyzed, along with reporting limits provided by Eurofins, are shown in **Table 1**.

3.7 Field Quality Control

Field quality control measures were implemented to minimize the potential for cross-contamination during sampling. These measures were also implemented to verify whether any cross-contamination occurred during the mobilization of drilling and sampling equipment to the Airport and during the transportation of samples from the Airport to Eurofins.

3.7.1 Designated Work Areas

At each location, three areas were designated prior to the commencement of work, including:

- Sample area within the immediate vicinity of soil borings, an approximately 20-foot by 20-foot footprint around each soil boring;
- Staging area immediately beyond the sampling area; and
- Support area immediately beyond the staging area.

Only PFAS-free materials and decontaminated equipment was allowed in the sample area to the maximum extent practical taking into consideration health and safety requirements. The staging area was used for donning and removing personal protective equipment (PPE), applying sunscreen, and decontamination of drill rods and all non-dedicated downhole equipment. Vehicles and all PFAS-containing materials, including food and beverage packaging, remained in support areas during sampling activities.

3.7.2 Personal Protective Equipment and Field Supplies

PPE and field supplies allowed in the sampling area were consistent with the recommended materials listed in the PFAS Sampling Guidelines. PPE included:

- Well-laundered synthetic or 100% cotton clothing (with most recent launderings not using fabric softeners);
- PFAS-free sunscreen;
- Powderless nitrile gloves;
- Hard hat;
- Safety glasses;
- Reflective safety vest;
- Steel-toed boots; and
- Ear plugs.

PFAS-free field supplies included:

- Polypropylene resealable bags;
- Aluminum clipboards;
- Non-waterproofed paper;
- Laboratory-provided sample coolers and regular (wet) ice;
- Untreated paper towels;
- Ball point pens, pencils, and Ultra-Fine Point Sharpie® markers; and

- Stainless steel tools.

3.7.3 Decontamination

Soil and groundwater sampling equipment was thoroughly decontaminated between the collection of each sample. Each piece of sampling equipment was washed with Liquinox® and triple rinsed with laboratory-supplied PFAS-free water. Larger equipment (e.g., drill rods and core barrel) was scrubbed with a PVC brush to remove particulates, triple washed with Liquinox® detergent in three separate stainless-steel buckets, and triple rinsed with laboratory-supplied PFAS-free water.

3.7.4 Quality Assurance and Quality Control Samples

Consistent with the approved Work Plan, quality assurance and quality control (QA/QC) samples were collected to evaluate data reliability pertaining to sample representativeness. The following QC samples were collected:

- **Field Duplicates** – One field duplicate for groundwater was collected each day of sampling for analysis of PFAS compounds.
- **Field Blanks** – One field blank for groundwater was collected each day of sampling for analysis of PFAS compounds. These samples were collected by pouring laboratory-supplied PFAS-free water into an empty sample container with the intention of exposing the sample to the same field environment as the actual samples.
- **Equipment Blanks** – Equipment blanks were collected from the sampling equipment prior to the start of drilling activities for the analysis of PFAS compounds. Two additional equipment blanks were collected, one after approximately one-half of the groundwater samples were collected and the other at the end of the field program.
- The QC samples were labeled with unique sample identification numbers on the chain-of-custody and remained with the sample containers during the collection and shipment of groundwater samples to Eurofins for analysis.

3.8 Investigation-derived Waste

Investigation-derived waste (IDW) generated included soil cuttings, purge water, and decontamination water. The solid and liquid IDWs were contained separately in US Department of Transportation-certified 55-gallon drums labeled with the date of generation and contents. The drums were placed in a secure hazardous waste storage cage designated by SJC. Other IDW generated during the work, including concrete cores, road base, PVC liners, PVC well casing and screen, HDPE tubing, disposable PPE, and trash was containerized and disposed of properly offsite.

4. GEOLOGY AND HYDROGEOLOGY

4.1 Regional Geology

The Airport is located in the Santa Clara Valley physiographic province, a structural trough filled in by continental and marine sediments associated with the south end of the San Francisco Bay, which is characterized by northwesterly trending valleys and mountains.

Based on review of the California Department of Conservation, Division of Mines and Geology, *Geologic Map of the San Francisco - San José Quadrangle* (1991), the Santa Clara Valley is bounded by three of the larger fault zones in the region; the San Andreas (approximately 13 miles west) and the Hayward and Calaveras (approximately 5 miles east).

According to the Santa Clara Valley Water District (SCVWD) document *Standards for the Construction and Destruction of Wells and Other Deep Excavations in Santa Clara County* (SCVWD, 1989), Santa Clara Valley is a down-dropped structural block, filled in by continental and marine sediments. Due to tectonic uplift to the south and west, and subsidence in the older valley sediments, deposits are frequently down warped, reworked, and subsequently covered with more recent deposits. The depositional environments and resulting sediments occurring at different times in the geologic record vary depending on the height of sea level relative to the valley block and the erosion rate of the surrounding mountain ranges.

The California Geological Survey, *Geologic Map of California*, dated 2010 (California Geological Survey, 2010), indicates the Airport is underlain with Quaternary-age alluvium, lake, playa, and terrace deposits; unconsolidated and semi-consolidated sediments; and mostly non-marine sediments.

According to the US Department of Agriculture, Natural Resources Conservation Service, Web Soil Survey (USDA, 2019) soils beneath the Airport are classified as Hagerone Complex soils in the central and northeastern portions of the Airport and Campbell Complex soils in the southwestern area of the Airport. Hagerone Complex soils consist primarily of poorly drained clay with moderate infiltration rates. Campbell Complex soils consist primarily of moderately well-drained silt loam and silty clay with moderate infiltration rates.

4.2 Local Hydrogeology

4.2.1 Subsurface Lithology

The lithology encountered at the five sample locations was primarily fine-grained clay and silt with varying amounts of fine-grained to gravelly sand. At Location 1/2, silty clay and clay (ML and CL) with low to medium plasticity were encountered to 40 feet at the two temporary well borings. Moisture was evident in clay at 24 feet bgs in L1/2-1 and at 36 feet bgs in L1/2-3 although groundwater was not encountered in the temporary wells.

At Location 3, silt, silty clay, and clay (ML and CL) were encountered to a depth of about 17 feet bgs in the four boreholes. Below this depth, saturated conditions were observed in fine- to medium-grained sands and gravelly sands (SP and SW) to depths of approximately 26 feet bgs. Fine-grained materials observed in the upper portions of the boreholes were typically encountered below these sands and gravels to the planned total depth of 30 feet bgs. At one location, L3-5, the coarse-grained materials continued to 30 feet bgs. This boring was advanced deeper until fine-grained materials were encountered at 35 feet bgs.

Two of the three boreholes upgradient of Location 4 had similar lithology to Location 3 with primarily silt and clay in the upper 20 to 26 feet bgs. Saturated silty sand, sand, and gravel were encountered from 26 to 30 feet bgs at UG-1 and 20 to 22 feet bgs at UG-2. These coarse-grained materials were underlain by silt and clay to a depth of 30 feet bgs, the planned total depth of the borings. At UG-3, fine-grained silt and clay were encountered to 30 feet bgs. The boring was advanced to 45 feet bgs without encountering coarse-grained materials.

At Location 8/9, silty sand, silt, and clay were encountered in the upper 10 feet of the boreholes. Below this depth, the fine-grained materials were interbedded with gravelly sand and sand. Saturated conditions were encountered between 27 and 30 feet bgs in these borings. The interbedded lithology apparently resulted in the boreholes being more prone to collapsing. Boring L8/9-6 collapsed below from 20 to 30 feet bgs, boring L8/9-7 from 33 to 35 feet bgs, and boring L8/9-8 from 25 to 35 feet bgs.

At Location 10, fine-grained silt and clay was prominent to depths of approximately 10 feet bgs. Below this depth, approximately five feet of fine- to medium-grained sand and gravelly sand (SP and SW) were encountered between 10 and 20 feet bgs. Saturated conditions were encountered between 14 and 18 feet bgs. Boring L10-7 collapsed from 32 to 35 feet bgs. Boring L10-8 collapsed approximately a foot from the 34 to35 feet bgs.

4.2.2 Groundwater Elevations and Gradient

As shown on Figure 3, groundwater in the vicinity of the Airport generally flows from south-southwest to north-northeast towards the Guadalupe River located close to the northern boundary of the Airport. Because saturated conditions were not encountered at Location 1/2, localized groundwater elevations and gradient are not available.

At Location 3, the highest estimated groundwater elevation corresponded to temporary well L3-7 resulting in apparent gradients to the east and west. Based on estimated groundwater elevations at the other three temporary wells, the estimated westward gradient is 0.1 feet per foot, an atypically high gradient based on data from regulated sites near the Airport. The estimated eastward gradient is 0.02 feet per foot.

At Location 8/9, the estimated groundwater elevation was highest at temporary well L8/9-6 resulting in a south-southwest gradient of 0.08 feet per foot.

At Location 10, the estimated groundwater elevations were within 0.25 feet at the three temporary wells located immediately north of Location 10 (L10-4, L10-5, and L-10-6). Approximately 350 feet further to the north-northeast, the estimated groundwater elevation dropped approximately 1.75 feet at temporary well L10-7. These four groundwater elevations indicate a north-northeast gradient of approximately 0.005 feet per foot towards the Guadalupe River. Temporary well L-10-8, located approximately 250 feet west of L10-7, had an estimated groundwater elevation that was five feet higher than L10-7. Temporary wells L10-7 and L10-8 are located approximately equidistant from the Guadalupe River in the inferred downgradient direction of L10-4 through L10-6. The unexpectedly high groundwater elevation at L10-8 may reflect the presence of perched water at this location.

4.2.3 Groundwater Interaction with Guadalupe River

Estimated groundwater elevations and associated hydraulic gradients were obtained at three locations (3, 8/9, and 10) near the northeastern Airport boundary. However, the estimated flow directions ranging from east to south-southwest to west may not accurately represent groundwater flow directions at these locations. Groundwater flow directions at regulated sites near the Airport are typically north-northeast towards the Guadalupe River. Based on review of the *Groundwater Management Plan, Santa Clara and Llagas Subbasins* (Santa Clara Valley Water District, 2016), the Guadalupe River in the vicinity of the Airport is a gaining stream (i.e., the river gains water from inflow of groundwater). Gaining stream conditions are consistent with an estimated north to northeast hydraulic gradient from the Airport to the Guadalupe River.

The United States Geological Survey (USGS) manages stream gage 11169025 located in the Guadalupe River immediately south of US Highway 101 (**Figure 2**). Continuous records from 2008 to 2022 indicate an average stage elevation of 22.5 feet above mean seal level (feet msl) (USGS, 2022b). In comparison, groundwater elevations in four temporary wells installed downgradient of Location 3 adjacent to Airport Parkway and approximately 150 feet from the Guadalupe River range from 24.2 to 24.8 feet msl (**Table 2**). Temporary wells installed north-northeast of Location 8/9 and Location 10 near the Guadalupe River have groundwater elevations ranging from approximately 37 to 47 feet msl. These surface water and groundwater elevations support the Guadalupe River being a gaining stream near the Airport.

5. SUMMARY OF FINDINGS

This section presents the analytical results from the Phase Two investigation and an overview of the current understanding of the nature and extent of PFAS in site environmental media. Results for 23 PFAS compounds analyzed in soil, groundwater, and stormwater/sediment are summarized in **Table 3**, **Table 4**, and **Table 5** respectively. Field groundwater quality parameters are presented in **Table 6**. Laboratory analytical reports are provided in **Appendix D**.

5.1 Data Usability Assessment

5.1.1 Field and Laboratory Quality Control Samples

Field QC sampling was conducted as outlined in the Work Plan and described above in Section 3.6.4. Sampling included the collection of field duplicates, field blanks, equipment blanks, and trip blanks for analysis of PFAS. Field duplicates were collected from five of the eight sample locations as follows:

Primary Sample ID	Associate Field Duplicate
L3-7-GW	L3-70-GW
L8/9-7-GW	L8/9-70-GW
L10-6-GW	L10-60-GW
UG-2-GW	UG-20-GW

Eurofins followed its internal QA/QC standards which included method blanks, surrogate recoveries, blank spike/blank spike duplicates, and matrix spike/matrix spike duplicates (MS/MSD). QC samples were used to verify the precision of the methods applied and confirm the validity of the data as described below.

5.1.2 Data Validation

Data validation evaluated the precision and accuracy of the PFAS analytical results. The data validation procedures were generally consistent with those referenced in the 2017 National Functional Guidelines for Inorganic Methods Data Review (USEPA, 2017a) and the 2017 National Functional Guidelines for Organic Methods Data Review (USEPA, 2017b). Analytical data were validated for the following:

- Trip blanks, field blanks, and equipment blanks were reviewed for detections above laboratory reporting limits;
- Methods blanks were reviewed for detections above the laboratory reporting limits. Surrogate recoveries were compared to laboratory control limits;
- Blank spike/blank spike duplicates had percent recoveries and relative percent differences calculated and compared to laboratory control limits; and
- MS/MSDs had percent recoveries and relative percent differences calculated and compared to laboratory control limits. Surrogate recoveries were compared to laboratory control limits.

The data validation did not identify any aspects of the analytical data that required qualification beyond the qualifications identified in the laboratory reports and on the tables. Eurofins noted that grab groundwater sample L10-7-GW was diluted by a factor of 100 due to a high concentration of 6:2 FTS. The reported concentration of 8,800 ng/L may have a low bias. Similarly, stormwater sample L10-SW was diluted by a factor of 50 due to a high concentration of 6:2 FTS resulting in a potential low bias for the reported concentration of 6,400 ng/L.

5.2 PFAS Analytical Results and Evaluation

The Guadalupe River is the closest sensitive receptor to the Airport, located within approximately 150-200 feet downgradient of the northeastern boundary near Location 8/9 and the South Maintenance Yard fence line. The Guadalupe River is downgradient of Location 3, Location 8/9, and Location 10 where PFAS in groundwater was detected farther downgradient of detections reported in the Preliminary Completion Report. Consequently, the Aquatic Habitat Ecotoxicity Levels are the relevant groundwater Environmental Screening Levels (ESLs) for evaluation of the analytical results. Applicable ESLs are:

- PFOS = 75 nanograms per liter (ng/L) and
- PFOA = 4,400 ng/L.

Figure 9 and **Figure 10** illustrate the PFOA and PFOS concentrations in groundwater at the temporary monitoring well locations. These graphs present the PFOA and PFOS results relative to their respective ecotoxicity ESLs. These graphs illustrate that PFOA did not exceed the ecotoxicity ESL and that 68% of PFOS results are less than the respective ecotoxicity ESL. PFOS exceedances of the ESL are associated with two areas: Location 3 and Location 10. The Location 3 area results for PFOS (77 to 110 ng/L), are considered slight exceedances of the PFOS ecotoxicity ESL of 75 ng/L. Additional attenuation in groundwater with migration toward and dilution within the Guadalupe River is expected. The higher PFOS concentrations of 710 to 9,000 ng/L were detected immediately downgradient of Location 10 (L10-4 and L10-5) and further downgradient at the northern Airport boundary (L10-7).

The following sections describe the PFAS characteristics and distribution by location.

5.2.1 Location 1/2

Location 1/2 is Fire Station #20 and Building 1000 where soil samples were collected from two borings at depths of 1, 5, and 10 feet bgs. Maximum PFOS concentrations at borings L1/2-1-1 (180 ng/g) and L1/2-2-1 (100 ng/g) correspond to the shallowest sample interval and decrease with depth (**Table 3**, **Figure 11**). This pattern corresponds with the nature of PFOS in that it is relatively sorptive compared to other PFAS, is not volatile, and does not degrade. Therefore, PFOS tends to be preserved in shallow, near-surface soil and is a lower threat to groundwater quality. PFOS concentrations at a depth of 10 feet bgs are 0.08J ng/g and <0.25 ng/g, respectively. Higher concentrations of other, less sorptive PFAS are noted in the 5-foot sample interval, relative to the 1-foot and 10-foot sample intervals, especially at boring L1/2-2.

A radar diagram of PFAS data, presented in **Figure 11**, indicates prominent portions of PFOS and 6:2FTS, suggesting the presence of legacy, PFOS-based AFFF and modern ‘C6’ fluorotelomer AFFF, both of which may have been handled at Fire Station #20 and Building 1000.

5.2.2 Location 3

Location 3 is Former Fire Training Area 1 where additional groundwater samples were collected to the north-northeast and downgradient of this location. **Figure 12** illustrates the location of four temporary wells, PFOS concentrations relative to the ecotoxicity ESL, and source type characterization of the PFAS at this location.

PFOA results for all four temporary well samples are less than the PFOA ecotoxicity ESL. Three of the four groundwater sample results slightly exceed the PFOS ecotoxicity ESL with the L3-5-GW sample exhibiting the highest PFOS concentration of 110 ng/L. The boring is also the closest to the Guadalupe River (approximately 140 feet). This PFOS concentration is expected to reduce along the flow path toward the Guadalupe River where it would be further diluted upon encountering the surface water. The median daily discharge of the Guadalupe River is 35 cubic feet per second (USGS, 2022a).

A radar diagram for the L3-5-GW sample suggests that legacy, PFOS-based AFFF was used at the former fire training area. Prominent PFHxS and PFOA exhibited on the radar diagram, relative to PFOS, indicates migration from the source due to differential sorption of PFAS (i.e., a more prominent PFOS proportion is expected closer to the source). This is consistent with boring L3-5 located downgradient from the former fire training area.

5.2.3 Location 8/9

Location 8/9 is the Ground Support Equipment Wash Rack and Oil-Water Separator where additional groundwater samples were collected to the north-northeast and assumed downgradient direction for this location. **Figure 13** shows the location of four temporary wells, PFOS concentrations relative to the ecotoxicity ESL, and source type characterization of the PFAS at this location.

All PFOS and PFOA results for temporary groundwater monitoring wells L8/9-6, L8/9-7, L8/9-8, and L8/9-9 are less than their respective ecotoxicity ESLs for groundwater, indicating that the minor PFAS concentrations in groundwater in this area are not a threat to the Guadalupe River. The PFAS radar diagram corresponding to L8/9-8 for this area suggests that a modern ‘C6’ fluorotelomer-based AFFF was used or released in this area based on the prominent 6:2FTS concentration relative to other PFAS compounds. The radar diagram also suggests transformation to PFBA, PFPeA, and PFHxA, which may occur with fluorotelomer-based firefighting foams.

A stormwater sample (and a field duplicate) was also collected for analysis of PFAS from this location (**Table 5**). The stormwater sample exhibits multiple detections of PFAS. As a general comparison of the stormwater results to the ecotoxicity ESLs for groundwater indicates that only PFOS at 100 ng/L exceeds the ESL of 75/ng/L. If stormwater from this location reached the Guadalupe River, it would experience further dilution. Concentrations of 6:2FTS in stormwater up to 4,400 ng/L also indicates the use/handling of modern ‘C6’ fluorotelomer-based AFFF in this area.

5.2.4 Location 10

Location 10 is an unpaved area where water from ARFF water cannon tests was discharged. Grab groundwater samples were collected from five temporary wells located to the north-northeast and assumed downgradient direction for this location. **Figure 14** shows the location of the temporary groundwater monitoring wells, PFOS concentrations relative to the ecotoxicity ESL, and source type characterization of the PFAS at this location.

All PFOA concentrations corresponding to temporary groundwater monitoring wells L10-4, L10-5, L10-6, L10-7, and L10-8 are less than the PFOA ecotoxicity ESL. Relatively elevated PFOS concentrations greater than the PFOS ecotoxicity ESL are noted at L10-4, L10-5, and L10-7, ranging from 710 to 9,000 ng/L. L10-7 is the temporary monitoring well located closest to the Guadalupe River (approximately 200 feet) with a concentration of 1,600 ng/L. This concentration is expected to reduce along the flow path toward the Guadalupe River where it would be further diluted upon encountering the surface water.

The radar diagram for temporary well L10-5 with the maximum PFOS concentration of 9,000 ng/L suggests mixing of AFFF formulations. This observation is based on comparable PFOS/PFHxS and 6:2FTS concentrations that are indicative of legacy, PFOS-based AFFF and modern 'C6' fluorotelomer-based AFFF. The radar diagram also suggests transformation of 6:2FTS to PFPeA and PFHxA, similar to Location 8/9.

Multiple PFAS were also detected in stormwater and sediment samples collected at Location 10 (**Table 5**). As a general comparison, PFOA in stormwater is less than its groundwater ecotoxicity ESL. The PFOS concentration of 1,900 ng/L is the maximum PFOS concentration detected in aqueous samples collected during this investigation. The 6:2FTS concentration of 6,400 ng/L in stormwater indicates a prominent presence of modern 'C6' fluorotelomer-based AFFF at Location 10.

5.2.5 Upgradient

Grab groundwater samples were collected from two temporary wells located upgradient of Location 4 and the Airport's northern property boundary as an indication of background concentrations of PFAS in groundwater (**Figure 15**). Non-detect or trace concentrations (J-value) of PFOS and PFOA were detected at these locations (**Table 4**). However, more significant concentrations of shorter-chain and more mobile PFAS, PFBA, PFBS, and PFHxS, were detected. These PFAS may be indicative of a PFAS plume migrating to the Airport with higher concentrations of PFOS and PFOA expected from unknown upgradient sources.

6. CONCLUSIONS

This Completion Report presents the results of PFAS investigation activities conducted at the Airport in accordance with the approved Work Plan (Woodard & Curran, 2021b). Field sampling was conducted at five locations (Location 1/2, 3, 4, 8/9, and 10) in December 2021 with supplemental sampling in April 2021 and January 2022. Conclusions from the findings of the PFAS investigation are presented below. The PFAS investigation of Location 7b, Fuel Terminal, is reported separately and provided in **Appendix A**.

In December 2021, six soil samples were collected at depths of 1 foot, 5 feet, and 10 feet from two borings at Location 1/2. In December 2021 and January 2022, grab groundwater samples were collected from 13 temporary wells installed in the assumed downgradient direction of three locations (3, 8/9, and 10) where PFAS was detected in the 2019 preliminary PFAS investigation. Groundwater samples were also collected from two temporary wells installed upgradient of the Airport in Aviation Avenue. Stormwater samples were collected at Location 8/9 and Location 10 in December 2021. A sediment sample was collected at Location 10 in April 2021.

The subsurface lithology at the five locations consisted of fine-grained silts and clays with varying amounts of fine-grained to gravelly sands. Approximately static groundwater levels in 15 temporary wells ranged from approximately 9 to 21 feet bgs. Well casing and screen in these temporary wells extended from 20 to 35 feet bgs. Groundwater was not encountered in four borings with depths of 40 to 45 feet bgs.

Shallow groundwater is not a source of drinking water at or near the Airport. Consequently, PFAS detections are compared to the conservative DRAFT Interim Final Environmental Screening Levels *(*ESLs) for PFOS and PFOA developed by the Regional Water Board (2020a). The Aquatic Habitat Ecotoxicity screening levels for PFOS and PFOA are the only relevant groundwater ESLs.

The Guadalupe River located immediately northeast and downgradient of the Airport is the nearest sensitive receptor to which groundwater and stormwater are expected to discharge. Shallow groundwater is not a source of drinking water at or near the Airport. Consequently, PFAS detections are compared to the conservative Aquatic Habitat Ecotoxicity ESLs for PFOS and PFOA developed by the Regional Water Board (2020a).

In the Preliminary Completion Report, a second sensitive receptor was identified as a domestic water well located at 1993 Orchard Parkway less than one mile north of the Airport and downgradient of Location 3. As part of this investigation, Woodard & Curran accessed the DWR online Well Completion Report Map Application to obtain the WCR. The WCR (WCR0103048 [legacy log E0085199]), however, indicates the domestic well is located at 1993 Orchard Road in Hollister, Santa Clara County. The latitude/longitude of 37.380860, -121.941330 confirms the well is in Hollister. Apparently, the erroneous address resulted in the incorrect location of the well near the Airport. Therefore, the Guadalupe River is the only sensitive receptor within one mile of the Airport.

Low concentrations of PFAS were detected in soil samples collected at Location 1/2. The lithology at this location is fine-grained and groundwater was not encountered to a depth of 40 feet bgs. Low PFAS concentrations in shallow soil are not expected to pose a risk to groundwater quality.

None of the concentrations of PFOA in groundwater exceeded the ecotoxicity ESL of 4,400 ng/L. Approximately two-thirds of the concentrations of PFOS in groundwater were below the ecotoxicity ESL of

75 ng/L. PFOS exceedances of the ESL were detected in two areas: Location 3 and Location 10. At Location 3, PFOS was detected at concentrations of 77 to 110 ng/L. Additional attenuation with migration toward and dilution within the Guadalupe River is expected from this location. At Location 10, PFOS was detected at concentrations ranging from 710 to 9,000 ng/L. PFOS was also detected in the stormwater sample collected at Location 10 at 1,900 ng/L.

These PFAS detections exhibit distinct and discernable AFFF source signatures:

- Legacy, PFOS-based AFFF;
- Modern, 'C6' fluorotelomer AFFF; and
- A combination of legacy and modern where both are likely to be present.

These patterns and characteristics indicate isolated, distinct sources of PFAS at the Airport rather than extensive or widespread PFAS across the Airport. Detection of PFAS upgradient of the Airport may be indicative of a PFAS plume migrating to the Airport.

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TABLES

Table 1:	**PFAS Analytes Subject to Analysis**
Table 2:	**Temporary Well Construction and Groundwater Elevations**
Table 3:	**PFAS Analytical Results for Soil**
Table 4:	**PFAS Analytical Results for Groundwater**
Table 5:	**PFAS Analytical Results for Stormwater and Sediment**
Table 6:	**Field Groundwater Quality Parameters**

Table 1
PFAS Analytes Subject to Analysis
Norman Y. Mineta San José International Airport
1701 Airport Boulevard, San José, California

Analyte Description	Acronym	CAS Number	Reporting Limit	Units
Groundwater				
Perfluorobutanoic acid	PFBA	375-22-4	2.00	ng/L
Perfluoropentanoic acid	PFPeA	2706-90-3	2.00	ng/L
Perfluorohexanoic acid	PFHxA	307-24-4	2.00	ng/L
Perfluoroheptanoic acid	PFHpA	375-85-9	2.00	ng/L
Perfluorooctanoic acid	PFOA	335-67-1	2.00	ng/L
Perfluorononanoic acid	PFNA	375-95-1	2.00	ng/L
Perfluorodecanoic acid	PFDA	335-76-2	2.00	ng/L
Perfluoroundecanoic acid	PFUnDA	2058-94-8	2.00	ng/L
Perfluorododecanoic acid	PFDoDA	307-55-1	2.00	ng/L
Perfluorotridecanoic acid	PFTrDA	72629-94-8	2.00	ng/L
Perfluorotetradecanoic acid	PFTeDA	376-06-7	2.00	ng/L
Perfluorobutanesulfonic acid	PFBS	375-73-5	2.00	ng/L
Perfluoropentanesulfonic acid	PFPeS	2706-91-4	2.00	ng/L
Perfluorohexanesulfonic acid	PFHxS	355-46-4	2.00	ng/L
Perfluoroheptanesulfonic acid	PFHpS	375-92-8	2.00	ng/L
Perfluorooctanesulfonic acid	PFOS	1763-23-1	2.00	ng/L
Perfluorodecanesulfonic acid	PFDS	335-77-3	2.00	ng/L
Perfluorooctanesulfonamide	PFOSAm	754-91-6	2.00	ng/L
N-methylperfluorooctanesulfonamidoacetic acid	NMeFOSAA	2355-31-9	20.0	ng/L
N-ethylperfluorooctanesulfonamidoacetic acid	NEtFOSAA	2991-50-6	20.0	ng/L
4:2 Flourotelomer sulfonic acid	4:2 FTS	757124-72-4	20.0	ng/L
6:2 Flourotelomer sulfonic acid	6:2 FTS	27619-97-2	20.0	ng/L
8:2 Flourotelomer sulfonic acid	8:2 FTS	39108-34-4	20.0	ng/L
Soil				
Perfluorobutanoic acid	PFBA	375-22-4	0.200	ug/Kg
Perfluoropentanoic acid	PFPeA	2706-90-3	0.200	ug/Kg
Perfluorohexanoic acid	PFHxA	307-24-4	0.200	ug/Kg
Perfluoroheptanoic acid	PFHpA	375-85-9	0.200	ug/Kg
Perfluorooctanoic acid	PFOA	335-67-1	0.200	ug/Kg
Perfluorononanoic acid	PFNA	375-95-1	0.200	ug/Kg
Perfluorodecanoic acid	PFDA	335-76-2	0.200	ug/Kg
Perfluoroundecanoic acid	PFUnDA	2058-94-8	0.200	ug/Kg
Perfluorododecanoic acid	PFDoDA	307-55-1	0.200	ug/Kg
Perfluorotridecanoic acid	PFTrDA	72629-94-8	0.200	ug/Kg
Perfluorotetradecanoic acid	PFTeDA	376-06-7	0.200	ug/Kg
Perfluorobutanesulfonic acid	PFBS	375-73-5	0.200	ug/Kg
Perfluoropentane sulfonic acid	PFPeS	2706-91-4	0.200	ug/Kg
Perfluorohexane sulfonic acid	PFHxS	355-46-4	0.200	ug/Kg
Perfluoroheptanes ulfonic acid	PFHpS	375-92-8	0.200	ug/Kg
Perfluorooctanesulfonic acid	PFOS	1763-23-1	0.500	ug/Kg
Perfluorodecane sulfonic acid	PFDS	335-77-3	0.200	ug/Kg
Perfluorooctanesulfonamide	PFOSAm	754-91-6	0.200	ug/Kg
N-methylperfluorooctanesulfonamidoacetic acid	NMeFOSAA	2355-31-9	2.00	ug/Kg
N-ethylperfluorooctanesulfonamidoacetic acid	NEtFOSAA	2991-50-6	2.00	ug/Kg
4:2 Flourotelomer sulfonic acid	4:2 FTS	757124-72-4	2.00	ug/Kg
6:2 Flourotelomer sulfonic acid	6:2 FTS	27619-97-2	2.00	ug/Kg
8:2 Flourotelomer sulfonic acid	8:2 FTS	39108-34-4	2.00	ug/Kg

Notes:
1) ug/Kg = microgram per kilogram.
2) ng/L = nanogram per liter.

Table 2
Temporary Well Construction and Groundwater Elevations
Norman Y. Mineta San José International Airport
1701 Airport Boulevard, San Jose, California

Temporary Well	Well Diameter (in)	Boring Depth (ft)	Screen Depth (ft)	Depth to Water (ft TOC)	Ground Surface Elevation (ft msl)	Water Level Elevation (ft msl)
L1/2-1	N/A	40	N/A	DRY	55.44	N/A
L1/2-2	N/A	10	N/A	N/A	54.85	N/A
L1/2-3	N/A	40	N/A	DRY	54.62	N/A
L3-4	0.75	30	20-25	11.72	35.79	24.22
L3-5	0.75	35	25-30	14.51	38.89	24.28
L3-6	0.75	30	25-30	13.35	37.03	24.45
L3-7	0.75	30	25-30	12.71	37.41	24.80
UG-1	0.75	35	30-35	9.19	51.77	42.21
UG-2	0.75	25	20-25	10.60	51.09	40.32
UG-3	N/A	45	N/A	DRY	49.89	N/A
L8/9-6	1	35	15-20	17.03	58.84	42.56
L8/9-7	1	35	28-33	20.92	57.93	37.57
L8/9-8	1	35	20-25	19.32	58.03	38.94
L8/9-9	1	35	30-35	17.35	57.76	40.66
L10-4	0.75	25	15-20	13.82	57.25	43.40
L10-5	0.75	25	15-20	13.46	56.72	43.27
L10-6	0.75	25	15-20	12.80	56.39	43.49
L10-7	1	35	17-22	17.26	57.81	41.67
L10-8	0.75	35	29-34	12.06	57.61	46.96

Notes

in - inches

ft - feet

DTW - depth to water

ft TOC - feet below top of casing

ft msl - feet above mean sea level

N/A - not applicable

Table 3
PFAS Analytical Results for Soil
Norman Y. Mineta San José International Airport
1701 Airport Boulevard, San Jose, California

				Soil Analytical Results (ng/g)																							
Location Number	Sample ID	Sample Date	Sample Depth (feet bgs)	Perfluorobutanoic acid (PFBA)	Perfluoropentanoic acid (PFPeA)	Perfluorohexanoic acid (PFHxA)	Perfluoroheptanoic acid (PFHpA)	Perfluorooctanoic acid (PFOA)	Perfluorononanoic acid (PFNA)	Perfluorodecanoic acid (PFDA)	Perfluoroundecanoic acid (PFUnA)	Perfluorododecanoic acid (PFDoA)	Perfluorotridecanoic acid (PFTrDA)	Perfluorotetradecanoic acid (PFTeA)	Perfluorobutanesulfonic acid (PFBS)	Perfluoropentanesulfonic acid (PFPeS)	Perfluorohexanesulfonic acid (PFHxS)	Perfluoroheptanesulfonic Acid (PFHpS)	Perfluorooctanesulfonic acid (PFOS)	Perfluorodecanesulfonic acid (PFDS)	Perfluorooctanesulfonamide (FOSA)	N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	4:2 Flourotelomer sulfonic acid (4:2 FTS)	6:2 Flourotelomer sulfonic acid (6:2 FTS)	8:2 Flourotelomer sulfonic acid (8:2 FTS)
1/2	L1/2-1-1	12/6/2021	1	**0.84**	**4.1**	**4.0**	**0.64**	**4.6**	**0.65**	**2.8**	0.12 J	0.07 J	< 0.22	< 0.22	**0.27**	**0.26**	**5.2**	**0.74**	**180**	0.17 J	**18**	0.08 J I	< 0.22	0.099 J	**96**	**13**
	L1/2-1-5	12/6/2021	5	**1.5**	**3.6**	**17**	**0.34**	0.078 J	< 0.24	< 0.24	< 0.24	< 0.24	< 0.24	< 0.24	**4.8**	**0.67**	0.13 J	< 0.24	0.1 J	< 0.24	< 0.24	< 0.24	< 0.24	< 0.24	< 0.24	< 0.24
	L1/2-1-10	12/6/2021	10	0.20 J	**0.23**	**0.62**	0.049 J	0.11 J	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	0.19 J	< 0.23	0.2 J	< 0.23	0.08 J	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23
	L1/2-2-1	12/6/2021	1	**1.6**	**4.1**	**8.5**	**1.5**	**4.2**	0.033 J	< 0.22	< 0.22	< 0.22	< 0.22	< 0.22	**3.5**	**3.7**	**37**	**2.9**	**100**	0.087 J	**3.1**	0.032 J	0.08 J	**0.24**	**32**	**0.34**
	L1/2-2-5	12/6/2021	5	**2.4**	**4.3**	**16**	**3.1**	**12**	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25	**9.5**	**11**	**84**	**1.4**	**7.8**	< 0.25	0.081 J	< 0.25	< 0.25	< 0.25	**3.3**	< 0.25
	L1/2-2-10	12/6/2021	10	**0.99**	**1.8**	**7.7**	**0.81**	**0.43**	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25	**4.9**	**3.5**	**6.6**	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25	0.13 J	< 0.25

Notes

< : indicates analyte not detected above the laboratory reporting limit following the "<".

Bold indicates analytes detected above the laboratory reporting limit.

Analytical Qualifiers

J: The result is less than the reporting limit but greater than or equal to the minimum detection limit and the concentration is an approximate value.

I: Value is estimated maximum possible concentration.

Abbreviations:

feet bgs: feet below ground surface

ng/g: nanograms per gram

Table 4
PFAS Analytical Results for Groundwater
Norman Y. Mineta San José International Airport
1701 Airport Boulevard, San Jose, California

Location Number	Sample ID	Sample Date	Sample Intake Depth (feet bgs)	Groundwater Analytical Results (ng/L)																						
				Perfluorobutanoic acid (PFBA)	Perfluoropentanoic acid (PFPeA)	Perfluorohexanoic acid (PFHxA)	Perfluoroheptanoic acid (PFHpA)	Perfluorooctanoic acid (PFOA)	Perfluorononanoic acid (PFNA)	Perfluorodecanoic acid (PFDA)	Perfluoroundecanoic acid (PFUnA)	Perfluorododecanoic acid (PFDoA)	Perfluorotridecanoic acid (PFTrDA)	Perfluorotetradecanoic acid (PFTeA)	Perfluorobutanesulfonic acid (PFBS)	Perfluoropentanesulfonic acid (PFPeS)	Perfluorohexanesulfonic acid (PFHxS)	Perfluoroheptanesulfonic Acid (PFHpS)	Perfluorooctanesulfonic acid (PFOS)	Perfluorodecanesulfonic acid (PFDS)	Perfluorooctanesulfonamide (FOSA)	N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	4:2 Flourotelomer sulfonic acid (4:2 FTS)	6:2 Flourotelomer sulfonic acid (6:2 FTS)	8:2 Flourotelomer sulfonic acid (8:2 FTS)
3	L3-4-GW	12/9/2021	25	**15**	**7.6**	**20**	**4.3**	**43**	0.44 J	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	**14**	**9.3**	**64**	**2.4**	**100**	< 2	< 2	< 4.9	< 4.9	< 2	< 4.9	< 2
	L3-5-GW	12/9/2021	25	**13**	**11**	**50**	**10**	**280**	< 4.1	< 4.1	< 4.1	< 4.1	< 4.1	< 4.1	**18**	**18**	**150**	**6.4**	**110**	< 4.1	< 4.1	< 10	< 10	< 4.1	< 10	< 4.1
	L3-6-GW	12/9/2021	25	**8.2**	**2.9**	**13**	**2.9**	**140**	0.38 J	< 1.9	< 1.9	< 1.9	< 1.9	< 1.9	**8.9**	**7.4**	**60**	**3.6**	**77**	< 1.9	< 1.9	< 4.7	< 4.7	< 1.9	< 4.7	< 1.9
	L3-7-GW	12/9/2021	25	**18**	**6.5**	**18**	**3.0**	**55**	< 1.9	< 1.9	< 1.9	< 1.9	< 1.9	< 1.9	**20**	**11**	**50**	0.93 J	**33**	< 1.9	< 1.9	< 4.7	< 4.7	< 1.9	2.4 J	< 1.9
	L3-70-GW	12/9/2021	25	**19**	**6.4**	**17**	**3.1**	**58**	< 1.9	< 1.9	< 1.9	< 1.9	< 1.9	< 1.9	**19**	**9.7**	**48**	0.98 J	**35**	< 1.9	< 1.9	< 4.7	< 4.7	< 1.9	< 4.7	< 1.9
8/9	L8/9-6-GW	12/8/2021	25	**270**	**690**	**300**	**24**	**15**	< 9.8	< 9.8	< 9.8	< 9.8	< 9.8	< 9.8	**26**	7.1 J	**17**	< 9.8	9.6 J	< 9.8	< 9.8	< 25	< 25	< 9.8	24 J	< 9.8
	L8/9-7-GW	12/8/2021	25	**18**	**26**	**19**	**4.4**	**5.0**	0.40 J	0.67 J	< 1.9	< 1.9	< 1.9	< 1.9	**3.4**	0.97 J	**5.5**	< 1.9	**2.5**	< 1.9	< 1.9	< 4.7	< 4.7	< 1.9	**6.3**	< 1.9
	L8/9-70-GW	12/8/2021	25	**18**	**25**	**19**	**4.1**	**4.7**	0.36 J	0.81 J	< 1.9	< 1.9	< 1.9	< 1.9	**4.3**	0.99 J	**6.1**	< 1.9	**3.9 I**	< 1.9	< 1.9	< 4.8	< 4.8	< 1.9	**39**	< 1.9
	L8/9-8-GW	12/8/2021	25	**24**	**42**	**24**	**5.8**	**3.4**	< 1.9	< 1.9	< 1.9	< 1.9	< 1.9	< 1.9	**3.2**	1.3 J	**5.7**	< 1.9	**3.8**	< 1.9	< 1.9	< 4.7	< 4.7	< 1.9	**81**	< 1.9
	L8/9-9-GW	12/7/2021	25	**9.6**	**13**	**9.3**	1.5 J	**3.1**	< 1.9	< 1.9	< 1.9	< 1.9	< 1.9	< 1.9	**4.5**	**2.2**	**12**	< 1.9	**1.9**	< 1.9	< 1.9	< 4.7	< 4.7	< 1.9	**18**	< 1.9
10	L10-4-GW	1/31/2022	25	**1,200**	**5,900**	**4,900**	**1,400**	**370**	**6.9**	< 1.9	< 1.9	< 1.9	< 1.9	< 1.9	**400**	**430**	**2,500**	**38**	**710**	< 1.9	< 1.9	< 4.6	< 4.6	**6.6**	**4,400**	< 1.9
	L10-5-GW	1/31/2022	25	**3,000**	**15,000**	**11,000**	**1,700**	**1,200**	**57**	**18**	< 1.8	< 1.8	< 1.8	< 1.8	**2,200**	**1,600**	**9,300**	**150**	**9,000**	< 1.8	< 1.8	< 4.6	< 4.6	**200**	**10,000**	**510**
	L10-6-GW	1/31/2022	25	**1,200**	**5,000**	**2,200**	**360**	**21**	< 1.9	< 1.9	< 1.9	< 1.9	< 1.9	< 1.9	**83**	**64**	**140**	< 1.9	< 1.9	< 1.9	< 1.9	< 4.7	< 4.7	**2.3**	**230**	< 1.9
	L10-60-GW	1/31/2022	25	**1,000**	**4,800**	**2,800**	**330**	**20**	< 1.9	< 1.9	< 1.9	< 1.9	< 1.9	< 1.9	**82**	**60**	**130**	0.36 J	< 1.9	< 1.9	< 1.9	< 4.7	< 4.7	**2.0**	**210**	< 1.9
	L10-7-GW	12/8/2021	25	**2,600**	**13,000**	**9,200**	**1,600**	**910**	51 J I	< 190	< 190	< 190	< 190	< 190	**900**	**770**	**5,100**	150 J	**1,600**	< 190	< 190	< 490	< 490	39 J	**8,800**	**340**
	L10-8-GW	12/9/2021	25	20 J	**20**	**23**	5.9 J I	**12**	7.2 J	< 9.7	< 9.7	< 9.7	< 9.7	< 9.7	3.9 J	2.2 J	**16**	< 9.7	**29**	< 9.7	< 9.7	< 24	< 24	< 9.7	**330**	7.7 J
UG	UG-1-GW	12/10/2021	25	< 4.9	< 1.9	< 1.9	< 1.9	< 1.9	< 1.9	< 1.9	< 1.9	< 1.9	< 1.9	< 1.9	**3.5**	1.3 J	**3.3**	< 1.9	< 1.9	< 1.9	< 1.9	< 4.9	< 4.9	< 1.9	< 4.9	< 1.9
	UG-2-GW	12/10/2021	25	**5.4**	**2.1**	1.3 J	0.52 J	1.1 J	< 1.9	< 1.9	< 1.9	< 1.9	< 1.9	< 1.9	1.8 J	0.83 J	**2.6**	< 1.9	1.2 J	< 1.9	< 1.9	< 4.8	< 4.8	< 1.9	< 4.8	< 1.9
	UG-20-GW	12/10/2021	25	**5.4**	1.7 J	1.4 J	0.52 J	1.1 J	< 1.9	< 1.9	< 1.9	< 1.9	< 1.9	< 1.9	**2.1**	0.79 J	**2.3**	< 1.9	1.3 J	< 1.9	< 1.9	< 4.8	< 4.8	< 1.9	< 4.8	< 1.9

Notes

< : indicates analyte not detected above the laboratory reporting limit following the "<".

Bold indicates analytes detected above the laboratory reporting limit.

Analytical Qualifiers

J: The result is less than the reporting limit but greater than or equal to the minimum detection limit and the concentration is an approximate value.

I: Value is estimated maximum possible concentration.

Abbreviations:

feet bgs: feet below ground surface

ng/L: nanograms per liter

Table 5
PFAS Analytical Results for Stormwater and Sediment
Norman Y. Mineta San José International Airport
1701 Airport Boulevard, San Jose, California

Stormwater Analytical Results (ng/L)																									
Location Number	**Sample ID**	**Sample Date**	**Perfluorobutanoic acid (PFBA)**	**Perfluoropentanoic acid (PFPeA)**	**Perfluorohexanoic acid (PFHxA)**	**Perfluoroheptanoic acid (PFHpA)**	**Perfluorooctanoic acid (PFOA)**	**Perfluorononanoic acid (PFNA)**	**Perfluorodecanoic acid (PFDA)**	**Perfluoroundecanoic acid (PFUnA)**	**Perfluorododecanoic acid (PFDoA)**	**Perfluorotridecanoic acid (PFTrDA)**	**Perfluorotetradecanoic acid (PFTeA)**	**Perfluorobutanesulfonic acid (PFBS)**	**Perfluoropentanesulfonic acid (PFPeS)**	**Perfluorohexanesulfonic acid (PFHxS)**	**Perfluoroheptanesulfonic Acid (PFHpS)**	**Perfluorooctanesulfonic acid (PFOS)**	**Perfluorodecanesulfonic acid (PFDS)**	**Perfluorooctanesulfonamide (FOSA)**	**N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)**	**N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)**	**4:2 Flourotelomer sulfonic acid (4:2 FTS)**	**6:2 Flourotelomer sulfonic acid (6:2 FTS)**	**8:2 Flourotelomer sulfonic acid (8:2 FTS)**
10	L10-SW	12/13/2021	**480**	**1,300**	**1,200**	**180**	**240**	**42**	**97**	**15**	**17**	**2.4**	**2.8**	**43**	**48**	**510**	**24**	**1,900**	**2.5**	**9.4**	1.6 J I	< 4.7	**6.4**	**6,400**	**1,500**
8/9	L8/9-SW	12/13/2021	**210**	**670**	**650**	**170**	**73**	28 J	**98**	**58 I**	**43 I**	< 37	< 37	< 37	< 37	12 J	< 37	**100**	< 37	< 37	< 91	< 91	< 37	**3,200**	**970**
	L8/9-SW-1	12/13/2021	**200**	**750**	**580**	**150**	**68**	**27**	**91**	**49**	**40**	**9.5**	**8.6**	1.7 J	1.5 J	**15**	0.8 J	**100**	< 1.8	0.92 J	< 4.6	< 4.6	**2.6**	**4,400**	**1,100**

Sediment Analytical Results (ng/g)																									
Location Number	**Sample ID**	**Sample Date**	**Perfluorobutanoic acid (PFBA)**	**Perfluoropentanoic acid (PFPeA)**	**Perfluorohexanoic acid (PFHxA)**	**Perfluoroheptanoic acid (PFHpA)**	**Perfluorooctanoic acid (PFOA)**	**Perfluorononanoic acid (PFNA)**	**Perfluorodecanoic acid (PFDA)**	**Perfluoroundecanoic acid (PFUnA)**	**Perfluorododecanoic acid (PFDoA)**	**Perfluorotridecanoic acid (PFTrDA)**	**Perfluorotetradecanoic acid (PFTeA)**	**Perfluorobutanesulfonic acid (PFBS)**	**Perfluoropentanesulfonic acid (PFPeS)**	**Perfluorohexanesulfonic acid (PFHxS)**	**Perfluoroheptanesulfonic Acid (PFHpS)**	**Perfluorooctanesulfonic acid (PFOS)**	**Perfluorodecanesulfonic acid (PFDS)**	**Perfluorooctanesulfonamide (FOSA)**	**N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)**	**N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)**	**4:2 Flourotelomer sulfonic acid (4:2 FTS)**	**6:2 Flourotelomer sulfonic acid (6:2 FTS)**	**8:2 Flourotelomer sulfonic acid (8:2 FTS)**
10	L10-SED	12/13/2021	0.23 J	**0.48**	**1.1**	0.12 J	**0.51**	0.21 J	**2.4**	**1.5**	**7.8**	**3.0**	**6.1**	< 0.24	0.06 J	**0.63**	< 0.24	**6.4**	**0.72**	**0.44**	0.11 J	< 0.24	< 0.24	**14**	**34**

Notes

< : indicates analyte not detected above the laboratory reporting limit following the "<".
Bold indicates analytes detected above the laboratory reporting limit.

Analytical Qualifiers

J: The result is less than the reporting limit but greater than or equal to the minimum detection limit and the concentration is an approximate value.
I: Value is estimated maximum possible concentration.

Abbreviations:

ng/g: nanograms per gram
ng/L: nanograms per liter

Table 6
Field Groundwater Quality Parameters
Norman Y. Mineta San José International Airport
1701 Airport Boulevard, San Jose, California

				Field Groundwater Quality Parameters							
Location Number	Sample ID	Sample Date	Sample Intake Depth (feet bgs)	Temperature (C)	pH	Specific Conductivity (µS/cm)	Oxidation-Reduction Potential (mV)	Dissolved Oxygen (mg/L)	Turbidity (NTU)	Total Volume Purged (L)	Static Depth to Water (feet bgs)
3	L3-4-GW	12/9/2021	25	20.9	6.94	1,254	-422	0.46	923.3	5.0	11.72
	L3-5-GW	12/9/2021	25	20.8	7.16	1,216	-448	0.57	50.80	2.0	14.51
	L3-6-GW	12/9/2021	25	21.1	7.07	1,300	-347	0.47	184.1	5.0	13.35
	L3-7-GW	12/9/2021	25	20.0	7.07	1,344	-255	0.49	339.40	2.0	12.71
8/9	L8/9-6-GW	12/8/2021	25	--	--	--	--	--	--	--	17.03
	L8/9-7-GW	12/8/2021	25	20.0	7.00	1,017	-331	0.53	1,790	0.8	18.78
	L8/9-8-GW	12/8/2021	25	20.5	6.69	1,026	-480	0.67	641.7	1.0	19.87
	L8/9-9-GW	12/7/2021	25	19.3	6.90	1,083	-486	0.64	1,164	6.0	17.35
10	L10-4-GW	1/31/2022	25	20.7	6.76	1,474	-127	0.45	114.6	6.5	13.82
	L10-5-GW	1/31/2022	25	20.7	6.86	1,387	-121	0.85	31.01	3.5	13.46
	L10-6-GW	1/31/2022	25	20.3	6.96	1,252	-82	1.82	74.85	1.0	12.80
	L10-7-GW	12/8/2021	25	21.0	6.82	1,469	-151	2.28	96.00	1.5	17.26
	L10-8-GW	12/9/2021	25	19.7	6.80	1,348	-385	0.62	589.0	1.5	12.06
UG	UG-1-GW	12/10/2021	25	19.7	6.56	1,924	-358	0.46	85.40	6.0	9.19
	UG-2-GW	12/10/2021	25	20.3	6.58	1,749	-462	0.49	311.9	4.0	10.60

Notes

-- : indicates that the temporary well went dry before water quality parameters could be measured in the flow-through cell.

Purge rate for all temporary wells was approximately 200 milliliters per minute.

Abbreviations:

feet bgs: feet below ground surface
C : degrees Celsius
L: liter
µS/cm : microSiemens per centimeter
mg/L : milligram per liter
mV : millivolt
NTU: nephelometric turbidity unit

FIGURES

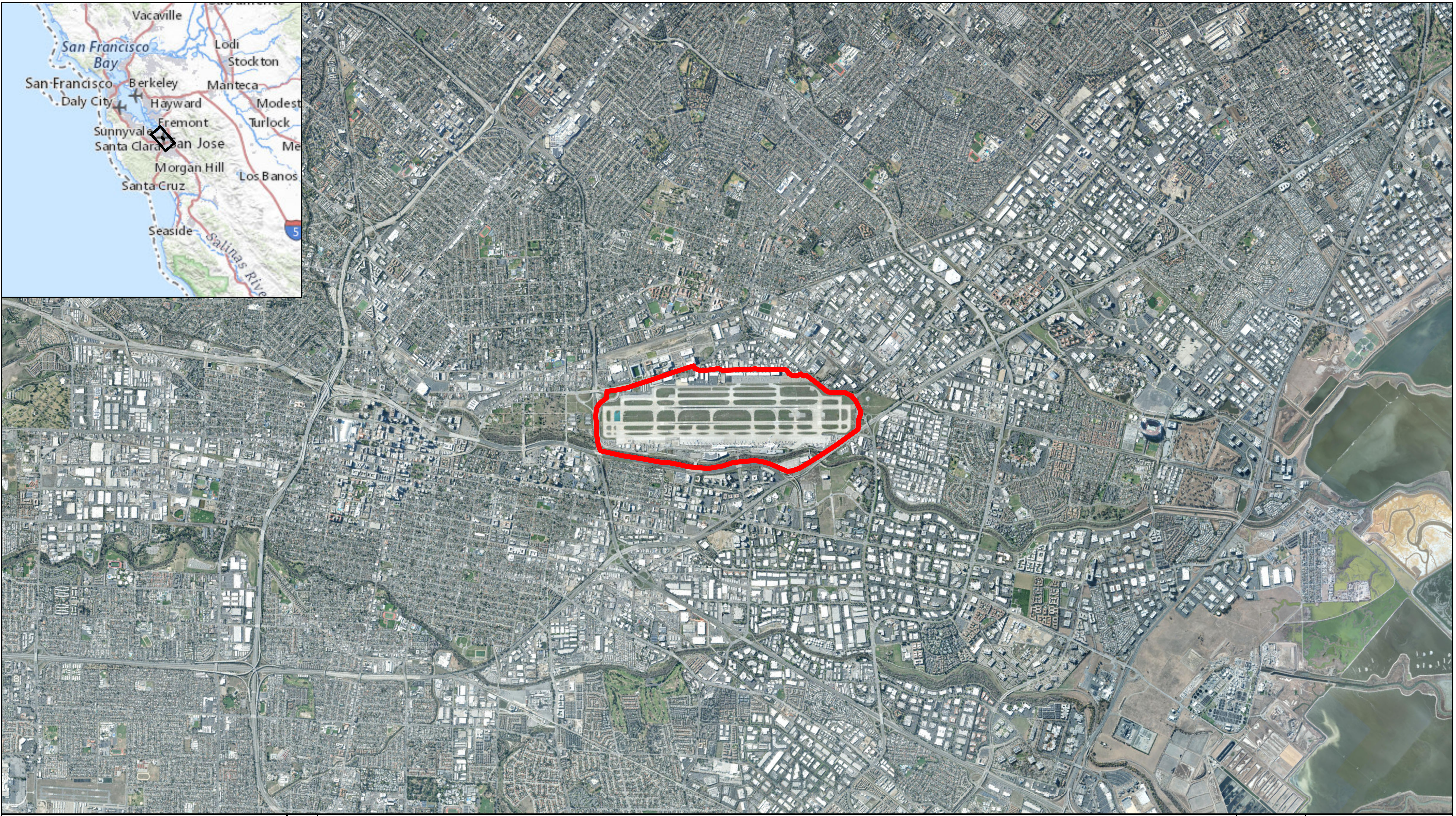


Figure 1. Site Location

1701 Airport Blvd,
San Jose, CA 95110

PFAS Phase 2 Completion Report

Legend

🟥 Norman Y. Mineta San Jose International Airport

0 0.5 1 2
Miles

N

Woodard & Curran

Project #: 0232401.07
Map Created: May 2022

Figure Exported: 5/24/2022 By: jlodermeier Using: \\woodardcurran.net\shared\Projects\0232401.07 KHA PFAS Investigation Phase II\wip\gis\Maps\May 2022\Figure 1 - Site Location Map.mxd

Figure Exported: 6/6/2022 By: jlodermeier Using: \\woodardcurran.net\shared\Projects\0232401.07 KHA PFAS Investigation Phase II\wip\gis\Maps\May 2022\Figure 2 - Site Plan.mxd

Figure 2. Site Plan

1701 Airport Blvd,
San Jose, CA 95110

PFAS Phase 2 Completion Report

Legend

🟥	AFFF Storage, Use and Release Locations
〰	Guadalupe River
→	Direction of Flow
12	AFFF Use and/or Release Location Number

0 0.1 0.2 0.4 Miles

N

Woodard & Curran

Project #: 0232401.07
Map Created: May 2022

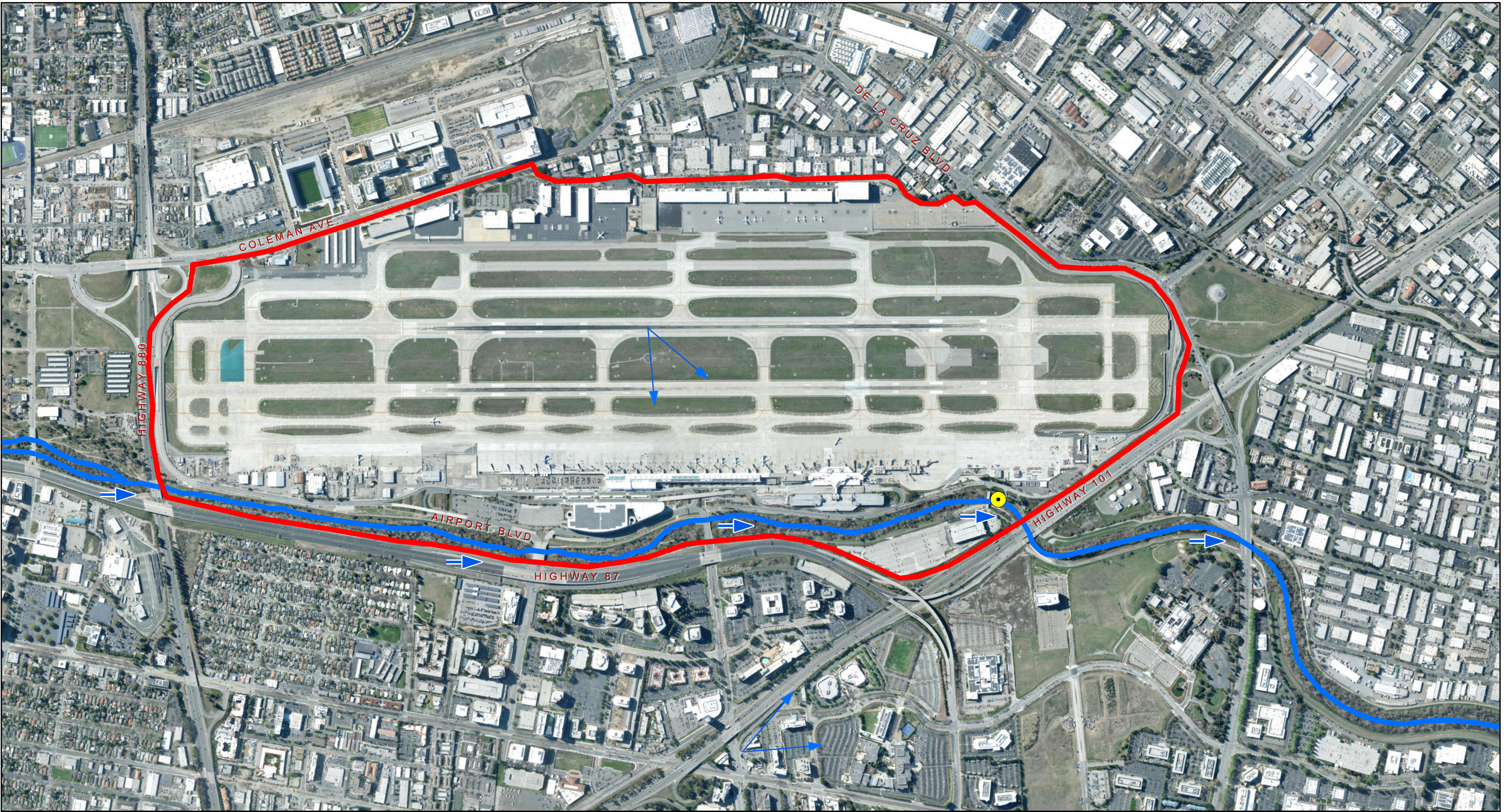


Figure 3.
Downgradient Sensitive Receptors

1701 Airport Blvd,
San Jose, CA 95110

PFAS Phase 2 Completion Report

Legend

🟥	Mineta San Jose International Airport
〰	Guadalupe River
⊙	USGS Stream Gage 11169025
→	Approximate Groundwater Flow Direction
➡	Guadalupe River Flow Direction

0 0.125 0.25 0.5 Miles

N

Woodard & Curran

Project #: 0232401.07
Map Created: May 2022

Figure Exported: 6/6/2022 By: jlodermeier Using: \\woodardcurran.net\shared\Projects\0232401.07 KHA PFAS Investigation Phase II\wip\gis\Maps\May 2022\Figure 3 - Sensitive Receptor Survey.mxd

Figure 4.
Soil Borings at Location 1/2

1701 Airport Blvd,
San Jose, CA 95110

PFAS Phase 2 Completion Report

Legend

🟥 AFFF Storage Locations

● Soil Boring Location

Approximate Groundwater Flow Direction

Woodard & Curran

Project #: 0232401.07
Map Created: May 2022

Figure Exported: 6/6/2022 By: jlodermeier Using: \\woodardcurran.net\shared\Projects\0232401.07 KHA PFAS Investigation Phase II\wip\gis\Maps\May 2022\Location 1&2 Soil Borings.mxd

Figure 5.
Temporary Wells at Location 3

1701 Airport Blvd,
San Jose, CA 95110

PFAS Phase 2 Completion Report

Legend

- 🟥 AFFF Use Location, Dashed Where Estimated
- ● Previous Soil Boring
- ⊕ Previous Soil Boring and Temporary Groundwater Well
- ⊕ Temporary Groundwater Well
- ↘ Approximate Groundwater Flow Direction

Woodard & Curran

Project #: 0232401.07
Map Created: May 2022

Figure Exported: 6/6/2022 By: jlodermeier Using: \\woodardcurran.net\shared\Projects\0232401.07 KHA PFAS Investigation Phase II\wip\gis\Maps\May 2022\Location 3 Temporary Wells.mxd

Figure 6. Temporary Wells Upgradient of Location 4

1701 Airport Blvd,
San Jose, CA 95110

PFAS Phase 2 Completion Report

Legend

- 🟥 AFFF Use or Storage Location, Dashed Where Estimated
- ● Previous Soil Boring
- ⊕ Previous Soil Boring and Temporary Groundwater Well
- ⊕ Temporary Groundwater Well
- ↓ Approximate Groundwater Flow Direction

0 85 170 340
Feet

N

Woodard & Curran

Project #: 0232401.07
Map Created: May 2022

Figure Exported: 6/6/2022 By: jlodermeier Using: \\woodardcurran.net\shared\Projects\0232401.07 KHA PFAS Investigation Phase II\wip\gis\Maps\May 2022\Location 4 Upgradient Locations.mxd

Figure 7. Temporary Wells at Location 8/9

1701 Airport Blvd.
San Jose, CA 95110

PFAS Phase 2 Completion Report

Legend

- 🟥 AFFF Use Locations, Dashed Where Estimated
- ● Previous Soil Boring
- ⊕ Previous Soil Boring and Temporary Groundwater Well
- ⊕ Temporary Groundwater Well
- ↘ Approximate Groundwater Flow Direction

0 25 50 100
Feet

N

Woodard & Curran

Project #: 0232401.07
Map Created: May 2022

Figure 8. Temporary Wells at Location 10

1701 Airport Blvd.
San Jose, CA 95110

PFAS Phase 2 Completion Report

Legend

- 🟥 AFFF Use Location, Dashed Where Estimated
- ● Previous Soil Boring
- ⊕ Previous Soil Boring and Temporary Groundwater Well
- ⊕ Temporary Groundwater Well
- ↗ Approximate Groundwater Flow Direction

0 37.5 75 150
Feet

Notes: ng/L = Nanograms per Liter

N

Woodard & Curran

Project #: 0232401.07
Map Created: May 2022

Figure Exported: 6/6/2022 By: jlodermeier Using: \\woodardcurran.net\shared\Projects\0232401.07 KHA PFAS Investigation Phase II\wip\gis\Maps\May 2022\Location 10 Temporary Wells.mxd

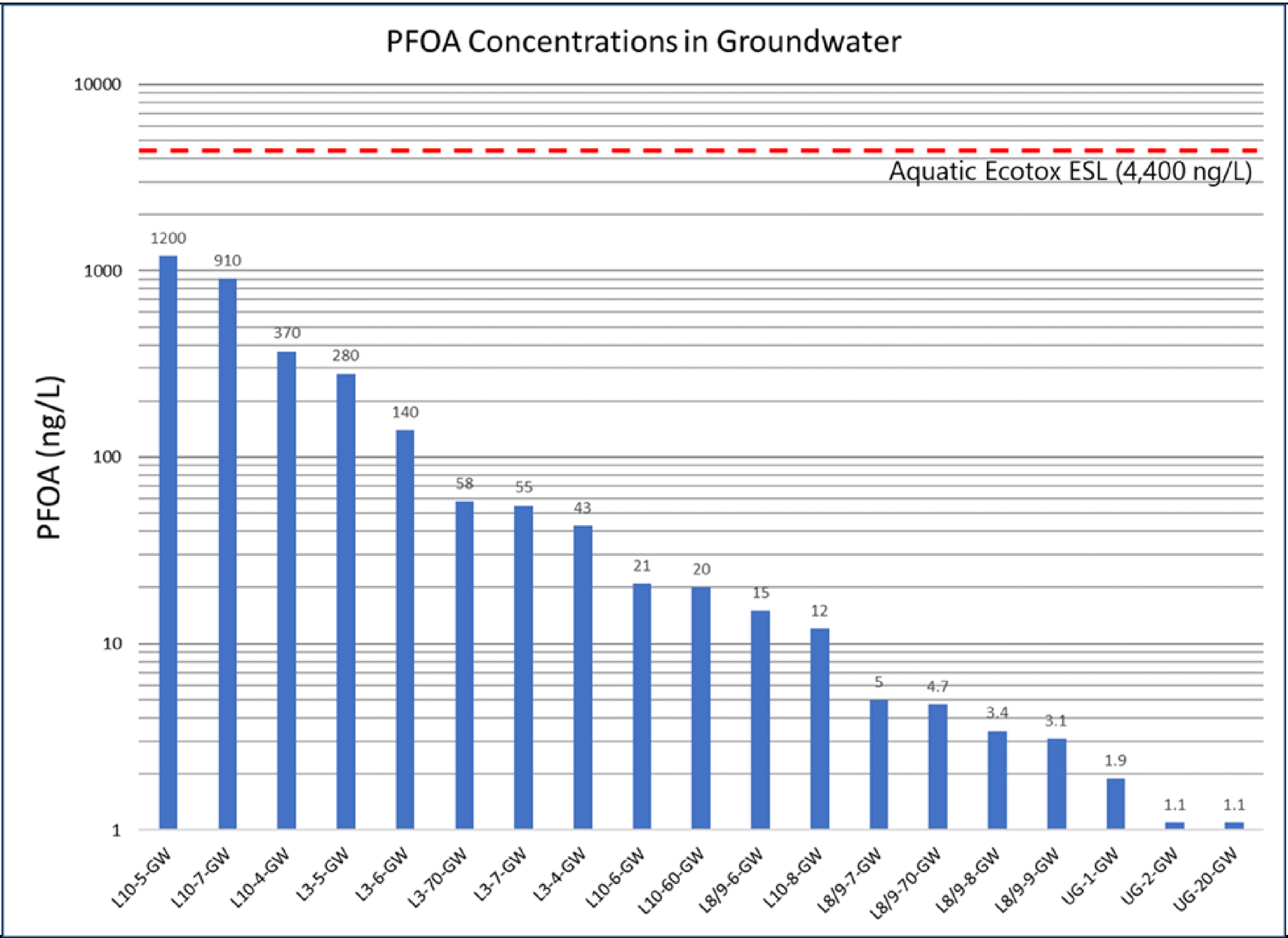


Figure 9. PFOA Concentrations in Groundwater

1701 Airport Blvd,
San Jose, CA 95110

PFAS Phase 2 Completion Report

Notes: Non-detect and j-values presented as measurements
ng/L = Nanograms per Liter

Woodard & Curran
Project #: 0232401.07
Map Created: May 2022

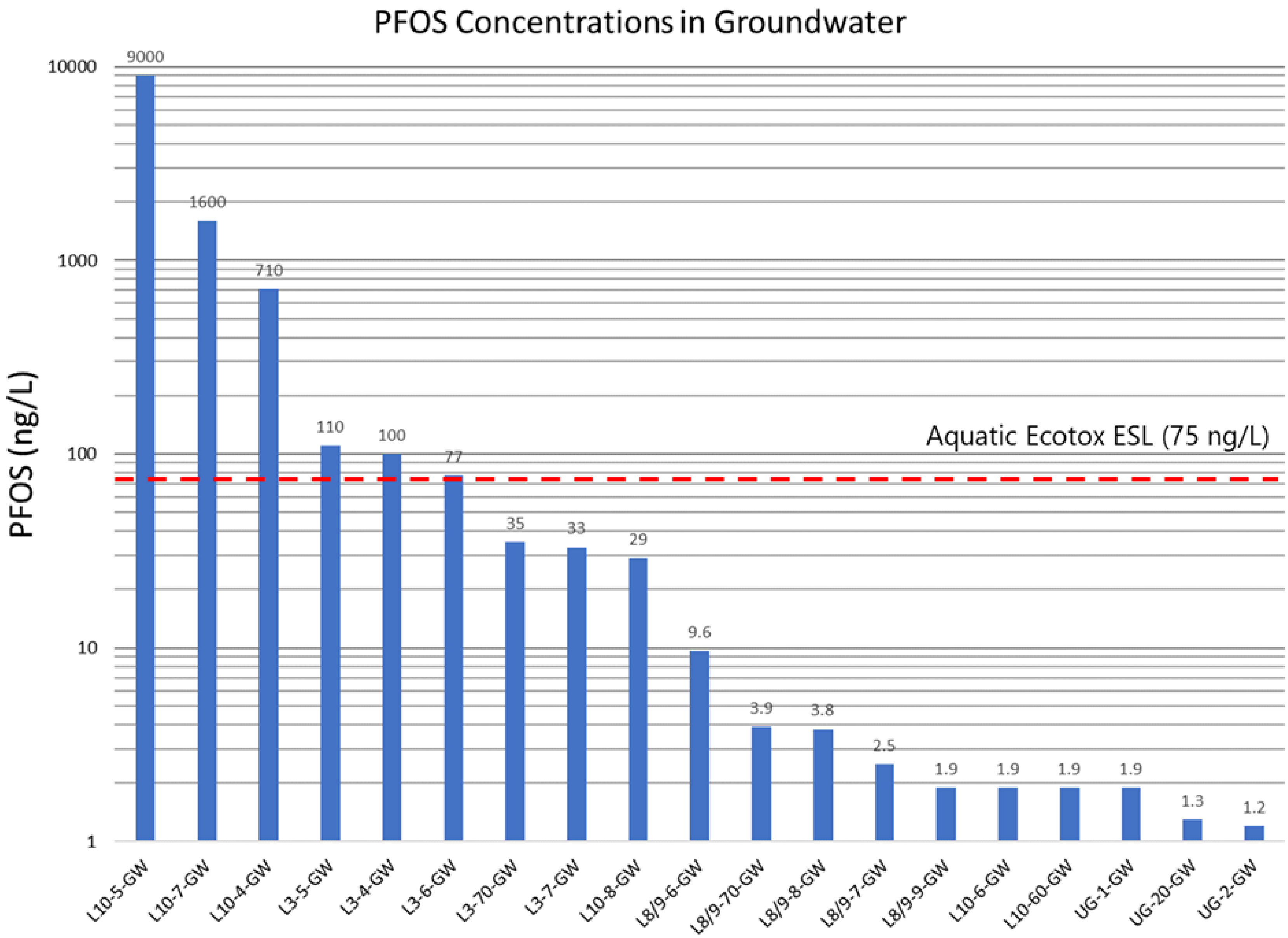


Figure 10. PFOS Concentrations in Groundwater

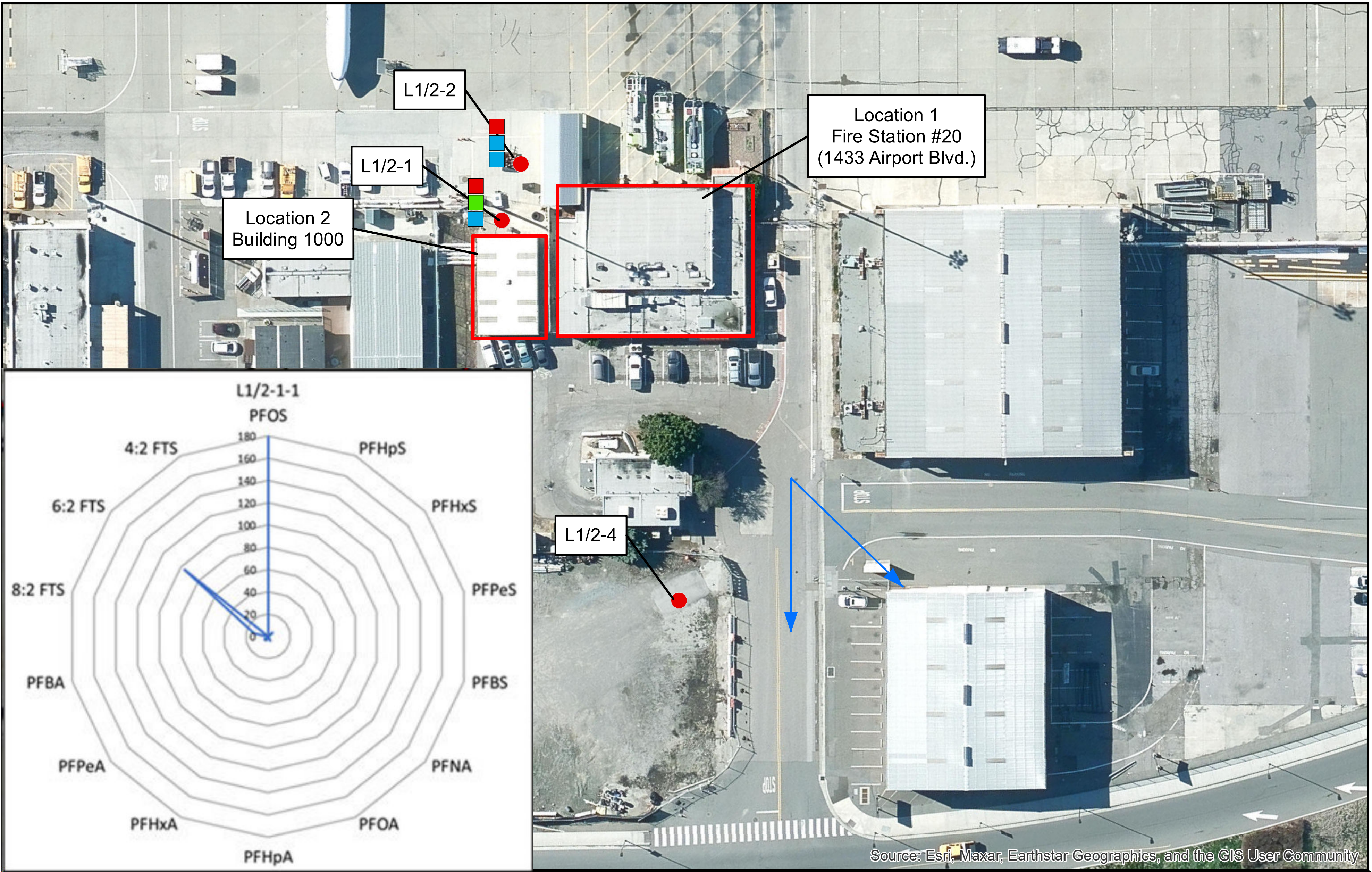
1701 Airport Blvd,
San Jose, CA 95110

PFAS Phase 2 Completion Report

Notes: Non-detect and j-values presented as measurements
ng/L = Nanograms per Liter

Woodard & Curran
Project #: 0232401.07
Map Created: May 2022

Figure Exported: 5/25/2022 By: jlodermeier Using: \\woodardcurran.net\shared\Projects\0232401.07 KHA PFAS Investigation Phase II\wip\gis\Maps\May 2022\Figure 10 - Groundwater PFOS Concentrations.mxd



Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

Figure 11. Location 1/2 PFAS Distribution in Soil

1701 Airport Blvd,
San Jose, CA 95110

PFAS Phase 2 Completion Report

Legend

▭	AFFF Use or Storage Location, Dashed Where Estimated
↘	Approximate Groundwater Flow Direction
●	Soil Boring Location

Soil Boring
PFOS Concentration
(nanograms per gram)

🟥	> 100 ng/g
🟧	> 10 - 100 ng/g
🟩	> 1-10 ng/g
🟦	< 1 ng/g

N

Woodard & Curran
Project #: 0232401.07
Map Created: May 2022

Figure Exported: 6/6/2022 By: jlodermeier Using: \\woodardcurran.net\shared\Projects\0232401.07 KHA PFAS Investigation Phase II\wip\gis\Maps\May 2022\Figure 11 - Location 1_2 PFAS Distribution in Soil.mxd

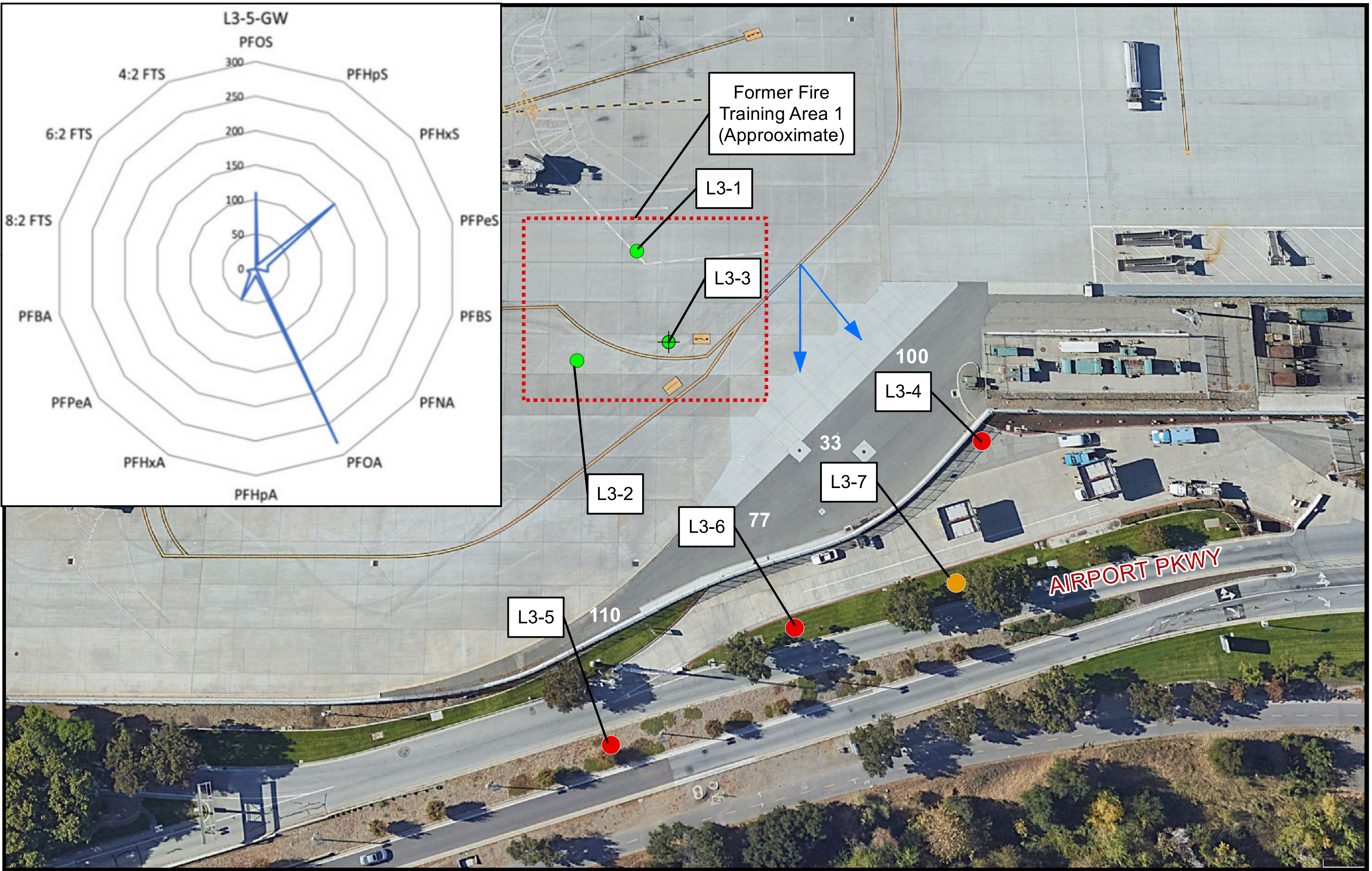


Figure 12. Location 3 PFAS Distribution in Groundwater

1701 Airport Blvd,
San Jose, CA 95110

PFAS Phase 2 Completion Report

Legend

🟥 AFFF Use or Storage Location, Dashed Where Estimated

⊕ Previous Soil Boring and Temporary Groundwater Well

● Previous Soil Boring

↘ Approximate Groundwater Flow Direction

Temporary Groundwater Well
PFOS Concentration

● > 75 ng/L

● 7.5 - 75 ng/L

● < 7.5 ng/L

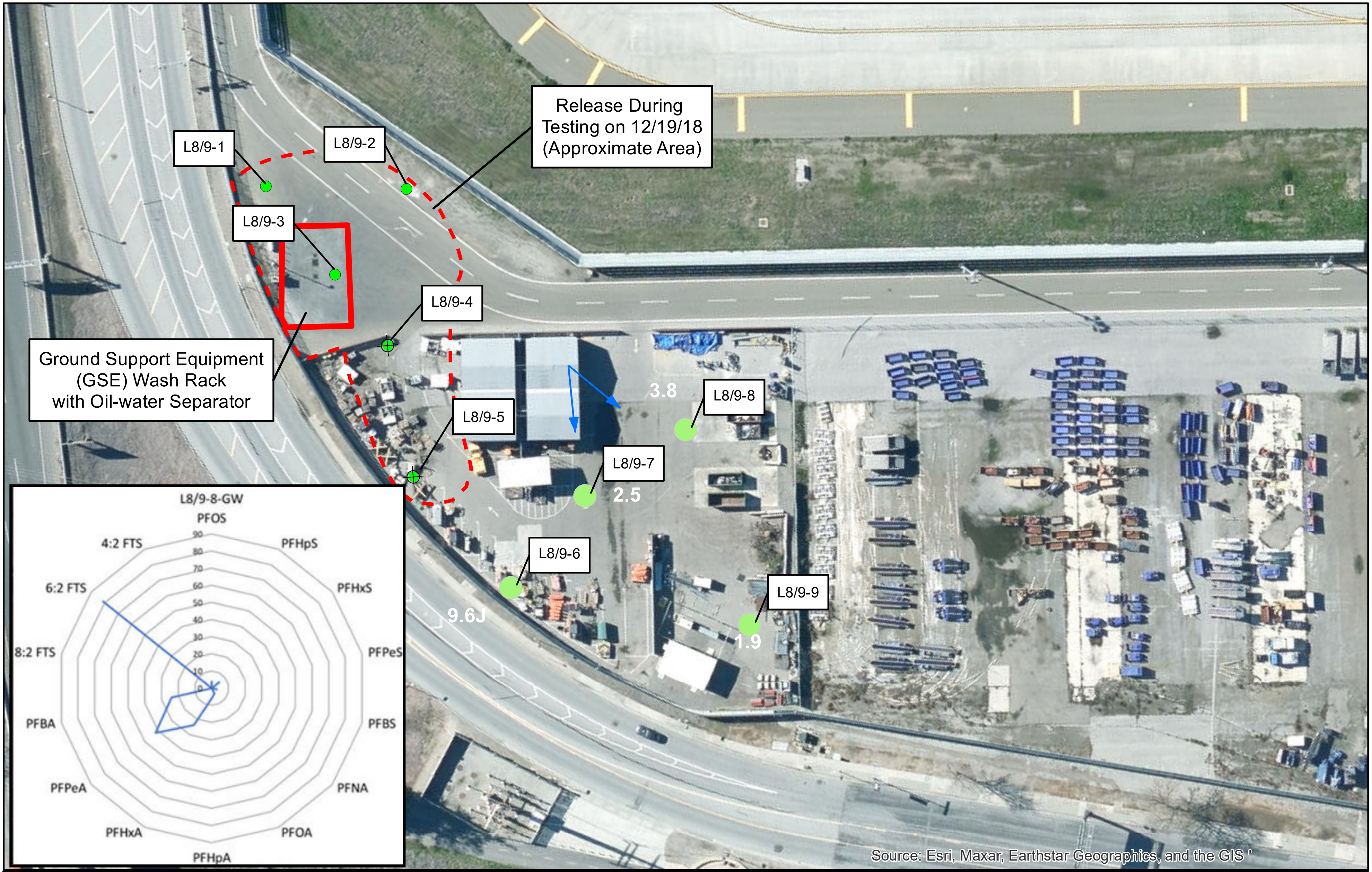
Notes: ng/L = Nanograms per liter

N

Woodard & Curran

Project #: 0232401.07
Map Created: May 2022

Figure Exported: 6/6/2022 By: jlodermeier Using: \\woodardcurran.net\shared\Projects\0232401.07 KHA PFAS Investigation Phase II\wip\gis\Maps\May 2022\Figure 12 - Location 3 PFAS Distribution in Groundwater.mxd



Source: Esri, Maxar, Earthstar Geographics, and the GIS '

Figure 13. Location 8/9 PFAS Distribution in Groundwater

1701 Airport Blvd,
San Jose, CA 95110

PFAS Phase 2 Completion Report

Legend

- 🟥 AFFF Use or Storage Location, Dashed Where Estimated
- ⊕ Previous Soil Boring and Temporary Groundwater Well
- ● Previous Soil Boring
- → Approximate Groundwater Flow Direction

Temporary Groundwater Well PFOS Concentration

- ● > 75 ng/L
- ● 7.5 - 75 ng/L
- ● < 7.5 ng/L

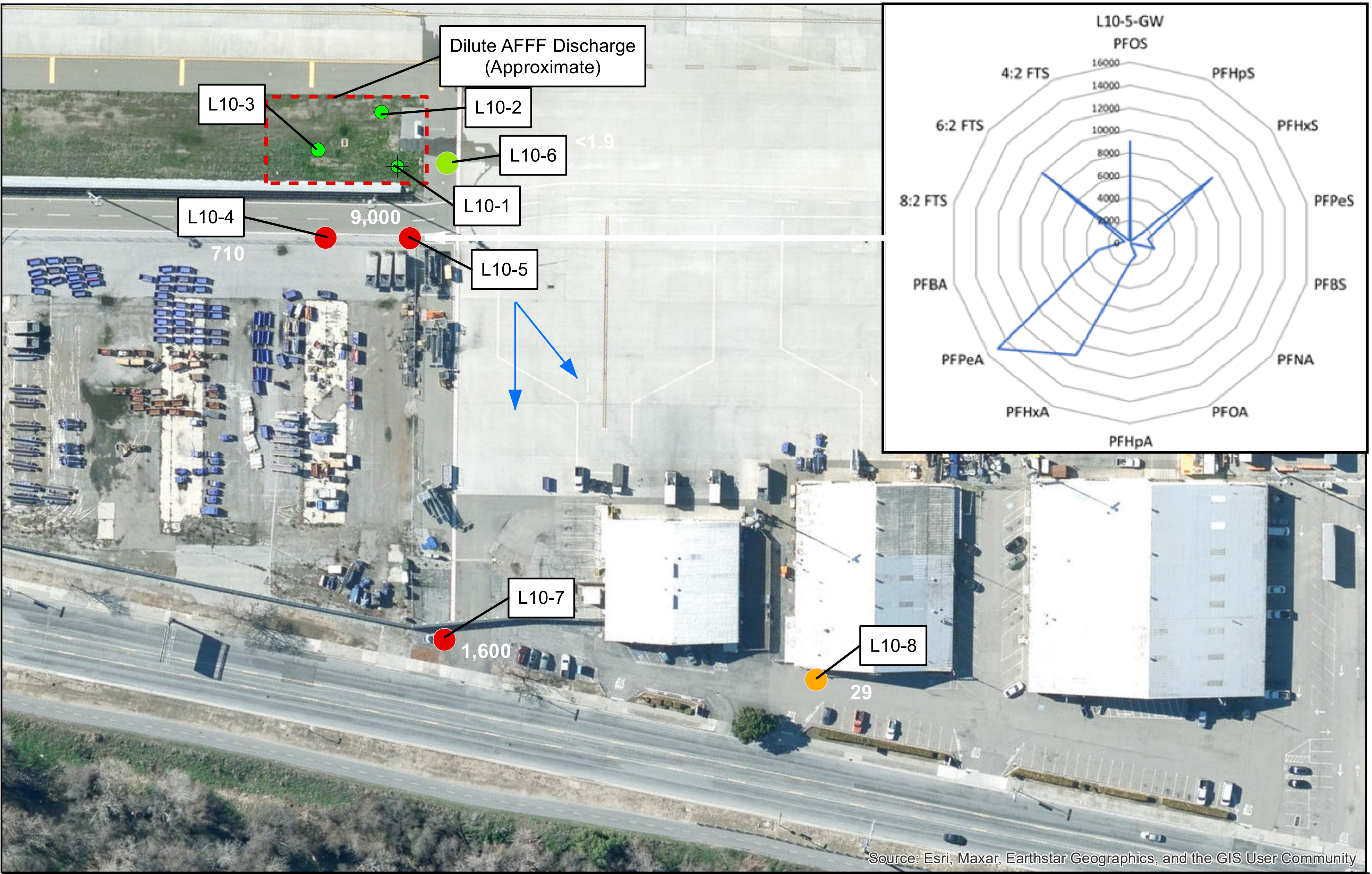
Notes: ng/L = Nanograms per liter

N

Woodard & Curran

Project #: 0232401.07
Map Created: May 2022

Figure Exported: 6/6/2022 By: jlodermeier Using: \\woodardcurran.net\shared\Projects\0232401.07 KHA PFAS Investigation Phase II\wip\gis\Maps\May 2022\Figure 13 - Location 8_9 PFAS Distribution in Groundwater_new.mxd



Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

Figure 14. Location 10 PFAS Distribution in Groundwater

1701 Airport Blvd,
San Jose, CA 95110

PFAS Phase 2 Completion Report

- ▭ AFFF Use or Storage Location, Dashed Where Estimated
- ⊕ Previous Soil Boring and Temporary Groundwater Well
- ● Previous Soil Boring
- ↘ Approximate Groundwater Flow Direction

Temporary Groundwater Well
PFOS Concentration

- 🔴 > 75 ng/L
- 🟠 7.5 - 75 ng/L
- 🟢 < 7.5 ng/L

Notes: ng/L = Nanograms per liter

N

Woodard & Curran
Project #: 0232401.07
Map Created: May 2022

Figure Exported: 6/6/2022 By: jlodermeier Using: \\woodardcurran.net\shared\Projects\0232401.07 KHA PFAS Investigation Phase II\wip\gis\Maps\May 2022\Figure 14 - Location 10 PFAS Distribution in Groundwater.mxd

Figure 15. Upgradient PFAS Distribution in Groundwater

1701 Airport Blvd,
San Jose, CA 95110

PFAS Phase 2 Completion Report

🟥	AFFF Use or Storage Location, Dashed Where Estimated
●	Previous Soil Boring
⊕	Previous Soil Boring and Temporary Groundwater Well
↘	Approximate Groundwater Flow Direction

Temporary Groundwater Well
PFOS Concentration

●	> 75 ng/L
●	7.5 - 75 ng/L
●	< 7.5 ng/L

Notes: ng/L = Nanograms per liter

N

Woodard & Curran
Project #: 0232401.07
Map Created: May 2022

Figure Exported: 6/6/2022 By: jlodermeier Using: \\woodardcurran.net\shared\Projects\0232401.07 KHA PFAS Investigation Phase II\wip\gis\Maps\May 2022\Figure 15 - Upgradient PFAS Distribution in Groundwater.mxd

APPENDIX A: SJC FUEL TERMINAL PFAS SITE INVESTIGATION REPORT

SJC FUEL TERMINAL PFAS INVESTIGATION REPORT

Norman Y. Mineta San José International Airport, San Jose, California

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925.627.4100

woodardcurran.com

0234109.00

SJC Fuel Company, LLC

June 14, 2022

SJC Fuel Terminal PFAS Investigation Report

Norman Y. Mineta San José International Airport
1701 Airport Blvd, San José, California

Prepared for

SJC Fuel Company, LLC

Project No. 0234109.00

PROFESSIONAL GEOLOGIST
James F. Strandberg
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Certified Hydrogeologist
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STATE OF CALIFORNIA

James F. Strandberg

James F. Strandberg, PG, CHG
Senior Project Manager

June 14, 2022
Date

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EXECUTIVE SUMMARY

Woodard & Curran has prepared this SJC Fuel Terminal Per- and Polyfluoroalkyl Substances (PFAS) Investigation Report (Report) for the Norman Y. Mineta San José International Airport (SJC or the Airport) and SJC Fuel Company, LLC (SJC Fuel) to present the results of implementing the *Addendum to the PFAS Site Investigation Work Plan* (Addendum, Woodard & Curran, 2021b).

On June 18, 2021, the San Francisco Bay Regional Water Quality Control Board (Regional Water Board) approved the *PFAS Site Investigation Work Plan* (Work Plan, Woodard & Curran, 2021a) submitted by the Airport on May 27, 2021, subject to the condition that the Airport conduct soil and groundwater sampling at the Swissport Fueling, Inc. bulk fuel terminal facility. The fuel terminal property located at 2500 Seaboard Avenue, San José is leased from the Airport by SJC Fuel and operated by Swissport Fueling, Inc. (Swissport) under contract to SJC Fuel.

On March 12, 2021, the State Water Resources Control Board (State Water Board) issued *Water Code Sections 13267 and 13383 Order WQ-2021-0006-DWQ Determination of the Presence of Per- and Polyfluoroalkyl Substances* (Order, State Water Board, 2021) to Swissport Fueling, Inc. Subsequently, at the request of SJC Fuel (Landreth Law Firm, 2021), the Regional Water Board approved a change of the respondent to the Fuel Terminal Order from Swissport to SJC Fuel. The Fuel Terminal Order also required the submittal of a PFAS site investigation work plan to the Regional Water Board.

On September 30, 2021, the Airport submitted the Addendum to the Regional Water Board. On October 18, 2021, the Regional Water Board approved the Addendum in a letter to the Airport and SJC Fuel (Regional Water Board, 2021c).

Facility Information and Setting

The Airport is located on an approximately 1,050-acre site in Santa Clara County, California, bounded to the north by Highway 101, to the south by Highway 880, to the northeast by the Guadalupe River, and to the west by Coleman Avenue. The fuel terminal is located north of the Airport across Highway 101 and south of the Guadalupe River. The fuel terminal consists of three large aboveground tanks for jet fuel storage, a fuel rack for dispensing jet fuel into tanker trucks, and an office building. The topography is essentially flat with surface water flowing into storm drains located west of the fuel rack. The eastern portion of the leasehold is undeveloped.

PFAS Investigation

The investigation focused on locations where Aqueous Film-Forming Foam (AFFF), a material that contains PFAS, was stored, used, and/or released. AFFF is stored in an aboveground 400-gallon bladder tank located on a covered concrete pad east of the jet fuel tanks. The bladder tank has a capacity of storing 55 gallons of AFFF concentrate. In the event of a fire, AFFF concentrate would be added to the fire water suppression system to form an AFFF solution that would be supplied to the jet fuel tanks and the discharge nozzles at the fuel rack by a buried non-pressurized pipeline. The foam solution would be aerated at the point of discharge to form a finished foam for fire suppression. On January 20, 2010, an inadvertent activation of the discharge nozzles resulted in a release of AFFF at the fuel rack. Based on this information, soil and/or grab groundwater sampling was planned at six locations. Three shallow borings were close to "T" joints in the buried AFFF pipeline; three deeper borings were within the area of the accidental foam release.

On February 1 and 2, 2022, a total of 15 soil samples and three grab groundwater samples were collected from the six locations. Samples were analyzed for PFAS by modified USEPA Method 537 compliant with DoD Quality Systems Manual (QSM) for Environmental Laboratories Version 5.1 (or later) Table B-15. Samples were analyzed for the 31 PFAS that were required in the Order.

Physical and Hydrologic Setting

The topography of the fuel terminal is essentially flat with surface water flowing into storm drains located west of the fuel rack. The eastern portion of the leasehold is undeveloped. The lithology encountered at the six soil boring locations was primarily fine-grained clay and silt with varying amounts of fine-grained sand to coarse gravel. In the three deeper borings, clay and silt extended to depths of 17 to 25 feet below ground surface (bgs) with silty to gravelly sands ranging in thickness from one to five feet to total depths of 25 to 35 feet. Groundwater was encountered during drilling at 17 feet to 20 feet bgs and stabilized at approximately 15 to 17 feet bgs in the temporary well casings. Records obtained from a United States Geological Survey gage installed in the Guadalupe River adjacent to the Airport for the period of 2008 to 2022 confirms the Guadalupe River is a gaining stream (i.e., the river gains water from inflow of groundwater).

Summary of Findings

Soil results for most PFAS are non-detect with the few detections of de minimis concentration. The maximum concentration was 12 ng/g for PFHxA in a sample collected at a depth one foot in the unpaved area north of the accidental foam release. Concentrations decreased in soil samples collected at 5 feet and 10 feet bgs.

Shallow groundwater is not a source of drinking water at or near the Airport. Consequently, PFAS detections are compared to the conservative *DRAFT Interim Final Environmental Screening Levels (ESLs) for PFOS and PFOA* developed by the Regional Water Board (2020). The Aquatic Habitat Ecotoxicity screening levels for PFOS (75 nanograms per liter (ng/L) and PFOA (4,400 ng/L) are the only relevant groundwater ESLs.

At the three temporary wells, PFOS and PFOA concentrations are significantly lower than the ecotoxicity ESLs with maximum concentrations of 7.8 ng/L and 35 ng/L, respectively.

1. INTRODUCTION

Woodard & Curran has prepared this SJC Fuel Terminal Per- and Polyfluoroalkyl Substances (PFAS) Investigation Report (Report) for the Norman Y. Mineta San José International Airport (SJC or the Airport) and SJC Fuel Company, LLC (SJC Fuel) to present the results of implementing the *Addendum to the PFAS Site Investigation Work Plan* (Addendum, Woodard & Curran, 2021b).

On May 27, 2021, the Airport submitted the *PFAS Site Investigation Work Plan* (Work Plan, Woodard & Curran, 2021a) to the San Francisco Bay Regional Water Quality Control Board (Regional Water Board). On June 18, 2021, the Regional Water Board approved the Work Plan via email subject to the condition that the Airport conduct soil and groundwater sampling at the Swissport Fueling, Inc. facility (bulk fuel terminal) located at 2500 Seaboard Avenue, San José, California (Regional Water Board, 2021a). The fuel terminal property is leased from the Airport by SJC Fuel and operated by Swissport Fueling, Inc. (Swissport) under contract to SJC Fuel. The fuel terminal was identified as Location 7b in the Work Plan.

On March 12, 2021, the State Water Board issued *Water Code Sections 13267 and 13383 Order WQ-2021-0006-DWQ Determination of the Presence of Per- and Polyfluoroalkyl Substances* (Order, State Water Board, 2021) to Swissport Fueling, Inc. Subsequently, at the request of SJC Fuel (Landreth Law Firm, 2021), the Regional Water Board approved a change of the respondent to the Order from Swissport to SJC Fuel. The Order also required the submittal of a PFAS site investigation work plan to the Regional Water Board.

On August 2, 2021, SJC Fuel, the Airport, and the Regional Water Board met virtually to discuss an approach to streamline compliance with the Order and the Regional Water Board's request to the Airport for a work plan to conduct soil and groundwater sampling at the fuel terminal. The Regional Water Board verbally approved the submittal of one document by the Airport, an addendum to the Airport's approved Work Plan (Regional Water Board, 2021b).

On September 30, 2021, the Airport submitted the Addendum to the Regional Water Board. On October 18, 2021, the Regional Water Board approved the Addendum in a letter to the Airport and SJC Fuel (Regional Water Board, 2021c).

As required by the Order, this Report has been submitted to the State Water Board's GeoTracker database in a searchable electronic format. The submittal includes a transmittal letter from the Airport, text, tables, figures, and appendices in Portable Document Format (PDF) format (one PDF for the entire report) as well as in electronic data deliverable (EDD) format. The Report, analytical laboratory reports, EDDs, monitoring well information (latitudes, longitudes, elevations, and water depth), site maps, and boring logs have been uploaded to GeoTracker via the Electronic Submittal of Information Portals, as stipulated by California Code of Regulations (Title 23, Section 3890, et. seq.).

2. SITE BACKGROUND

2.1 Location and General Characteristics

The Airport is located on an approximately 1,050-acre site in Santa Clara County, California, bounded to the north by Highway 101, to the south by Highway 880, to the northeast by the Guadalupe River, and to the west by Coleman Avenue. The fuel terminal is located north of the Airport across Highway 101 and south of the Guadalupe River (Location 7b, **Figure 1**). The fuel terminal consists of three large aboveground tanks for jet fuel storage, a fuel rack for dispensing jet fuel into tanker trucks, and an office building. The topography is essentially flat with surface water flowing into storm drains located west of the fuel rack. The eastern portion of the leasehold is undeveloped. Groundwater is assumed to flow north-northeast towards the Guadalupe River.

2.2 PFAS Investigation Locations

As described in the Addendum, the investigation focused on locations where Aqueous Film-Forming Foam (AFFF), a material that contains PFAS, was stored, used, and/or released. AFFF is stored in an aboveground 400-gallon bladder tank located on a covered concrete pad east of the jet fuel tanks. The bladder tank has a capacity of storing 55 gallons of AFFF concentrate. In the event of a fire, AFFF concentrate would be added to the fire water suppression system to form an AFFF solution that would be supplied to the jet fuel tanks and the discharge nozzles at the fuel rack by a buried non-pressurized pipeline. The foam solution would be aerated at the point of discharge to form a finished foam for fire suppression. On January 20, 2010, an inadvertent activation of the discharge nozzles resulted in a release of the AFFF/water mixture at the fuel rack. Based on this information, soil and/or grab groundwater sampling was planned at six locations numbered L7-1 to L7-6 (**Figure 2**).

2.3 Sensitive Receptors

The Order required the identification of sensitive receptors such as municipal supply wells, domestic wells, and surface water bodies within a one-mile radius of the locations where AFFF has been stored, used, or released. The Guadalupe River is the closest sensitive receptor to the fuel terminal, located within approximately 250-300 feet of the downgradient northeastern boundary. Therefore, the applicable criteria for assessing potential impacts of PFAS compounds in groundwater to this receptor are the Regional Water Board's *DRAFT Interim Final Environmental Screening Levels for PFOS and PFOA* (2020) for protection of freshwater aquatic habitat. Acronyms used in this Report for individual PFAS compounds are provided in **Table 1**.

3. SITE INVESTIGATION ACTIVITIES

This section provides a summary of soil and groundwater sampling conducted in accordance with the Addendum. Samples were collected on February 1 and 2, 2022.

3.1 Permitting, Access, Security, and Clearance

Woodard & Curran retained Bess Testlab, Inc. (Bess) of Hayward, California for utility clearance and coring services and coordinated with Swissport for site access to mark and clear drilling locations. Woodard & Curran also coordinated with Bess and the driller to notify Underground Services Alert North 811 at least 72 hours prior to commencement of intrusive work to clear the drilling locations for subsurface utilities.

3.2 Soil Sampling

At locations L7-1 to L7-3, adjacent to "T" joints in the buried AFFF pipeline, two discrete soil samples were collected from each boring at depths of 5 feet and 10 feet below ground surface (bgs). At locations L7-4 to L7-6, within and downgradient of the AFFF release, three discrete soil samples were collected from each boring at depth intervals of 1 foot, 5 feet and 10 feet bgs.

Woodard & Curran retained PeneCore Drilling Inc. of Woodland, California, a California-licensed water well driller (California C-57 License), for drilling and sampling services. A Woodard & Curran California-licensed Professional Geologist provided supervision of drilling and sampling activities.

Following the coring of surface pavement, soil borings were advanced with a GeoProbe® direct push rig to total boring depth. The 2 1/2-inch outer diameter core barrel was equipped with approximately 1 3/8-inch-diameter clear PVC liners for the collection of continuous core to total boring depth. Discrete soil samples were removed from the PVC liners with new, clean nitrile gloves and placed directly in 8-ounce High Density Polyethylene (HDPE) jars with an unlined HDPE cap provided by Eurofins Environment Testing Northern California (Eurofins) of Sacramento, California. Eurofins is certified through the National Environmental Laboratory Accreditation Program (NELAP) and California Environmental Laboratory Accreditation Program (CA ELAP).

Each soil sample was assigned a unique sample identification number in the format "Location Number – Soil Boring Number – Sample Depth." For example, sample identification number L7-1-1 was used for the soil sample collected at Location 7, soil boring 1, at a depth of one-foot bgs. Soil sample containers were labelled using an Ultra-Fine Point Sharpie® with the sample identification number, date and time of sample collection, initials of the sampler(s), and requested analyses. Samples were stored with regular (wet) ice in an ice chest and dropped off at a Eurofins service center in San Jose, California under standard chain-of-custody procedures.

The soil borings were backfilled with a neat cement slurry from total depth to the bottom of the aggregate base beneath the surface pavement. The remaining portion of the borings was backfilled to ground surface with high-strength, rapid-set concrete colored to match the existing surface pavement. The boring locations were surveyed for northings and eastings and latitude and longitude in North American Datum of 1983 (NAD 83) and elevation in North American Vertical Datum (NAVD 88 datum) by California-licensed land surveyor Calvada Surveying, Inc. (Calvada) of Corona, California.

Woodard & Curran described the soil lithology using the Unified Soil Classification System (ASTM D2488) and the Munsell soil color charts. Information recorded on the lithologic logs included soil classification, grain size distribution, color, density or consistency and moisture content (**Appendix A**).

3.3 Groundwater Sampling

Grab groundwater samples were collected at L7-4 to L7-6 from temporary monitoring wells constructed with 3/4-inch-diameter Schedule 40 PVC blank casing and five feet of 0.020-inch factory slotted well screen at depths ranging from 25 to 35 feet bgs. Temporary well construction details are summarized in **Table 2**.

The temporary groundwater monitoring wells were purged and sampled in accordance with the *Per- and Polyfluoroalkyl Substances (PFAS) Sampling Guidelines for Non-Drinking Water* (State Water Board, 2020) and the Addendum. A peristaltic pump was connected with HDPE tubing to an in-line flow cell which contained a multi-parameter instrument (YSI® ProDSS) to continuously measure field water quality parameters during purging. The HDPE tubing was set at the maximum intake depth of the peristaltic pump of 25 feet bgs. Field parameters measured using the multi-parameter instrument at approximately five-minute intervals included temperature, specific conductivity, pH, turbidity, oxidation-reduction potential, and dissolved oxygen. Initial and final depth to groundwater measurements were recorded with an electronic water-level interface probe (Solinst® Model 101) during purging.

Temporary groundwater monitoring wells were purged to reduce turbidity prior to sampling as specified in the Work Plan. Upon completion of purging, final field water quality parameter readings were recorded. After purging, the HDPE tubing was disconnected from the flow cell and discarded. New HDPE tubing was connected to the pump head tubing. Groundwater samples were collected from the new HDPE tubing directly into two 250-milliliter HPDE sample containers with unlined HDPE caps provided by Eurofins.

The grab groundwater samples were assigned a unique identification number using a similar format for soil samples. For example, sample identification number L7-4-GW was used for the groundwater sample collected from Location 7 at soil boring 4. Groundwater sample containers were labelled, stored in an ice chest, and dropped off at a Eurofins service center as noted for the soil samples.

Prior to removing the PVC well casing and screen from the temporary wells, the distance from the top of the casing to ground surface was measured. The soil borings were backfilled and patched and surveyed as described above.

3.4 Analytical Laboratory Testing

Soil and groundwater samples were analyzed for PFAS by Eurofins by modified USEPA Method 537 compliant with U.S. Department of Defense (DoD) Quality Systems Manual (QSM) for Environmental Laboratories Version 5.1 (or later) Table B-15 (USDoD, 2017). Samples were analyzed for the 31 PFAS compounds that were required in the Order (**Table 1**). Groundwater samples were also analyzed for the general chemistry parameters specified in the Order.

3.5 Field Quality Control

Field quality control measures were implemented to minimize the potential for cross-contamination during sampling. These measures were also implemented to verify whether any cross-contamination occurred during the mobilization of drilling and sampling equipment to the fuel terminal and during the transportation of samples from the fuel terminal to Eurofins.

3.5.1 Designated Work Areas

At each location, three areas were designated prior to the commencement of work, including:

- Sample area within the immediate vicinity of soil borings, an approximately 20-foot by 20-foot footprint around each soil boring;
- Staging area immediately beyond the sampling area; and
- Support area immediately beyond the staging area.

Only PFAS-free materials and decontaminated equipment was allowed in the sample area to the maximum extent practical taking into consideration health and safety requirements. The staging area was used for donning and removing personal protective equipment (PPE), applying sunscreen, and decontamination of drill rods and all non-dedicated downhole equipment. Vehicles and all PFAS-containing materials, including food and beverage packaging, remained in support areas during sampling activities.

3.5.2 Personal Protective Equipment and Field Supplies

PPE and field supplies allowed in the sampling area were consistent with the recommended materials listed in the *Per- and Polyfluoroalkyl (PFAS) Substances Sampling Guidelines* (State Water Board, 2020). PPE included:

- Well-laundered synthetic or 100% cotton clothing (with most recent launderings not using fabric softeners);
- PFAS-free sunscreen;
- Powderless nitrile gloves;
- Hard hat;
- Safety glasses;
- Reflective safety vest;
- Steel-toed boots; and
- Ear plugs.

PFAS-free field supplies included:

- Polypropylene resealable bags;
- Aluminum clipboards;
- Non-waterproofed paper;
- Laboratory-provided sample coolers and regular (wet) ice;
- Untreated paper towels;
- Ball point pens, pencils, and Ultra-Fine Point Sharpie® markers; and

- Stainless steel tools.

3.5.3 Decontamination

Soil and groundwater sampling equipment was thoroughly decontaminated between the collection of each sample. Each piece of sampling equipment was washed with Liquinox® and triple rinsed with laboratory-supplied PFAS-free water. Larger equipment (e.g., drill rods and core barrel) was scrubbed with a PVC brush to remove particulates, triple washed with Liquinox® detergent in three separate stainless-steel buckets, and triple rinsed with laboratory-supplied PFAS-free water.

3.5.4 Quality Assurance and Quality Control Samples

Consistent with the approved Addendum, quality assurance and quality control (QA/QC) samples were collected to evaluate data reliability pertaining to sample representativeness. The following QC samples were collected:

- **Field Duplicate** – One field duplicate for groundwater was collected for analysis of PFAS compounds.
- **Field Blanks** – One field blank for groundwater was collected each day of sampling for analysis of PFAS compounds. These samples were collected by pouring laboratory-supplied PFAS-free water into an empty sample container with the intention of exposing the sample to the same field environment as the actual samples.
- **Equipment Blank** – One equipment blank was collected for analysis of PFAS compounds. The sample was collected by pumping laboratory-provided PFAS-free deionized water through new HDPE tubing.

The QC samples were labeled with unique sample identification numbers on the chain-of-custody and remained with the sample containers during the collection and shipment of groundwater samples to Eurofins for analysis.

3.6 Investigation-derived Waste

Investigation-derived waste (IDW) generated included soil cuttings, purge water, and decontamination water. The solid and liquid IDWs were contained separately in US Department of Transportation-certified 55-gallon drums labeled with the date of generation and contents. The secured drums were placed in a location designated by Swissport and retained onsite pending the results of waste profiling. The drums were transported for proper disposal offsite. Other IDW generated during the work, including concrete cores, road base, PVC liners, PVC well casing and screen, HDPE tubing, disposable PPE, and trash was containerized and disposed of properly offsite.

4. GEOLOGY AND HYDROGEOLOGY

4.1 Regional Geology

The Airport is located in the Santa Clara Valley physiographic province, a structural trough filled in by continental and marine sediments associated with the south end of the San Francisco Bay, which is characterized by northwesterly trending valleys and mountains.

Based on review of the California Department of Conservation, Division of Mines and Geology, *Geologic Map of the San Francisco - San José Quadrangle* (1991), the Santa Clara Valley is bounded by three of the larger fault zones in the region; the San Andreas (approximately 13 miles west) and the Hayward and Calaveras (approximately 5 miles east).

According to the Santa Clara Valley Water District (Valley Water) document *Standards for the Construction and Destruction of Wells and Other Deep Excavations in Santa Clara County* (Valley Water, 1989), Santa Clara Valley is a down-dropped structural block, filled in by continental and marine sediments. Due to tectonic uplift to the south and west, and subsidence in the older valley sediments, deposits are frequently down warped, reworked, and subsequently covered with more recent deposits. The depositional environments and resulting sediments occurring at different times in the geologic record vary depending on the height of sea level relative to the valley block and the erosion rate of the surrounding mountain ranges.

The California Geological Survey, *Geologic Map of California*, dated 2010 (California Geological Survey, 2010), indicates the Airport is underlain with Quaternary-age alluvium, lake, playa, and terrace deposits; unconsolidated and semi-consolidated sediments; and mostly non-marine sediments.

According to the US Department of Agriculture, Natural Resources Conservation Service, Web Soil Survey (USDA, 2021) soils beneath the Airport are classified as Hagerone Complex soils in the central and northeastern portions of the Airport and Campbell Complex soils in the southwestern area of the Airport. Hagerone Complex soils consist primarily of poorly drained clay with moderate infiltration rates. Campbell Complex soils consist primarily of moderately well-drained silt loam and silty clay with moderate infiltration rates.

4.2 Local Hydrogeology

4.2.1 Subsurface Lithology

The lithology encountered at the six soil boring locations was primarily fine-grained clay and silt with varying amounts of fine-grained sand to coarse gravel. At two borings, L7-3 and L7-6, a well-graded gravel was encountered at approximately 6 to 7 feet bgs. In the three deeper borings, clay and silt extended to depths of 17 to 25 feet bgs with silty to gravelly sands ranging in thickness from one to five feet to total depths of 25 to 35 feet. Groundwater was encountered during drilling at 17 feet bgs in L7-5, coincident with a one-foot-thick gravelly sand. At L7-6, groundwater was encountered at 20 feet bgs during drilling in a three-foot silty sand. After drilling, depth to groundwater ranged from approximately 15 to 17 feet bgs.

4.2.2 Groundwater Elevations and Gradient

The temporary wells were monitored for water level stabilization prior to purging and sampling. As shown on **Table 2**, depth to water in temporary wells L7-4 and L7-6 were consistent at approximately 15.3 feet below top of casing. At these wells, the top of casing was within 0.02 inches of ground surface. The depth to water measurement of 18.53 feet in L7-5 is thought to reflect an unrecovered water level. After drilling, a measurement of 16.75 feet bgs was recorded. With the top of well casing essentially at ground surface, the static depth to water was expected to be 16.75 feet or higher. Groundwater elevations at temporary wells L7-4 and L7-6 are 20.4 to 20.6 feet msl, respectively.

Groundwater flow directions at regulated sites near the Airport are typically north-northeast towards the Guadalupe River.

5. SUMMARY OF FINDINGS

This section presents the analytical results from the investigation and an overview of the current understanding of the nature and extent of PFAS in site environmental media. Results for 31 PFAS compounds analyzed in soil and groundwater are summarized in **Table 3** and **Table 4**. Field groundwater quality parameters are presented in **Table 5**. Laboratory analytical reports are provided in **Appendix B**.

5.1 Data Usability Assessment

5.1.1 Field and Laboratory Quality Control Samples

Field QC sampling included the collection of a field duplicate, field blank, and equipment blank for analysis of PFAS compounds. A field duplicate was collected of L7-6-GW and labeled L7-60-GW. Eurofins followed its internal QA/QC standards which included method blanks, surrogate recoveries, blank spike/blank spike duplicates, and matrix spike/matrix spike duplicates (MS/MSD). QC samples were used to verify the precision of the methods applied and confirm the validity of the data as described below.

5.1.2 Data Validation

Data validation evaluated the precision and accuracy of the PFAS analytical results. The data validation procedures were generally consistent with those referenced in the *2017 National Functional Guidelines for Inorganic Methods Data Review* (USEPA, 2017a) and the *2017 National Functional Guidelines for Organic Methods Data Review* (USEPA, 2017b). Analytical data were validated for the following:

- Field blanks and an equipment blank were reviewed for detections above laboratory reporting limits;
- Methods blanks were reviewed for detections above the laboratory reporting limits. Surrogate recoveries were compared to laboratory control limits;
- Blank spike/blank spike duplicates had percent recoveries and relative percent differences calculated and compared to laboratory control limits; and
- MS/MSDs had percent recoveries and relative percent differences calculated and compared to laboratory control limits. Surrogate recoveries were compared to laboratory control limits.

The data validation did not identify any aspects of the analytical data that required qualification beyond the qualifications identified in the laboratory reports and shown on **Table 3** and **Table 4**.

5.2 PFAS Analytical Results and Evaluation

Soil results for most PFAS are non-detect with the few detections of de minimis concentration (**Table 3**). The maximum concentration was 12 ng/g for PFHxA in the sample collected at a depth one foot at boring L7-6. Concentrations decreased in samples collected at 5 feet and 10 feet bgs.

For evaluation of the groundwater analytical results, the Aquatic Habitat Ecotoxicity levels in the *DRAFT Interim Final Environmental Screening Levels for PFOS and PFOA (*Regional Water Board, 2020) are:

- PFOS = 75 nanograms per liter (ng/L) and
- PFOA = 4,400 ng/L.

At temporary wells L7-4 to L7-6, PFOS and PFOA concentrations are significantly lower than the ecotoxicity ESLs with maximum concentrations of 7.8 ng/L and 35 ng/L, respectively (**Table 4**).

6. CONCLUSIONS

This Report presents the results of PFAS investigation activities conducted at the fuel terminal in accordance with the approved Addendum (Woodard & Curran, 2021b). Fifteen soil samples and three grab groundwater samples were collected from six soil borings on February 1 and 2, 2022. Three borings were located adjacent to "T" joints in the unpressurized, buried AFFF pipeline. Soil samples were collected at depths of 5 and 10 feet bgs. The other three borings were located near the fuel rack where an inadvertent activation of the discharge nozzles in 2010 resulted in a release of AFFF and water. At these borings, soil samples were collected at depths of 1 foot, 5 feet, and 10 feet bgs. Groundwater samples were collected from a depth of 25 feet.

The subsurface lithology at the boring locations consisted primarily of fine-grained clay and silt with varying amounts of fine-grained sand to coarse gravel. Groundwater was encountered during drilling at 17 to 20 feet bgs and stabilized at roughly 15 to 17 feet bgs in the temporary wells prior to sampling.

Soil analytical results for most PFAS are non-detect with the few detections de minimis concentrations decreasing with depth. Groundwater analytical results were compared to the Draft Interim Final ESLs for PFOS and PFOA Aquatic Habitat Ecotoxicity. The results were significantly lower than the ESLs.

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TABLES

Table 1
PFAS Analytes for Analysis
SJC Fuel Company, LLC
2500 Seaboard Avenue, San Jose, California

Analyte Name	Acronym	CAS Number	Reporting Limit	Method Detection Limit	Units
Groundwater					
Perfluorobutanoic acid	PFBA	375-22-4	5.00	2.40	ng/L
Perfluoropentanoic acid	PFPeA	2706-90-3	2.00	0.490	ng/L
Perfluorohexanoic acid	PFHxA	307-24-4	2.00	0.580	ng/L
Perfluoroheptanoic acid	PFHpA	375-85-9	2.00	0.250	ng/L
Perfluorooctanoic acid	PFOA	335-67-1	2.00	0.850	ng/L
Perfluorononanoic acid	PFNA	375-95-1	2.00	0.270	ng/L
Perfluorodecanoic acid	PFDA	335-76-2	2.00	0.310	ng/L
Perfluoroundecanoic acid	PFUnDA	2058-94-8	2.00	1.10	ng/L
Perfluorododecanoic acid	PFDoDA	307-55-1	2.00	0.550	ng/L
Perfluorotridecanoic acid	PFTrDA	72629-94-8	2.00	1.30	ng/L
Perfluorotetradecanoic acid	PFTeDA	376-06-7	2.00	0.730	ng/L
Perfluorobutanesulfonic acid	PFBS	375-73-5	2.00	0.200	ng/L
Perfluoropentanesulfonic acid	PFPeS	2706-91-4	2.00	0.300	ng/L
Perfluorohexanesulfonic acid	PFHxS	355-46-4	2.00	0.570	ng/L
Perfluoroheptanesulfonic acid	PFHpS	375-92-8	2.00	0.190	ng/L
Perfluorooctanesulfonic acid	PFOS	1763-23-1	2.00	0.540	ng/L
Perfluorodecanesulfonic acid	PFDS	335-77-3	2.00	0.320	ng/L
Perfluorooctanesulfonamide	PFOSAm	754-91-6	2.00	0.980	ng/L
N-Ethyl perfluorooctane sulfonamide ethanol	EtFOSE	1691-99-2	2.00	0.850	ng/L
N-Methyl perfluorooctane sulfonamide ethanol	MeFOSE	24448-09-7	4.00	1.40	ng/L
N-Ethyl perfluorooctane sulfonamide	EtFOSA	4151-50-2	2.00	0.87	ng/L
N-Methyl perfluorooctane sulfonamide	MeFOSA	31506-32-8	2.00	0.430	ng/L
N-methylperfluorooctanesulfonamidoacetic acid	NMeFOSAA	2355-31-9	5.00	1.20	ng/L
N-ethylperfluorooctanesulfonamidoacetic acid	NEtFOSAA	2991-50-6	5.00	1.30	ng/L
4:2 Fluorotelomer sulfonic acid	4:2 FTS	757124-72-4	2.00	0.240	ng/L
6:2 Fluorotelomer sulfonic acid	6:2 FTS	27619-97-2	5.00	2.50	ng/L
8:2 Fluorotelomer sulfonic acid	8:2 FTS	39108-34-4	2.00	0.460	ng/L
Hexafluoropropylene Oxide Dimer Acid	HFPO-DA	13252-13-6	4.00	1.50	ng/L
4,8-Dioxa-3H-perfluorononanoic acid	ADONA	919005-14-4	2.00	0.40	ng/L
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	9-Cl-PF3ONS	756426-58-1	2.00	0.24	ng/L
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	11-ClPF3OUdS	763051-92-9	2.00	0.320	ng/L

Table 1
PFAS Analytes for Analysis
SJC Fuel Company, LLC
2500 Seaboard Avenue, San Jose, California

Analyte Name	Acronym	CAS Number	Reporting Limit	Method Detection Limit	Units
Soil					
Perfluorobutanoic acid	PFBA	375-22-4	0.200	0.0460	ng/g
Perfluoropentanoic acid	PFPeA	2706-90-3	0.200	0.0410	ng/g
Perfluorohexanoic acid	PFHxA	307-24-4	0.200	0.0310	ng/g
Perfluoroheptanoic acid	PFHpA	375-85-9	0.200	0.0380	ng/g
Perfluorooctanoic acid	PFOA	335-67-1	0.200	0.0530	ng/g
Perfluorononanoic acid	PFNA	375-95-1	0.200	0.0220	ng/g
Perfluorodecanoic acid	PFDA	335-76-2	0.200	0.0480	ng/g
Perfluoroundecanoic acid	PFUnDA	2058-94-8	0.200	0.0420	ng/g
Perfluorododecanoic acid	PFDoDA	307-55-1	0.200	0.0300	ng/g
Perfluorotridecanoic acid	PFTrDA	72629-94-8	0.200	0.0210	ng/g
Perfluorotetradecanoic acid	PFTeDA	376-06-7	0.200	0.0370	ng/g
Perfluorobutanesulfonic acid	PFBS	375-73-5	0.200	0.0380	ng/g
Perfluoropentanesulfonic acid	PFPeS	2706-91-4	0.200	0.0370	ng/g
Perfluorohexanesulfonic acid	PFHxS	355-46-4	0.200	0.0290	ng/g
Perfluoroheptanesulfonic acid	PFHpS	375-92-8	0.200	0.0490	ng/g
Perfluorooctanesulfonic acid	PFOS	1763-23-1	0.200	0.0430	ng/g
Perfluorodecanesulfonic acid	PFDS	335-77-3	0.200	0.0520	ng/g
Perfluorooctanesulfonamide	PFOSAm	754-91-6	0.200	0.0330	ng/g
N-Ethyl perfluorooctane sulfonamide ethanol	EtFOSE	1691-99-2	0.200	0.0280	ng/g
N-Methyl perfluorooctane sulfonamide ethanol	MeFOSE	24448-09-7	0.200	0.0470	ng/g
N-Ethyl perfluorooctane sulfonamide	EtFOSA	4151-50-2	0.200	0.0470	ng/g
N-Methyl perfluorooctane sulfonamide	MeFOSA	31506-32-8	0.200	0.0490	ng/g
N-methylperfluorooctanesulfonamidoacetic acid	NMeFOSAA	2355-31-9	0.200	0.0230	ng/g
N-ethylperfluorooctanesulfonamidoacetic acid	NEtFOSAA	2991-50-6	0.200	0.0480	ng/g
4:2 Fluorotelomer sulfonic acid	4:2 FTS	757124-72-4	0.200	0.0510	ng/g
6:2 Fluorotelomer sulfonic acid	6:2 FTS	27619-97-2	0.200	0.0270	ng/g
8:2 Fluorotelomer sulfonic acid	8:2 FTS	39108-34-4	0.200	0.0350	ng/g
Hexafluoropropylene Oxide Dimer Acid	HFPO-DA	13252-13-6	0.200	0.0410	ng/g
4,8-Dioxa-3H-perfluorononanoic acid	ADONA	919005-14-4	0.200	0.0390	ng/g
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	9-Cl-PF3ONS	756426-58-1	0.200	0.0350	ng/g
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	11-ClPF3OUdS	763051-92-9	0.200	0.0310	ng/g

Notes:
1) Reporting limits and method detection limits were obtained from Eurofins TestAmerica. All reporting limits are lower than those required in the Order.
2) Sample hold time is 14 days for PFAS constituents in soil and groundwater.

Abbreviations:
1) PFAS = Per- & Polyfluoroalkyl Substances
2) ng/g = nanograms per gram
3) ng/L = nanograms per liter

Table 2
Temporary Well Construction and Groundwater Elevations
SJC Fuel Company, LLC
2500 Seaboard Avenue, San Jose, California

Temporary Well	Well Diameter (in)	Boring Depth (ft)	Screen Depth (ft)	Depth to Water (ft TOC)	Ground Surface Elevation (ft msl)	Water Level Elevation (ft msl)
L7-4	0.75	35	30-35	15.32	35.91	20.58
L7-5	0.75	25	20-25	*18.53	35.90	17.37
L7-6	0.75	25	20-25	15.35	35.72	20.43

Notes

in - inches

ft - feet

DTW - depth to water

ft TOC - feet below top of casing

ft msl - feet above mean sea level

* - thought to be an unrecovered level

Table 3
Soil Analytical Results
SJC Fuel Company, LLC
2500 Seaboard Avenue, San Jose, California

				Soil Analytical Results (ng/g)																														
Location Number	Sample ID	Sample Date	Sample Depth (feet bgs)	Perfluorobutanoic acid (PFBA)	Perfluoropentanoic acid (PFPeA)	Perfluorohexanoic acid (PFHxA)	Perfluoroheptanoic acid (PFHpA)	Perfluorooctanoic acid (PFOA)	Perfluorononanoic acid (PFNA)	Perfluorodecanoic acid (PFDA)	Perfluoroundecanoic acid (PFUnA)	Perfluorododecanoic acid (PFDoA)	Perfluorotridecanoic acid (PFTrDA)	Perfluorotetradecanoic acid (PFTeA)	Perfluorobutanesulfonic acid (PFBS)	Perfluoropentanesulfonic acid (PFPeS)	Perfluorohexanesulfonic acid (PFHxS)	Perfluoroheptanesulfonic Acid (PFHpS)	Perfluorooctanesulfonic acid (PFOS)	Perfluorodecanesulfonic acid (PFDS)	Perfluorooctanesulfonamide (FOSA)	N-ethyl perfluorooctane sulfonamide ethanol (EtFOSE)	N-Methyl perfluorooctane sulfonamide ethanol (MeFOSE)	N-Ethyl perfluorooctane sulfonamide (EtFOSA)	N-Methyl perfluorooctane sulfonamide (MeFOSA)	N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	4:2 Flourotelomer sulfonic acid (4:2 FTS)	6:2 Flourotelomer sulfonic acid (6:2 FTS)	8:2 Flourotelomer sulfonic acid (8:2 FTS)	Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9-Cl-PF3ONS)	11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11-ClPF3OUdS)
7	L7-1-5	2/1/2022	5	0.11 J	0.14 J	**0.63**	0.075 J	**0.28**	< 0.22	< 0.22	< 0.22	< 0.22	< 0.22	< 0.22	**0.28**	0.13 J	**0.57**	< 0.22	**0.71**	< 0.22	< 0.22	< 0.22	< 0.22	< 0.22	< 0.22	< 0.22	< 0.22	< 0.22	< 0.22	< 0.22	< 0.22	< 0.22	< 0.22	< 0.22
	L7-1-10	2/1/2022	10	0.17 J	0.2 J	**0.43**	< 0.24	< 0.24	< 0.24	< 0.24	< 0.24	< 0.24	< 0.24	< 0.24	0.072 J	< 0.24	< 0.24	< 0.24	< 0.24	< 0.24	< 0.24	< 0.24	< 0.24	< 0.24	< 0.24	< 0.24	< 0.24	< 0.24	< 0.24	< 0.24	< 0.24	< 0.24	< 0.24	< 0.24
	L7-2-5	2/1/2022	5	0.19 J	**0.44**	**1.3**	0.074 J	0.21 J	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25	0.15 J	0.22 J	**1.8**	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25
	L7-2-10	2/1/2022	10	< 0.25	0.071 J	0.24 J	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25	0.11 J	0.11 J	0.21 J	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25
	L7-3-5	2/1/2022	5	0.18 J	**0.44**	0.084 J	< 0.22	< 0.22	< 0.22	< 0.22	< 0.22	< 0.22	< 0.22	< 0.22	< 0.22	< 0.22	< 0.22	< 0.22	< 0.22	< 0.22	< 0.22	< 0.22	< 0.22	< 0.22	< 0.22	< 0.22	< 0.22	< 0.22	< 0.22	< 0.22	< 0.22	< 0.22	< 0.22	< 0.22
	L7-3-10	2/1/2022	10	**0.65**	**2.6**	**0.92**	< 0.24	< 0.24	< 0.24	< 0.24	< 0.24	< 0.24	< 0.24	< 0.24	< 0.24	< 0.24	< 0.24	< 0.24	< 0.24	< 0.24	< 0.24	< 0.24	< 0.24	< 0.24	< 0.24	< 0.24	< 0.24	< 0.24	< 0.24	< 0.24	< 0.24	< 0.24	< 0.24	< 0.24
	L7-4-1	2/1/2022	1	**0.32**	**1.2**	**0.54**	**0.75**	**0.65**	0.14 J	0.076 J	< 0.22	< 0.22	< 0.22	< 0.22	< 0.22	< 0.22	0.032 J	< 0.22	0.21 J	< 0.22	< 0.22	< 0.22	< 0.22	< 0.22	< 0.22	< 0.22	< 0.22	< 0.22	**5.2**	< 2.2	< 0.22	< 0.22	< 0.22	< 0.22
	L7-4-5	2/1/2022	5	0.15 J	0.094 J	< 0.21	< 0.21	0.098 J	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21	0.14 J	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21	0.035 J	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21
	L7-4-10	2/1/2022	10	< 0.23	0.14 J	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23
	L7-5-1	2/1/2022	1	**0.35**	**2.1**	**1.0**	**0.30**	**0.70**	0.098 J	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21	**0.23**	< 0.21	**1.3**	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21	0.057 J I	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21
	L7-5-5	2/1/2022	5	0.066 J	**0.30**	**0.22**	0.15 J	**1.1**	0.051 J	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	**0.29**	< 0.2	**0.97**	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
	L7-5-10	2/1/2022	10	0.11 J	**0.77**	**0.66**	**0.27**	< 0.22	< 0.22	< 0.22	< 0.22	< 0.22	< 0.22	< 0.22	< 0.22	< 0.22	0.059 J	< 0.22	< 0.22	< 0.22	< 0.22	< 0.22	< 0.22	< 0.22	< 0.22	< 0.22	< 0.22	< 0.22	< 0.22	< 0.22	< 0.22	< 0.22	< 0.22	< 0.22
	L7-6-1	2/1/2022	1	**2.3**	**12**	**10**	**8.5**	**9.5**	**0.79**	0.11 J	< 0.22	< 0.22	< 0.22	< 0.22	< 0.22	< 0.22	0.18 J	< 0.22	**0.75**	< 0.22	< 0.22	< 0.22	< 0.22	< 0.22	< 0.22	< 0.22	< 0.22	< 0.22	**0.34**	**4.3**	< 0.22	< 0.22	< 0.22	< 0.22
	L7-6-5	2/1/2022	5	**1.3**	**5.4**	**4.0**	**3.3**	**2.4**	0.035 J	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	0.19 J	< 0.23	**0.37**	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	**0.41**	< 0.23	< 0.23	< 0.23	< 0.23
	L7-6-10	2/1/2022	10	**1.2**	**6.2**	**7.5**	**9.5**	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	0.063 J	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23

Notes
< : indicates analyte not detected above the laboratory reporting limit following the "<".
Bold indicates analytes detected above the laboratory reporting limit.

Analytical Qualifiers
J: The result is less than the reporting limit but greater than or equal to the minimum detection limit and the concentration is an approximate value.
I: Value is estimated maximum possible concentration.

Abbreviations:
feet bgs: feet below ground surface
ng/g: nanograms per gram

Table 4
Groundwater Analytical Results
SJC Fuel Company, LLC
2500 Seaboard Avenue, San Jose, California

PFAS Groundwater Analytical Results (ng/L)

Location Number	Sample ID	Sample Date	Sample Intake Depth (feet bgs)	Perfluorobutanoic acid (PFBA)	Perfluoropentanoic acid (PFPeA)	Perfluorohexanoic acid (PFHxA)	Perfluoroheptanoic acid (PFHpA)	Perfluorooctanoic acid (PFOA)	Perfluorononanoic acid (PFNA)	Perfluorodecanoic acid (PFDA)	Perfluoroundecanoic acid (PFUnA)	Perfluorododecanoic acid (PFDoA)	Perfluorotridecanoic acid (PFTrDA)	Perfluorotetradecanoic acid (PFTeA)	Perfluorobutanesulfonic acid (PFBS)	Perfluoropentanesulfonic acid (PFPeS)	Perfluorohexanesulfonic acid (PFHxS)	Perfluoroheptanesulfonic Acid (PFHpS)	Perfluorooctanesulfonic acid (PFOS)	Perfluorodecanesulfonic acid (PFDS)	Perfluorooctanesulfonamide (FOSA)	N-ethyl perfluorooctane sulfonamide ethanol (EtFOSE)	N-Methyl perfluorooctane sulfonamide ethanol (MeFOSE)	N-Ethyl perfluorooctane sulfonamide (EtFOSA)	N-Methyl perfluorooctane sulfonamide (MeFOSA)	N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	4:2 Flourotelomer sulfonic acid (4:2 FTS)	6:2 Flourotelomer sulfonic acid (6:2 FTS)	8:2 Flourotelomer sulfonic acid (8:2 FTS)	Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9-Cl-PF3ONS)	11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11-ClPF3OUdS)
7	L7-4-GW	2/2/2022	25	**29**	**5.6**	**5.5**	1.4 J	**14**	< 1.9	< 1.9	< 1.9	< 1.9	< 1.9	< 1.9	**25**	**22**	**93**	< 1.9	< 1.9	< 1.9	< 1.9	< 1.9	< 3.8	< 1.9	< 1.9	< 4.8	< 4.8	< 1.9	< 4.8	< 1.9	< 3.8	< 1.9	< 1.9	< 1.9
	L7-5-GW	2/2/2022	25	**63**	**220**	**99**	**30**	**35**	1.4 J	< 1.9	< 1.9	< 1.9	< 1.9	< 1.9	**9.5**	**3.8**	**27**	< 1.9	**6.3**	< 1.9	< 1.9	< 1.9	< 3.8	< 1.9	< 1.9	< 4.7	< 4.7	< 1.9	**66**	< 1.9	< 3.8	< 1.9	< 1.9	< 1.9
	L7-6D-GW	2/2/2022	25	**68**	**54**	**18**	**5.4**	**12**	**1.9**	< 1.9	< 1.9	< 1.9	< 1.9	< 1.9	**24**	**19**	**96**	< 1.9	**7.4 I**	< 1.9	< 1.9	< 1.9	< 3.8	< 1.9	< 1.9	< 4.7	< 4.7	< 1.9	**12**	**13**	< 3.8	< 1.9	< 1.9	< 1.9
	L7-6-GW	2/2/2022	25	**67**	**55**	**19**	**5.4**	**11**	**2.0**	< 1.9	< 1.9	< 1.9	< 1.9	< 1.9	**24**	**20**	**100**	< 1.9	**7.8 I**	< 1.9	< 1.9	< 1.9	< 3.9	< 1.9	< 1.9	< 4.9	< 4.9	< 1.9	**33**	**14**	< 3.9	< 1.9	< 1.9	< 1.9

General Chemistry Groundwater Analytical Results (mg/L)

Location Number	Sample ID	Sample Date	Sample Intake Depth (feet bgs)	Bicarbonate Alkalinity	Carbonate Alkalinity	Total Dissolved Solids	Chloride	Sulfate	Nitrate as N	Calcium	Magnesium	Potassium	Sodium
7	L7-4-GW	2/2/2022	25	**730**	< 5	**1,100**	**42**	**200**	< 1.3	**140**	**130**	**1.1**	**82**
	L7-5-GW	2/2/2022	25	**960**	< 5	N/A	**77**	**150**	< 1.3	N/A	N/A	N/A	N/A
	L7-6-GW	2/2/2022	25	**770**	< 5	**1,300**	**56**	**310**	**2.3**	**130**	**180**	0.39 J	**95**

Notes
< : indicates analyte not detected above the laboratory reporting limit following the "<".
N/A: sample volume insufficient for analysis, slow recovery to temporary well.
Bold indicates analytes detected above the laboratory reporting limit.

Abbreviations:
feet bgs: feet below ground surface
mg/L: milligrams per liter
ng/L: nanograms per liter

Analytical Qualifiers
J: The result is less than the reporting limit but greater than or equal to the minimum detection limit and the concentration is an approximate value.
I: Value is estimated maximum possible concentration.

Table 5
Field Groundwater Quality Parameters
SJC Fuel Company, LLC
2500 Seaboard Avenue, San Jose, California

Field Groundwater Quality Parameters											
Location Number	Sample ID	Sample Date	Sample Intake Depth (feet bgs)	Temperature (C)	pH	Specific Conductivity (µS/cm)	Oxidation-Reduction Potential (mV)	Dissolved Oxygen (mg/L)	Turbidity (NTU)	Total Volume Purged (L)	Static Depth to Water (feet bgs)
7	L7-4-GW	2/2/2022	25	20.1	7.31	1,571	-282	0.38	273	2.5	15.32
	L7-5-GW	2/2/2022	24	19.2	7.27	1,881	-101	2.35	290	1.5	18.53
	L7-6-GW	2/2/2022	24	20.3	7.02	1,802	-236	1.41	49	4.5	15.35

Notes

Purge rate for all temporary wells was approximately 200 milliliters per minute.

Abbreviations:

feet bgs: feet below ground surface
C : degrees Celsius
L: liter
µS/cm : microSiemens per centimeter
mg/L : milligram per liter
mV : millivolt
NTU: nephelometric turbidity unit

FIGURES

Figure 1. SJC Fuel Terminal Location

2500 Seaboard Avenue
San Jose, CA 95131

SJC Fuel Terminal PFAS Investigation Report

Legend

🟥 AFFF Storage, Use and Release Locations
〰 Guadalupe River
➡ Direction of Flow

7b AFFF Use and/or Release Location Number

Woodard & Curran

Project # 0234109.00
May 2022

Figure Exported: 9/23/2021 By: kalmestad Using: \\woodardcurran.net\shared\Projects\0232401.06 KHA San Jose Airport PFAS Inv Delineation\wip\GIS\Maps\Figure 1 Swissport Fueling Site Location.mxd

Figure 2. Site Plan

2500 Seaboard Avenue
San Jose, CA 95131

SJC Fuel Terminal PFAS Investigation Report

Legend

- 🟥 AFFF Storage Location
- ☐ Oil/Water Separator
- 🟨 Storm Drain (approximate)
- ▨ Extent AFFF Release (approximate)
- — Underground AFFF Pipeline
- - - Underground Storm Drain Pipeline (approximate)
- ● Soil Boring
- ⊗ Soil Boring and Temporary Groundwater Monitoring Well

0 65 130 260
Feet

N

Woodard & Curran
Project # 0234109.00
May 2022

Figure Exported: 6/10/2022 By: jlodermeier Using: \\woodardcurran.net\shared\Projects\0232401.07 KHA PFAS Investigation Phase II\wip\gis\Maps\Swissport Fueling Sample Locations v3.mxd

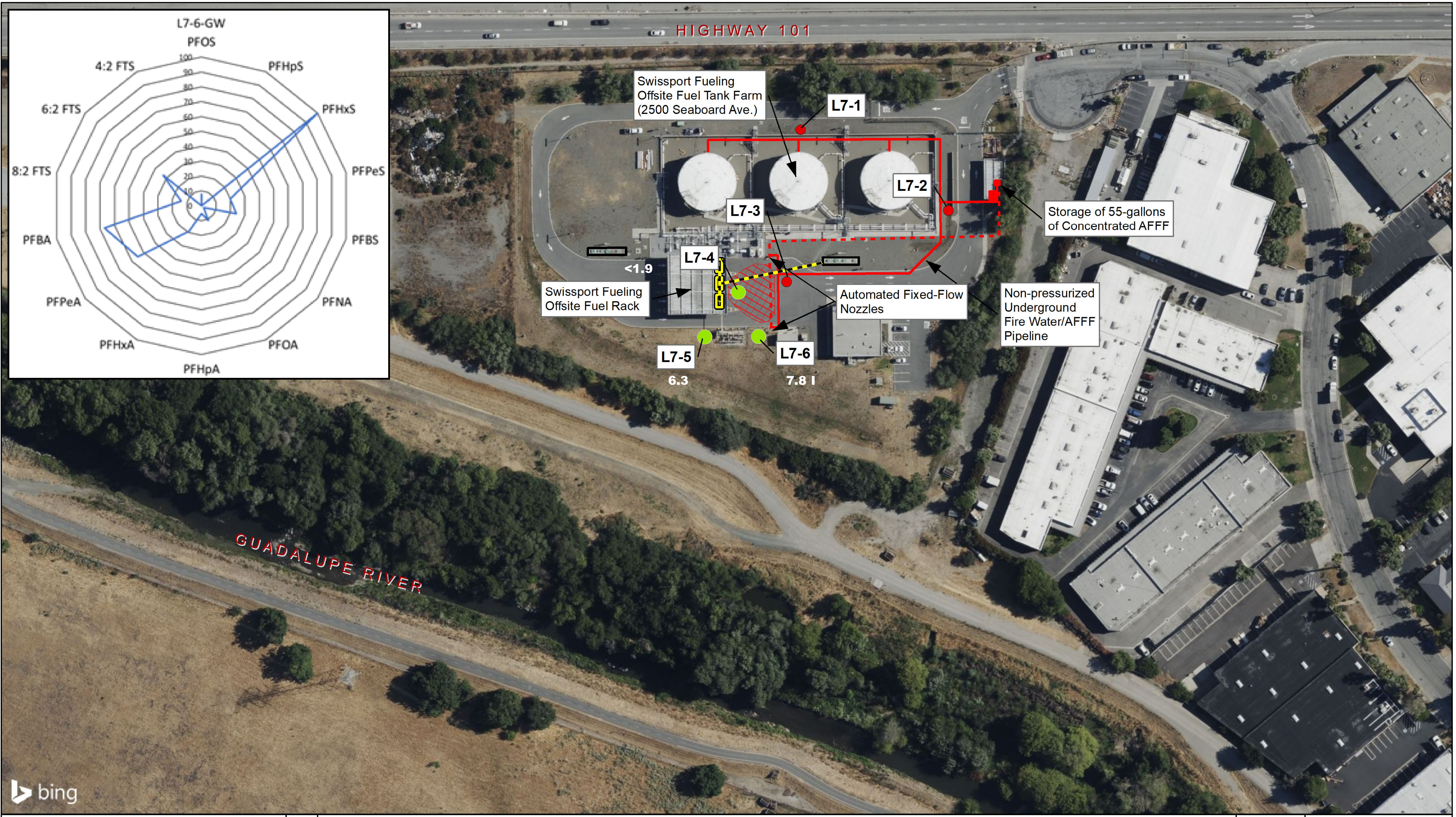

Figure 3. PFAS Distribution in Groundwater

2500 Seaboard Avenue
San Jose, CA 95131

SJC Fuel Terminal PFAS Investigation Report

Legend

- 🟥 AFFF Storage Location
- ☐ Oil/Water Separator
- ☐ Storm Drain (approximate)
- ▨ Extent AFFF Release (approximate)
- — Underground AFFF Pipeline
- - - Underground Storm Drain Pipeline (approximate)
- ● Soil Boring

Temporary Groundwater Well
PFOS Concentration

- ● > 75 ng/L
- ● 7.5 - 75 ng/L
- ● < 7.5 ng/L

Notes: ng/L = Nanograms per liter

0 65 130 260
Feet

N

Woodard & Curran
Project # 0234109.00
May 2022

Figure Exported: 6/10/2022 By: jlodermeier Using: \\woodardcurran.net\shared\Projects\0232401.07 KHA PFAS Investigation Phase II\wip\gis\Maps\May 2022\Figure 3 - Location 3 PFOS Concentrations.mxd

APPENDIX A: SOIL BORING LITHOLOGIC LOGS

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Walnut Creek, CA 94596

BORING NUMBER L7-1

PAGE 1 OF 1

CLIENT	SJC Fuel Company	**PROJECT NAME**	SJC Fuel Terminal PFAS Investigation
PROJECT NUMBER	0234109.00	**PROJECT LOCATION**	2500 Seaboard Avenue, San Jose, CA
DATE STARTED	2/1/22	**COMPLETED**	2/1/22
GROUND ELEVATION		**HOLE SIZE**	2.25"
DRILLING CONTRACTOR	Penecore Drilling	**GROUND WATER LEVELS:**	
DRILLING METHOD	Direct Push	**AT TIME OF DRILLING**	---
LOGGED BY	Kevin Almestad	**CHECKED BY**	Amber Ritchie
AFTER DRILLING	---	**NOTES**	

DEPTH (ft)	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0.0	CL	▨	(CL) SILTY CLAY, trace fine to coarse subangular gravel (< 2.5"), very dark grayish brown (10 YR 3/2), soft, low plasticity
2.5	ML	▥ 2.5	(ML) CLAYEY SILT with trace sand, trace fine to coarse subangular gravel (< 2.5"), very dark grayish brown (10 YR 3/2), soft, low plasticity
5.0	ML	▥ 5.0	(ML) SILT, trace fine sand and trace fine to coarse subangular gravel (< 2.5"), dry, dark brown (10 YR 3/3), soft
	ML	▥ 5.5	(ML) SILT, trace fine sand and trace fine to coarse subangular gravel (< 2.5"), trace clay, dry, dark brown (10 YR 3/3), soft
7.5	CL	▨ 6.5	(CL) CLAY, trace silt, very dark grayish brown (10 YR 3/2), moderately stiff, low plasticity
	CL	▨ 9.0	(CL) CLAY, trace silt, brown (10 YR 4/3), moderately stiff, low plasticity
10.0		10.0	

Bottom of borehole at 10.0 feet.

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BORING NUMBER L7-2

PAGE 1 OF 1

CLIENT SJC Fuel Company

PROJECT NAME SJC Fuel Terminal PFAS Investigation

PROJECT NUMBER 0234109.00

PROJECT LOCATION 2500 Seaboard Avenue, San Jose, CA

DATE STARTED 2/1/22 **COMPLETED** 2/1/22

GROUND ELEVATION **HOLE SIZE** 2.25"

DRILLING CONTRACTOR Penecore Drilling

GROUND WATER LEVELS:

DRILLING METHOD Direct Push

AT TIME OF DRILLING ---

LOGGED BY Kevin Almestad **CHECKED BY** Amber Ritchie

AFTER DRILLING ---

NOTES

DEPTH (ft)	U.S.C.S.	GRAPHIC LOG		MATERIAL DESCRIPTION
0.0	CL	▨		(CL) SILTY CLAY, trace fine to coarse angular to subangular gravel (< 2.5"), very dark grayish brown (10 YR 3/2), soft, low plasticity
	ML	▥	1.0	(ML) CLAYEY SILT, trace sand, trace fine to coarse angular to subangular gravel (< 2.5"), very dark grayish brown (10 YR 3/2), soft, very low plasticity
2.5				
	ML	▥	3.5	(ML) SILT, trace sand and trace fine to coarse angular to subangular gravel (< 2.5"), dry, dark brown (10 YR 3/3)
	ML	▥	4.0	(ML) SILT, trace sand and trace fine to coarse angular to subangular gravel (< 2.5"), trace clay, dry, dark brown (10 YR 3/3)
5.0	CL	▨	5.0	(CL) CLAY, trace silt, dry, very dark grayish brown (10 YR 3/2), moderately stiff, low plasticity
7.5	CL	▨	7.5	(CL) CLAY, dry, brown (10 YR 4/3), moderately stiff, medium plasticity
10.0			10.0	

Bottom of borehole at 10.0 feet.

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BORING NUMBER L7-3

PAGE 1 OF 1

CLIENT SJC Fuel Company		**PROJECT NAME** SJC Fuel Terminal PFAS Investigation	
PROJECT NUMBER 0234109.00		**PROJECT LOCATION** 2500 Seaboard Avenue, San Jose, CA	
DATE STARTED 2/1/22	**COMPLETED** 2/1/22	**GROUND ELEVATION**	**HOLE SIZE** 2.25"
DRILLING CONTRACTOR Penecore Drilling		**GROUND WATER LEVELS:**	
DRILLING METHOD Direct Push		**AT TIME OF DRILLING** ---	
LOGGED BY Kevin Almestad	**CHECKED BY** Amber Ritchie	**AFTER DRILLING** ---	
NOTES			

DEPTH (ft)	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0.0	SM		(SM) SILTY SAND with fine to coarse GRAVEL, fine to coarse sand, very dark grayish brown (10 YR 3/2), angular to subrounded
	SM	1.0	(SM) SILTY SAND with fine to coarse GRAVEL, fine to coarse sand, trace clay, very dark grayish brown (10 YR 3/2), angular to subrounded
	ML	2.0	(ML) CLAYEY SILT, trace gravel, dry, dark gray (10 YR 4/1), medium stiffness, non-plastic
2.5	CL	2.5	(CL) SILTY CLAY, dry, very dark gray (10 YR 3/1), medium stiffness, low plasticity
	ML	3.0	(ML) SILT with CLAY and fine to coarse SAND, dry, brown (10 YR 4/3)
5.0			
	GW	6.0	(GW) fine, medium, and coarse GRAVEL, brown (10 YR 4/3)
	ML	6.5	(ML) SILT, dry, moist @ 9', brown (10 YR 4/3), soft
7.5			
10.0		10.0	

Bottom of borehole at 10.0 feet.

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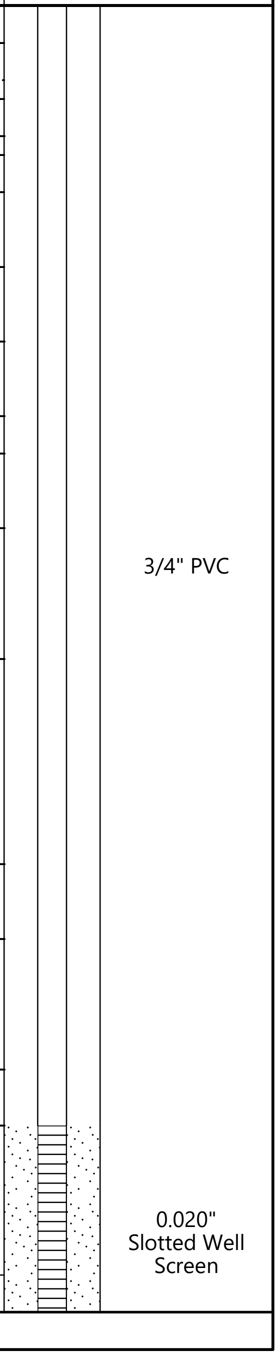
WELL NUMBER L7-4

PAGE 1 OF 1

CLIENT SJC Fuel Company
PROJECT NAME SJC Fuel Terminal PFAS Investigation
PROJECT NUMBER 0234109.00
PROJECT LOCATION 2500 Seaboard Avenue, San Jose, CA
DATE STARTED 2/1/22 **COMPLETED** 2/1/22
GROUND ELEVATION ______ **HOLE SIZE** 2.25"
DRILLING CONTRACTOR Penecore Drilling
GROUND WATER LEVELS:
DRILLING METHOD Direct Push
AT TIME OF DRILLING ---
LOGGED BY Kevin Almestad **CHECKED BY** Amber Ritchie
▽ **AFTER DRILLING** 15.32 ft
NOTES

DEPTH (ft)	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0 – 1.0	SM	1.0	(SM) SILTY SAND with fine to coarse GRAVEL, fine to coarse sand, very dark grayish brown (10 YR 3/2), angular to subrounded
1.0 – 2.0	ML	2.0	(ML) SILTY SAND with fine to coarse GRAVEL, fine to coarse sand, trace clay, very dark grayish brown (10 YR 3/2), angular to subrounded
2.0 – 2.5	CL	2.5	(CL) SILTY SAND with fine to coarse GRAVEL, fine to coarse sand, trace silty clay, very dark grayish brown (10 YR 3/2), angular to subrounded
2.5 – 3.5	ML	3.5	(ML) SILT, trace clay, trace fine to coarse gravel, dry, very dark grayish brown (10 YR 3/2), angular to subrounded
3.5 – 4.0	CL	4.0	(CL) SILTY CLAY, dry, very dark grayish brown (10 YR 3/2), soft, low plasticity
4.0 – 5.0	SP	5.0	(SP) very fine SAND, trace fine to coarse gravel, dry, yellowish brown (10 YR 5/6)
5.0 – 7.0	ML	7.0	(ML) SILT, trace clay, trace sand, trace gravel, dry, very dark grayish brown (10 YR 3/2), moderately stiff, non-plastic
7.0 – 9.0	ML	9.0	(ML) SILT, dry, dark brown (10 YR 3/3)
9.0 – 11.0	SP	11.0	(SP) very fine SAND, dry, dark brown (10 YR 3/3)
11.0 – 12.0	CL	12.0	(CL) CLAY, trace silt, dark yellowish brown (10 YR 3/4), medium stiffness, low plasticity
12.0 – 14.0	ML	14.0	(ML) CLAYEY SILT, trace very fine sand, dry, dark yellowish brown (10 YR 3/4), iron-oxide staining
14.0 – 17.5	CL	17.5	(CL) SILTY CLAY, moist, yellowish brown (10 YR 5/6), medium plasticity, iron-oxide staining ▽
17.5 – 23.0	ML	23.0	(ML) CLAYEY SILT, moist, yellowish brown (10 YR 5/6), non-plastic, iron-oxide staining
23.0 – 25.0	ML	25.0	(ML) SILT, trace clay, moist, yellowish brown (10 YR 5/6)
25.0 – 28.5	SM	28.5	(SM) SILTY SAND, fine sand, moist, yellowish brown (10 YR 5/6)
28.5 – 30.0	SP	30.0	(SP) very fine SAND, moist, yellowish brown (10 YR 5/6)
30.0 – 34.0	CL	34.0	(CL) SILTY CLAY, wet, yellowish brown (10 YR 5/6), low plasticity
34.0 – 35.0	SM	35.0	(SM) very fine SANDY SILT, wet, dark brown (10 YR 3/3), soft

WELL DIAGRAM



Bottom of borehole at 35.0 feet.

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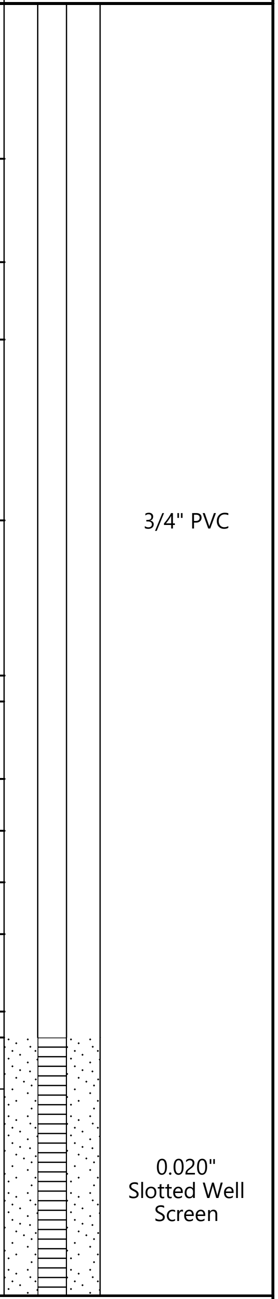
Walnut Creek, CA 94596

WELL NUMBER L7-5

CLIENT SJC Fuel Company
PROJECT NAME SJC Fuel Terminal PFAS Investigation
PROJECT NUMBER 0234109.00
PROJECT LOCATION 2500 Seaboard Avenue, San Jose, CA
DATE STARTED 2/1/22 **COMPLETED** 2/2/22
GROUND ELEVATION **HOLE SIZE** 2.25"
DRILLING CONTRACTOR Penecore Drilling
GROUND WATER LEVELS:
DRILLING METHOD Direct Push
▽ **AT TIME OF DRILLING** 17.00 ft
LOGGED BY Kevin Almestad **CHECKED BY** Amber Ritchie
▼ **AFTER DRILLING** 16.75 ft
NOTES

DEPTH (ft)	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0	SM	3.0	(SM) SILTY SAND, very fine to coarse sand with fine to cobble gravel, dark brown (10 YR 3/3), angular to round
	ML	5.0	(ML) SILT with fine to coarse gravel, trace clay, trace fine to coarse sand, dark brown (10 YR 3/3), angular to round
5	SP	6.5	(SP) fine SAND, dry, very pale brown (10 YR 7/3)
	ML	10.0	(ML) SILT, dry, brown (10 YR 4/3), stiff, non-plastic
10	CL	13.0	(CL) CLAY, dry, very dark grayish brown (10 YR 3/2), soft, medium plasticity
	ML	13.5	(ML) SILT, trace clay, moist, dark grayish brown (10 YR 4/2), soft
	CL	15.0	(CL) SILTY CLAY, trace fine to medium gravel, very dark grayish brown (10 YR 3/2), stiff, low plasticity
15	ML	16.0	(ML) SILT with some clay, trace fine to medium gravel, very dark grayish brown (10 YR 3/2), medium stiffness, non-plastic
	ML	17.0 ▽▼	(ML) SILT, trace fine to medium gravel, very dark grayish brown (10 YR 3/2), medium stiffness, non-plastic
	SW	18.0	(SW) GRAVELLY SAND, fine to coarse sand, fine to medium gravel (< 0.5"), wet, very dark grayish brown (10 YR 3/2)
	ML	19.5	(ML) CLAYEY SILT, wet, very dark grayish brown (10 YR 3/2), soft, non-plastic
	CL	20.0	(CL) SILTY CLAY, wet, very dark grayish brown (10 YR 3/2), low plasticity
20	SW	21.0	(SW) GRAVELLY SAND, fine to coarse sand, fine to medium gravel (< 0.5"), wet, very dark grayish brown (10 YR 3/2)
25	CL	25.0	(CL) SILTY CLAY, trace gravel (21-23'), wet, very dark grayish brown (10 YR 3/2), low plasticity

WELL DIAGRAM



Bottom of borehole at 25.0 feet.

Woodard & Curran
2175 North California Blvd, Suite 315
Walnut Creek, CA 94596

WELL NUMBER L7-6

PAGE 1 OF 1

CLIENT SJC Fuel Company

PROJECT NAME SJC Fuel Terminal PFAS Investigation

PROJECT NUMBER 0234109.00

PROJECT LOCATION 2500 Seaboard Avenue, San Jose, CA

DATE STARTED 2/1/22 **COMPLETED** 2/1/22

GROUND ELEVATION **HOLE SIZE** 2.25"

DRILLING CONTRACTOR Penecore Drilling

GROUND WATER LEVELS:

DRILLING METHOD Direct Push

▽ **AT TIME OF DRILLING** 20.00 ft

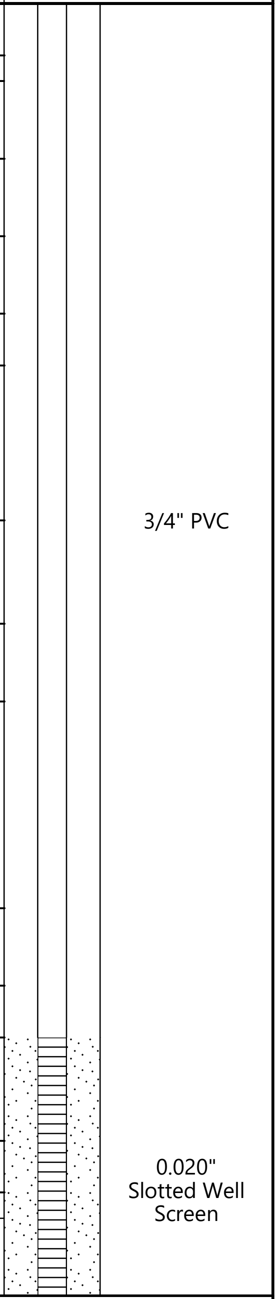
LOGGED BY Kevin Almestad **CHECKED BY** Amber Ritchie

▼ **AFTER DRILLING** 15.32 ft

NOTES

DEPTH (ft)	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0	SM	1.0	(SM) SILTY SAND with fine to coarse gravel, very fine to coarse sand, dark brown (10 YR 3/3), angular to subrounded
	ML	1.5	(ML) CLAYEY SILT with fine to coarse gravel, dry, very dark gray (10 YR 3/1), soft, very low plasticity
	ML	3.0	(ML) SILT with fine to coarse gravel, trace fine sand, dark brown (10 YR 3/3)
	ML	4.5	(ML) SILT, trace medium to coarse gravel, brown (10 YR 4/3)
5	ML	6.0	(ML) SILT, trace medium to coarse gravel, trace clay, brown (10 YR 4/3)
	GW	7.0	(GW) fine, medium, and coarse GRAVEL, brown (10 YR 4/3), angular
10	ML	10.0	(ML) SILT, brown (10 YR 4/3), medium stiffness, dense, non-plastic
	CL	12.0	(CL) CLAY, some silt, dry, brown (10 YR 4/3), stiff, low plasticity
	ML	13.5	(ML) CLAYEY SILT, dry, brown (10 YR 5/3), stiff, non-plastic
15	ML	17.5	(ML) CLAYEY SILT, dry, yellowish brown (10 YR 5/4), stiff, low plasticity ▼
	ML	19.0	(ML) SILT, trace clay, moist, yellowish brown (10 YR 5/4), moderately stiff
20	ML	20.0 ▽	(ML) SILT with clay, moist, yellowish brown (10 YR 5/4), moderately stiff
	SM	22.0	(SM) SILTY SAND, wet, yellowish brown (10 YR 5/4)
	ML	23.0	(ML) SILT, wet, yellowish brown (10 YR 5/4), soft
	ML	23.5	(ML) CLAYEY SILT, moist, yellowish brown (10 YR 5/4), soft, very low plasticity
25	CL	25.0	(CL) SILTY CLAY, moist, yellowish brown (10 YR 5/4), soft, low to medium plasticity, iron-oxide staining

WELL DIAGRAM



Bottom of borehole at 25.0 feet.

APPENDIX B: ANALYTICAL LABORATORY REPORTS

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eurofins | Environment Testing America

ANALYTICAL REPORT

Eurofins Sacramento
880 Riverside Parkway
West Sacramento, CA 95605
Tel: (916)373-5600

Laboratory Job ID: 320-84393-1
Client Project/Site: PFAS, San Jose Fuel

For:
Woodard & Curran, Inc.
2175 North California Blvd.
Suite 315
Walnut Creek, California 94596

Attn: Jim Strandberg

Linda C. Laver

Authorized for release by:
2/23/2022 4:22:02 PM

Linda C. Laver, Senior Project Manager
(916)374-4362
Linda.Laver@Eurofinset.com

The test results in this report meet all 2003 NELAC, 2009 TNI, and 2016 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

Table of Contents

Definitions/Glossary

Client: Woodard & Curran, Inc.
Project/Site: PFAS, San Jose Fuel

Job ID: 320-84393-1

Qualifiers

LCMS

Qualifier	Qualifier Description
*5-	Isotope dilution analyte is outside acceptance limits, low biased.
I	Value is EMPC (estimated maximum possible concentration).
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Case Narrative

Job ID: 320-84393-1

Laboratory: Eurofins Sacramento

Narrative

Job Narrative
320-84393-1

Receipt
The samples were received on 2/1/2022 4:12 PM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 2.5º C.

LCMS
Method EPA 537(Mod): Isotope Dilution Analyte (IDA) recovery is below the method recommended limit the following sample. Generally, data quality is not considered affected if the IDA signal-to-noise ratio is greater than 10:1, which is achieved for all IDA in the sample. L7-4-1 (320-84393-8)

Method EPA 537(Mod): Some results were reported from the analysis of a diluted extract due to matrix interference of the target analyte in the analysis of the undiluted extract in the following sample. The dilution factor was applied to the labeled internal standard area counts and these area counts were within acceptance limits. L7-4-1 (320-84393-8)

Method EPA 537(Mod): The "I" qualifier means the transition mass ratio for the indicated analyte was above the established ratio limits. The qualitative identification of the analyte has some degree of uncertainty, and the reported value may have some high bias. However, analyst judgment was used to positively identify the analyte. L7-5-1 (320-84393-10)

Method EPA 537(Mod): The low level continuing calibration verification (CCVL) associated with analytical batch 320-564681 recovered above the upper control limit for HFPO-DA (GenX). The samples associated with this CCV were non-detect for the affected analyte; therefore, the data have been reported. (CCVL 320-564681/2)

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

General Chemistry
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Organic Prep
Method 3535: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 320-563274.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Detection Summary

Client: Woodard & Curran, Inc.
Project/Site: PFAS, San Jose Fuel

Job ID: 320-84393-1

Client Sample ID: L7-1-5

Lab Sample ID: 320-84393-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	0.11	J	0.22	0.051	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluoropentanoic acid (PFPeA)	0.14	J	0.22	0.045	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluorohexanoic acid (PFHxA)	0.63		0.22	0.034	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluoroheptanoic acid (PFHpA)	0.075	J	0.22	0.042	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluorooctanoic acid (PFOA)	0.28		0.22	0.059	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	0.28		0.22	0.042	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluoropentanesulfonic acid (PFPeS)	0.13	J	0.22	0.041	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	0.57		0.22	0.032	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	0.71		0.22	0.048	ug/Kg	1	☼	EPA 537(Mod)	Total/NA

Client Sample ID: L7-1-10

Lab Sample ID: 320-84393-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	0.17	J	0.24	0.055	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluoropentanoic acid (PFPeA)	0.20	J	0.24	0.049	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluorohexanoic acid (PFHxA)	0.43		0.24	0.037	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	0.072	J	0.24	0.045	ug/Kg	1	☼	EPA 537(Mod)	Total/NA

Client Sample ID: FB-1-020122

Lab Sample ID: 320-84393-3

No Detections.

Client Sample ID: L7-2-5

Lab Sample ID: 320-84393-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	0.19	J	0.25	0.057	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluoropentanoic acid (PFPeA)	0.44		0.25	0.051	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluorohexanoic acid (PFHxA)	1.3		0.25	0.038	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluoroheptanoic acid (PFHpA)	0.074	J	0.25	0.047	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluorooctanoic acid (PFOA)	0.21	J	0.25	0.066	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	0.15	J	0.25	0.047	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluoropentanesulfonic acid (PFPeS)	0.22	J	0.25	0.046	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	1.8		0.25	0.036	ug/Kg	1	☼	EPA 537(Mod)	Total/NA

Client Sample ID: L7-2-10

Lab Sample ID: 320-84393-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluoropentanoic acid (PFPeA)	0.071	J	0.25	0.050	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluorohexanoic acid (PFHxA)	0.24	J	0.25	0.038	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	0.11	J	0.25	0.047	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluoropentanesulfonic acid (PFPeS)	0.11	J	0.25	0.046	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	0.21	J	0.25	0.036	ug/Kg	1	☼	EPA 537(Mod)	Total/NA

Client Sample ID: L7-3-5

Lab Sample ID: 320-84393-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	0.18	J	0.22	0.051	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluoropentanoic acid (PFPeA)	0.44		0.22	0.045	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluorohexanoic acid (PFHxA)	0.084	J	0.22	0.034	ug/Kg	1	☼	EPA 537(Mod)	Total/NA

This Detection Summary does not include radiochemical test results.

Detection Summary

Client: Woodard & Curran, Inc.
Project/Site: PFAS, San Jose Fuel

Job ID: 320-84393-1

Client Sample ID: L7-3-10

Lab Sample ID: 320-84393-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	0.65		0.24	0.055	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluoropentanoic acid (PFPeA)	2.6		0.24	0.049	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluorohexanoic acid (PFHxA)	0.92		0.24	0.037	ug/Kg	1	☼	EPA 537(Mod)	Total/NA

Client Sample ID: L7-4-1

Lab Sample ID: 320-84393-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	0.32		0.22	0.050	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluoropentanoic acid (PFPeA)	1.2		0.22	0.045	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluorohexanoic acid (PFHxA)	0.54		0.22	0.034	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluoroheptanoic acid (PFHpA)	0.75		0.22	0.041	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluorooctanoic acid (PFOA)	0.65		0.22	0.058	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluorononanoic acid (PFNA)	0.14	J	0.22	0.024	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluorodecanoic acid (PFDA)	0.076	J	0.22	0.052	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	0.032	J	0.22	0.032	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	0.21	J	0.22	0.047	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
6:2 FTS	5.2		0.22	0.029	ug/Kg	1	☼	EPA 537(Mod)	Total/NA

Client Sample ID: L7-4-5

Lab Sample ID: 320-84393-9

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	0.15	J	0.21	0.048	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluoropentanoic acid (PFPeA)	0.094	J	0.21	0.043	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluorooctanoic acid (PFOA)	0.098	J	0.21	0.056	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	0.14	J	0.21	0.045	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
6:2 FTS	0.035	J	0.21	0.028	ug/Kg	1	☼	EPA 537(Mod)	Total/NA

Client Sample ID: L7-5-1

Lab Sample ID: 320-84393-10

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	0.35		0.21	0.049	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluoropentanoic acid (PFPeA)	2.1		0.21	0.044	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluorohexanoic acid (PFHxA)	1.0		0.21	0.033	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluoroheptanoic acid (PFHpA)	0.30		0.21	0.041	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluorooctanoic acid (PFOA)	0.70		0.21	0.056	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluorononanoic acid (PFNA)	0.098	J	0.21	0.023	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	0.23		0.21	0.031	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	1.3		0.21	0.046	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
6:2 FTS	0.057	J I	0.21	0.029	ug/Kg	1	☼	EPA 537(Mod)	Total/NA

Client Sample ID: L7-5-5

Lab Sample ID: 320-84393-11

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	0.066	J	0.20	0.047	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluoropentanoic acid (PFPeA)	0.30		0.20	0.042	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluorohexanoic acid (PFHxA)	0.22		0.20	0.032	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluoroheptanoic acid (PFHpA)	0.15	J	0.20	0.039	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluorooctanoic acid (PFOA)	1.1		0.20	0.054	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluorononanoic acid (PFNA)	0.051	J	0.20	0.023	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	0.29		0.20	0.030	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	0.97		0.20	0.044	ug/Kg	1	☼	EPA 537(Mod)	Total/NA

This Detection Summary does not include radiochemical test results.

Detection Summary

Client Sample ID: L7-5-10 — Lab Sample ID: 320-84393-12

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	0.11	J	0.22	0.050	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluoropentanoic acid (PFPeA)	0.77		0.22	0.045	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluorohexanoic acid (PFHxA)	0.66		0.22	0.034	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluoroheptanoic acid (PFHpA)	0.27		0.22	0.042	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	0.059	J	0.22	0.032	ug/Kg	1	☼	EPA 537(Mod)	Total/NA

Client Sample ID: L7-6-1 — Lab Sample ID: 320-84393-13

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	2.3		0.22	0.051	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluoropentanoic acid (PFPeA)	12		0.22	0.046	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluorohexanoic acid (PFHxA)	10		0.22	0.034	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluoroheptanoic acid (PFHpA)	8.5		0.22	0.042	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluorooctanoic acid (PFOA)	9.5		0.22	0.059	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluorononanoic acid (PFNA)	0.79		0.22	0.024	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluorodecanoic acid (PFDA)	0.11	J	0.22	0.053	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	0.18	J	0.22	0.032	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	0.75		0.22	0.048	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
6:2 FTS	0.34		0.22	0.030	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
8:2 FTS	4.3		0.22	0.039	ug/Kg	1	☼	EPA 537(Mod)	Total/NA

Client Sample ID: L7-6-5 — Lab Sample ID: 320-84393-14

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	1.3		0.23	0.052	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluoropentanoic acid (PFPeA)	5.4		0.23	0.046	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluorohexanoic acid (PFHxA)	4.0		0.23	0.035	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluoroheptanoic acid (PFHpA)	3.3		0.23	0.043	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluorooctanoic acid (PFOA)	2.4		0.23	0.060	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluorononanoic acid (PFNA)	0.035	J	0.23	0.025	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	0.19	J	0.23	0.033	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	0.37		0.23	0.049	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
8:2 FTS	0.41		0.23	0.040	ug/Kg	1	☼	EPA 537(Mod)	Total/NA

Client Sample ID: L7-6-10 — Lab Sample ID: 320-84393-15

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	1.2		0.23	0.054	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluoropentanoic acid (PFPeA)	6.2		0.23	0.048	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluorohexanoic acid (PFHxA)	7.5		0.23	0.036	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluoroheptanoic acid (PFHpA)	9.5		0.23	0.044	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	0.063	J	0.23	0.034	ug/Kg	1	☼	EPA 537(Mod)	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample Results

Client: Woodard & Curran, Inc.
Project/Site: PFAS, San Jose Fuel

Job ID: 320-84393-1

Client Sample ID: L7-1-5

Date Collected: 02/01/22 09:30
Date Received: 02/01/22 16:12

Lab Sample ID: 320-84393-1

Matrix: Solid
Percent Solids: 84.3

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**0.11**	**J**	0.22	0.051	ug/Kg	☼	02/06/22 18:59	02/09/22 12:24	1
Perfluoropentanoic acid (PFPeA)	**0.14**	**J**	0.22	0.045	ug/Kg	☼	02/06/22 18:59	02/09/22 12:24	1
Perfluorohexanoic acid (PFHxA)	**0.63**		0.22	0.034	ug/Kg	☼	02/06/22 18:59	02/09/22 12:24	1
Perfluoroheptanoic acid (PFHpA)	**0.075**	**J**	0.22	0.042	ug/Kg	☼	02/06/22 18:59	02/09/22 12:24	1
Perfluorooctanoic acid (PFOA)	**0.28**		0.22	0.059	ug/Kg	☼	02/06/22 18:59	02/09/22 12:24	1
Perfluorononanoic acid (PFNA)	ND		0.22	0.024	ug/Kg	☼	02/06/22 18:59	02/09/22 12:24	1
Perfluorodecanoic acid (PFDA)	ND		0.22	0.053	ug/Kg	☼	02/06/22 18:59	02/09/22 12:24	1
Perfluoroundecanoic acid (PFUnA)	ND		0.22	0.046	ug/Kg	☼	02/06/22 18:59	02/09/22 12:24	1
Perfluorododecanoic acid (PFDoA)	ND		0.22	0.033	ug/Kg	☼	02/06/22 18:59	02/09/22 12:24	1
Perfluorotridecanoic acid (PFTrDA)	ND		0.22	0.023	ug/Kg	☼	02/06/22 18:59	02/09/22 12:24	1
Perfluorotetradecanoic acid (PFTeA)	ND		0.22	0.041	ug/Kg	☼	02/06/22 18:59	02/09/22 12:24	1
Perfluorobutanesulfonic acid (PFBS)	**0.28**		0.22	0.042	ug/Kg	☼	02/06/22 18:59	02/09/22 12:24	1
Perfluoropentanesulfonic acid (PFPeS)	**0.13**	**J**	0.22	0.041	ug/Kg	☼	02/06/22 18:59	02/09/22 12:24	1
Perfluorohexanesulfonic acid (PFHxS)	**0.57**		0.22	0.032	ug/Kg	☼	02/06/22 18:59	02/09/22 12:24	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		0.22	0.054	ug/Kg	☼	02/06/22 18:59	02/09/22 12:24	1
Perfluorooctanesulfonic acid (PFOS)	**0.71**		0.22	0.048	ug/Kg	☼	02/06/22 18:59	02/09/22 12:24	1
Perfluorodecanesulfonic acid (PFDS)	ND		0.22	0.058	ug/Kg	☼	02/06/22 18:59	02/09/22 12:24	1
Perfluorooctanesulfonamide (FOSA)	ND		0.22	0.037	ug/Kg	☼	02/06/22 18:59	02/09/22 12:24	1
NEtFOSA	ND		0.22	0.052	ug/Kg	☼	02/06/22 18:59	02/09/22 12:24	1
NEtFOSAA	ND		0.22	0.053	ug/Kg	☼	02/06/22 18:59	02/09/22 12:24	1
NEtFOSE	ND		0.22	0.031	ug/Kg	☼	02/06/22 18:59	02/09/22 12:24	1
NMeFOSA	ND		0.22	0.054	ug/Kg	☼	02/06/22 18:59	02/09/22 12:24	1
NMeFOSAA	ND		0.22	0.025	ug/Kg	☼	02/06/22 18:59	02/09/22 12:24	1
NMeFOSE	ND		0.22	0.052	ug/Kg	☼	02/06/22 18:59	02/09/22 12:24	1
4:2 FTS	ND		0.22	0.056	ug/Kg	☼	02/06/22 18:59	02/09/22 12:24	1
6:2 FTS	ND		0.22	0.030	ug/Kg	☼	02/06/22 18:59	02/09/22 12:24	1
8:2 FTS	ND		0.22	0.039	ug/Kg	☼	02/06/22 18:59	02/09/22 12:24	1
11Cl-PF3OUdS	ND		0.22	0.034	ug/Kg	☼	02/06/22 18:59	02/09/22 12:24	1
9Cl-PF3ONS	ND		0.22	0.039	ug/Kg	☼	02/06/22 18:59	02/09/22 12:24	1
HFPO-DA (GenX)	ND		0.22	0.045	ug/Kg	☼	02/06/22 18:59	02/09/22 12:24	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		0.22	0.043	ug/Kg	☼	02/06/22 18:59	02/09/22 12:24	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*65*		*50 - 150*	*02/06/22 18:59*	*02/09/22 12:24*	*1*
13C5 PFPeA	*86*		*50 - 150*	*02/06/22 18:59*	*02/09/22 12:24*	*1*
13C2 PFHxA	*99*		*50 - 150*	*02/06/22 18:59*	*02/09/22 12:24*	*1*
13C4 PFHpA	*91*		*50 - 150*	*02/06/22 18:59*	*02/09/22 12:24*	*1*
13C4 PFOA	*96*		*50 - 150*	*02/06/22 18:59*	*02/09/22 12:24*	*1*
13C5 PFNA	*96*		*50 - 150*	*02/06/22 18:59*	*02/09/22 12:24*	*1*
13C2 PFDA	*97*		*50 - 150*	*02/06/22 18:59*	*02/09/22 12:24*	*1*
13C2 PFUnA	*115*		*50 - 150*	*02/06/22 18:59*	*02/09/22 12:24*	*1*
13C2 PFDoA	*106*		*50 - 150*	*02/06/22 18:59*	*02/09/22 12:24*	*1*
13C2 PFTeDA	*103*		*50 - 150*	*02/06/22 18:59*	*02/09/22 12:24*	*1*
13C3 PFBS	*91*		*50 - 150*	*02/06/22 18:59*	*02/09/22 12:24*	*1*
18O2 PFHxS	*85*		*50 - 150*	*02/06/22 18:59*	*02/09/22 12:24*	*1*
13C4 PFOS	*91*		*50 - 150*	*02/06/22 18:59*	*02/09/22 12:24*	*1*

Client Sample Results

Client Sample ID: L7-1-5

Lab Sample ID: 320-84393-1

Date Collected: 02/01/22 09:30
Matrix: Solid
Date Received: 02/01/22 16:12
Percent Solids: 84.3

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15 (Continued)

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C8 FOSA	*88*		*50 - 150*	*02/06/22 18:59*	*02/09/22 12:24*	*1*
M2-4:2 FTS	*100*		*50 - 150*	*02/06/22 18:59*	*02/09/22 12:24*	*1*
M2-6:2 FTS	*97*		*50 - 150*	*02/06/22 18:59*	*02/09/22 12:24*	*1*
M2-8:2 FTS	*125*		*50 - 150*	*02/06/22 18:59*	*02/09/22 12:24*	*1*
d5-NEtFOSAA	*125*		*50 - 150*	*02/06/22 18:59*	*02/09/22 12:24*	*1*
d3-NMeFOSAA	*100*		*50 - 150*	*02/06/22 18:59*	*02/09/22 12:24*	*1*
d-N-EtFOSA-M	*88*		*50 - 150*	*02/06/22 18:59*	*02/09/22 12:24*	*1*
d9-N-EtFOSE-M	*93*		*50 - 150*	*02/06/22 18:59*	*02/09/22 12:24*	*1*
d7-N-MeFOSE-M	*98*		*50 - 150*	*02/06/22 18:59*	*02/09/22 12:24*	*1*
d-N-MeFOSA-M	*91*		*50 - 150*	*02/06/22 18:59*	*02/09/22 12:24*	*1*
13C3 HFPO-DA	*81*		*50 - 150*	*02/06/22 18:59*	*02/09/22 12:24*	*1*

General Chemistry

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	**15.7**		0.1	0.1	%			02/03/22 15:05	1
Percent Solids	**84.3**		0.1	0.1	%			02/03/22 15:05	1

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15

Client Sample ID: L7-1-10

Lab Sample ID: 320-84393-2

Date Collected: 02/01/22 09:32
Matrix: Solid
Date Received: 02/01/22 16:12
Percent Solids: 79.7

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**0.17**	**J**	0.24	0.055	ug/Kg	☼	02/06/22 18:59	02/09/22 12:35	1
Perfluoropentanoic acid (PFPeA)	**0.20**	**J**	0.24	0.049	ug/Kg	☼	02/06/22 18:59	02/09/22 12:35	1
Perfluorohexanoic acid (PFHxA)	**0.43**		0.24	0.037	ug/Kg	☼	02/06/22 18:59	02/09/22 12:35	1
Perfluoroheptanoic acid (PFHpA)	ND		0.24	0.045	ug/Kg	☼	02/06/22 18:59	02/09/22 12:35	1
Perfluorooctanoic acid (PFOA)	ND		0.24	0.063	ug/Kg	☼	02/06/22 18:59	02/09/22 12:35	1
Perfluorononanoic acid (PFNA)	ND		0.24	0.026	ug/Kg	☼	02/06/22 18:59	02/09/22 12:35	1
Perfluorodecanoic acid (PFDA)	ND		0.24	0.057	ug/Kg	☼	02/06/22 18:59	02/09/22 12:35	1
Perfluoroundecanoic acid (PFUnA)	ND		0.24	0.050	ug/Kg	☼	02/06/22 18:59	02/09/22 12:35	1
Perfluorododecanoic acid (PFDoA)	ND		0.24	0.036	ug/Kg	☼	02/06/22 18:59	02/09/22 12:35	1
Perfluorotridecanoic acid (PFTrDA)	ND		0.24	0.025	ug/Kg	☼	02/06/22 18:59	02/09/22 12:35	1
Perfluorotetradecanoic acid (PFTeA)	ND		0.24	0.044	ug/Kg	☼	02/06/22 18:59	02/09/22 12:35	1
Perfluorobutanesulfonic acid (PFBS)	**0.072**	**J**	0.24	0.045	ug/Kg	☼	02/06/22 18:59	02/09/22 12:35	1
Perfluoropentanesulfonic acid (PFPeS)	ND		0.24	0.044	ug/Kg	☼	02/06/22 18:59	02/09/22 12:35	1
Perfluorohexanesulfonic acid (PFHxS)	ND		0.24	0.035	ug/Kg	☼	02/06/22 18:59	02/09/22 12:35	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		0.24	0.058	ug/Kg	☼	02/06/22 18:59	02/09/22 12:35	1
Perfluorooctanesulfonic acid (PFOS)	ND		0.24	0.051	ug/Kg	☼	02/06/22 18:59	02/09/22 12:35	1
Perfluorodecanesulfonic acid (PFDS)	ND		0.24	0.062	ug/Kg	☼	02/06/22 18:59	02/09/22 12:35	1
Perfluorooctanesulfonamide (FOSA)	ND		0.24	0.039	ug/Kg	☼	02/06/22 18:59	02/09/22 12:35	1
NEtFOSA	ND		0.24	0.056	ug/Kg	☼	02/06/22 18:59	02/09/22 12:35	1
NEtFOSAA	ND		0.24	0.057	ug/Kg	☼	02/06/22 18:59	02/09/22 12:35	1
NEtFOSE	ND		0.24	0.033	ug/Kg	☼	02/06/22 18:59	02/09/22 12:35	1
NMeFOSA	ND		0.24	0.058	ug/Kg	☼	02/06/22 18:59	02/09/22 12:35	1
NMeFOSAA	ND		0.24	0.027	ug/Kg	☼	02/06/22 18:59	02/09/22 12:35	1
NMeFOSE	ND		0.24	0.056	ug/Kg	☼	02/06/22 18:59	02/09/22 12:35	1
4:2 FTS	ND		0.24	0.061	ug/Kg	☼	02/06/22 18:59	02/09/22 12:35	1
6:2 FTS	ND		0.24	0.032	ug/Kg	☼	02/06/22 18:59	02/09/22 12:35	1
8:2 FTS	ND		0.24	0.042	ug/Kg	☼	02/06/22 18:59	02/09/22 12:35	1
11Cl-PF3OUdS	ND		0.24	0.037	ug/Kg	☼	02/06/22 18:59	02/09/22 12:35	1
9Cl-PF3ONS	ND		0.24	0.042	ug/Kg	☼	02/06/22 18:59	02/09/22 12:35	1
HFPO-DA (GenX)	ND		0.24	0.049	ug/Kg	☼	02/06/22 18:59	02/09/22 12:35	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		0.24	0.047	ug/Kg	☼	02/06/22 18:59	02/09/22 12:35	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*67*		*50 - 150*	*02/06/22 18:59*	*02/09/22 12:35*	*1*
13C5 PFPeA	*79*		*50 - 150*	*02/06/22 18:59*	*02/09/22 12:35*	*1*
13C2 PFHxA	*93*		*50 - 150*	*02/06/22 18:59*	*02/09/22 12:35*	*1*
13C4 PFHpA	*87*		*50 - 150*	*02/06/22 18:59*	*02/09/22 12:35*	*1*
13C4 PFOA	*83*		*50 - 150*	*02/06/22 18:59*	*02/09/22 12:35*	*1*
13C5 PFNA	*82*		*50 - 150*	*02/06/22 18:59*	*02/09/22 12:35*	*1*
13C2 PFDA	*87*		*50 - 150*	*02/06/22 18:59*	*02/09/22 12:35*	*1*
13C2 PFUnA	*95*		*50 - 150*	*02/06/22 18:59*	*02/09/22 12:35*	*1*
13C2 PFDoA	*91*		*50 - 150*	*02/06/22 18:59*	*02/09/22 12:35*	*1*
13C2 PFTeDA	*86*		*50 - 150*	*02/06/22 18:59*	*02/09/22 12:35*	*1*
13C3 PFBS	*84*		*50 - 150*	*02/06/22 18:59*	*02/09/22 12:35*	*1*
18O2 PFHxS	*78*		*50 - 150*	*02/06/22 18:59*	*02/09/22 12:35*	*1*
13C4 PFOS	*80*		*50 - 150*	*02/06/22 18:59*	*02/09/22 12:35*	*1*
13C8 FOSA	*79*		*50 - 150*	*02/06/22 18:59*	*02/09/22 12:35*	*1*

Client Sample Results

Client: Woodard & Curran, Inc.
Project/Site: PFAS, San Jose Fuel

Job ID: 320-84393-1

Client Sample ID: L7-1-10

Date Collected: 02/01/22 09:32
Date Received: 02/01/22 16:12

Lab Sample ID: 320-84393-2

Matrix: Solid
Percent Solids: 79.7

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15 (Continued)

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
M2-4:2 FTS	*88*		*50 - 150*	*02/06/22 18:59*	*02/09/22 12:35*	*1*
M2-6:2 FTS	*77*		*50 - 150*	*02/06/22 18:59*	*02/09/22 12:35*	*1*
M2-8:2 FTS	*78*		*50 - 150*	*02/06/22 18:59*	*02/09/22 12:35*	*1*
d5-NEtFOSAA	*91*		*50 - 150*	*02/06/22 18:59*	*02/09/22 12:35*	*1*
d3-NMeFOSAA	*80*		*50 - 150*	*02/06/22 18:59*	*02/09/22 12:35*	*1*
d-N-EtFOSA-M	*82*		*50 - 150*	*02/06/22 18:59*	*02/09/22 12:35*	*1*
d9-N-EtFOSE-M	*83*		*50 - 150*	*02/06/22 18:59*	*02/09/22 12:35*	*1*
d7-N-MeFOSE-M	*82*		*50 - 150*	*02/06/22 18:59*	*02/09/22 12:35*	*1*
d-N-MeFOSA-M	*84*		*50 - 150*	*02/06/22 18:59*	*02/09/22 12:35*	*1*
13C3 HFPO-DA	*88*		*50 - 150*	*02/06/22 18:59*	*02/09/22 12:35*	*1*

General Chemistry

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	**20.3**		0.1	0.1	%			02/04/22 21:23	1
Percent Solids	**79.7**		0.1	0.1	%			02/04/22 21:23	1

Client Sample Results

Client Sample ID: FB-1-020122
Lab Sample ID: 320-84393-3
Date Collected: 02/01/22 09:38
Matrix: Water
Date Received: 02/01/22 16:12

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		4.7	2.2	ng/L		02/04/22 04:55	02/06/22 03:14	1
Perfluoropentanoic acid (PFPeA)	ND		1.9	0.46	ng/L		02/04/22 04:55	02/06/22 03:14	1
Perfluorohexanoic acid (PFHxA)	ND		1.9	0.54	ng/L		02/04/22 04:55	02/06/22 03:14	1
Perfluoroheptanoic acid (PFHpA)	ND		1.9	0.23	ng/L		02/04/22 04:55	02/06/22 03:14	1
Perfluorooctanoic acid (PFOA)	ND		1.9	0.79	ng/L		02/04/22 04:55	02/06/22 03:14	1
Perfluorononanoic acid (PFNA)	ND		1.9	0.25	ng/L		02/04/22 04:55	02/06/22 03:14	1
Perfluorodecanoic acid (PFDA)	ND		1.9	0.29	ng/L		02/04/22 04:55	02/06/22 03:14	1
Perfluoroundecanoic acid (PFUnA)	ND		1.9	1.0	ng/L		02/04/22 04:55	02/06/22 03:14	1
Perfluorododecanoic acid (PFDoA)	ND		1.9	0.51	ng/L		02/04/22 04:55	02/06/22 03:14	1
Perfluorotridecanoic acid (PFTrDA)	ND		1.9	1.2	ng/L		02/04/22 04:55	02/06/22 03:14	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.9	0.68	ng/L		02/04/22 04:55	02/06/22 03:14	1
Perfluorobutanesulfonic acid (PFBS)	ND		1.9	0.19	ng/L		02/04/22 04:55	02/06/22 03:14	1
Perfluoropentanesulfonic acid (PFPeS)	ND		1.9	0.28	ng/L		02/04/22 04:55	02/06/22 03:14	1
Perfluorohexanesulfonic acid (PFHxS)	ND		1.9	0.53	ng/L		02/04/22 04:55	02/06/22 03:14	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		1.9	0.18	ng/L		02/04/22 04:55	02/06/22 03:14	1
Perfluorooctanesulfonic acid (PFOS)	ND		1.9	0.50	ng/L		02/04/22 04:55	02/06/22 03:14	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.9	0.30	ng/L		02/04/22 04:55	02/06/22 03:14	1
Perfluorooctanesulfonamide (FOSA)	ND		1.9	0.91	ng/L		02/04/22 04:55	02/06/22 03:14	1
NEtFOSA	ND		1.9	0.81	ng/L		02/04/22 04:55	02/06/22 03:14	1
NEtFOSAA	ND		4.7	1.2	ng/L		02/04/22 04:55	02/06/22 03:14	1
NMeFOSAA	ND		4.7	1.1	ng/L		02/04/22 04:55	02/06/22 03:14	1
NMeFOSE	ND		3.7	1.3	ng/L		02/04/22 04:55	02/06/22 03:14	1
4:2 FTS	ND		1.9	0.22	ng/L		02/04/22 04:55	02/06/22 03:14	1
6:2 FTS	ND		4.7	2.3	ng/L		02/04/22 04:55	02/06/22 03:14	1
8:2 FTS	ND		1.9	0.43	ng/L		02/04/22 04:55	02/06/22 03:14	1
11Cl-PF3OUdS	ND		1.9	0.30	ng/L		02/04/22 04:55	02/06/22 03:14	1
9Cl-PF3ONS	ND		1.9	0.22	ng/L		02/04/22 04:55	02/06/22 03:14	1
HFPO-DA (GenX)	ND		3.7	1.4	ng/L		02/04/22 04:55	02/06/22 03:14	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.9	0.37	ng/L		02/04/22 04:55	02/06/22 03:14	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*95*		*50 - 150*	*02/04/22 04:55*	*02/06/22 03:14*	*1*
13C5 PFPeA	*95*		*50 - 150*	*02/04/22 04:55*	*02/06/22 03:14*	*1*
13C2 PFHxA	*99*		*50 - 150*	*02/04/22 04:55*	*02/06/22 03:14*	*1*
13C4 PFHpA	*101*		*50 - 150*	*02/04/22 04:55*	*02/06/22 03:14*	*1*
13C4 PFOA	*104*		*50 - 150*	*02/04/22 04:55*	*02/06/22 03:14*	*1*
13C5 PFNA	*101*		*50 - 150*	*02/04/22 04:55*	*02/06/22 03:14*	*1*
13C2 PFDA	*100*		*50 - 150*	*02/04/22 04:55*	*02/06/22 03:14*	*1*
13C2 PFUnA	*99*		*50 - 150*	*02/04/22 04:55*	*02/06/22 03:14*	*1*
13C2 PFDoA	*105*		*50 - 150*	*02/04/22 04:55*	*02/06/22 03:14*	*1*
13C2 PFTeDA	*114*		*50 - 150*	*02/04/22 04:55*	*02/06/22 03:14*	*1*
13C3 PFBS	*98*		*50 - 150*	*02/04/22 04:55*	*02/06/22 03:14*	*1*
18O2 PFHxS	*101*		*50 - 150*	*02/04/22 04:55*	*02/06/22 03:14*	*1*
13C4 PFOS	*100*		*50 - 150*	*02/04/22 04:55*	*02/06/22 03:14*	*1*
13C8 FOSA	*102*		*50 - 150*	*02/04/22 04:55*	*02/06/22 03:14*	*1*
M2-4:2 FTS	*83*		*50 - 150*	*02/04/22 04:55*	*02/06/22 03:14*	*1*
M2-6:2 FTS	*78*		*50 - 150*	*02/04/22 04:55*	*02/06/22 03:14*	*1*
M2-8:2 FTS	*74*		*50 - 150*	*02/04/22 04:55*	*02/06/22 03:14*	*1*

Client Sample ID: FB-1-020122
Date Collected: 02/01/22 09:38
Date Received: 02/01/22 16:12

Lab Sample ID: 320-84393-3
Matrix: Water

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15 (Continued)

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
d5-NEtFOSAA	*116*		*50 - 150*	*02/04/22 04:55*	*02/06/22 03:14*	*1*
d3-NMeFOSAA	*106*		*50 - 150*	*02/04/22 04:55*	*02/06/22 03:14*	*1*
d-N-EtFOSA-M	*99*		*50 - 150*	*02/04/22 04:55*	*02/06/22 03:14*	*1*
d7-N-MeFOSE-M	*104*		*50 - 150*	*02/04/22 04:55*	*02/06/22 03:14*	*1*
13C3 HFPO-DA	*91*		*50 - 150*	*02/04/22 04:55*	*02/06/22 03:14*	*1*

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15 - RA

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
NEtFOSE	ND		1.9	0.79	ng/L		02/04/22 04:55	02/08/22 20:05	1
NMeFOSA	ND		1.9	0.40	ng/L		02/04/22 04:55	02/08/22 20:05	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
d9-N-EtFOSE-M	*99*		*50 - 150*	*02/04/22 04:55*	*02/08/22 20:05*	*1*
d-N-MeFOSA-M	*91*		*50 - 150*	*02/04/22 04:55*	*02/08/22 20:05*	*1*

Client Sample Results

Client: Woodard & Curran, Inc.
Project/Site: PFAS, San Jose Fuel

Job ID: 320-84393-1

Client Sample ID: L7-2-5

Date Collected: 02/01/22 10:28
Date Received: 02/01/22 16:12

Lab Sample ID: 320-84393-4

Matrix: Solid
Percent Solids: 77.3

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**0.19**	**J**	0.25	0.057	ug/Kg	☼	02/06/22 18:59	02/09/22 12:45	1
Perfluoropentanoic acid (PFPeA)	**0.44**		0.25	0.051	ug/Kg	☼	02/06/22 18:59	02/09/22 12:45	1
Perfluorohexanoic acid (PFHxA)	**1.3**		0.25	0.038	ug/Kg	☼	02/06/22 18:59	02/09/22 12:45	1
Perfluoroheptanoic acid (PFHpA)	**0.074**	**J**	0.25	0.047	ug/Kg	☼	02/06/22 18:59	02/09/22 12:45	1
Perfluorooctanoic acid (PFOA)	**0.21**	**J**	0.25	0.066	ug/Kg	☼	02/06/22 18:59	02/09/22 12:45	1
Perfluorononanoic acid (PFNA)	ND		0.25	0.027	ug/Kg	☼	02/06/22 18:59	02/09/22 12:45	1
Perfluorodecanoic acid (PFDA)	ND		0.25	0.059	ug/Kg	☼	02/06/22 18:59	02/09/22 12:45	1
Perfluoroundecanoic acid (PFUnA)	ND		0.25	0.052	ug/Kg	☼	02/06/22 18:59	02/09/22 12:45	1
Perfluorododecanoic acid (PFDoA)	ND		0.25	0.037	ug/Kg	☼	02/06/22 18:59	02/09/22 12:45	1
Perfluorotridecanoic acid (PFTrDA)	ND		0.25	0.026	ug/Kg	☼	02/06/22 18:59	02/09/22 12:45	1
Perfluorotetradecanoic acid (PFTeA)	ND		0.25	0.046	ug/Kg	☼	02/06/22 18:59	02/09/22 12:45	1
Perfluorobutanesulfonic acid (PFBS)	**0.15**	**J**	0.25	0.047	ug/Kg	☼	02/06/22 18:59	02/09/22 12:45	1
Perfluoropentanesulfonic acid (PFPeS)	**0.22**	**J**	0.25	0.046	ug/Kg	☼	02/06/22 18:59	02/09/22 12:45	1
Perfluorohexanesulfonic acid (PFHxS)	**1.8**		0.25	0.036	ug/Kg	☼	02/06/22 18:59	02/09/22 12:45	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		0.25	0.061	ug/Kg	☼	02/06/22 18:59	02/09/22 12:45	1
Perfluorooctanesulfonic acid (PFOS)	ND		0.25	0.053	ug/Kg	☼	02/06/22 18:59	02/09/22 12:45	1
Perfluorodecanesulfonic acid (PFDS)	ND		0.25	0.064	ug/Kg	☼	02/06/22 18:59	02/09/22 12:45	1
Perfluorooctanesulfonamide (FOSA)	ND		0.25	0.041	ug/Kg	☼	02/06/22 18:59	02/09/22 12:45	1
NEtFOSA	ND		0.25	0.058	ug/Kg	☼	02/06/22 18:59	02/09/22 12:45	1
NEtFOSAA	ND		0.25	0.059	ug/Kg	☼	02/06/22 18:59	02/09/22 12:45	1
NEtFOSE	ND		0.25	0.035	ug/Kg	☼	02/06/22 18:59	02/09/22 12:45	1
NMeFOSA	ND		0.25	0.061	ug/Kg	☼	02/06/22 18:59	02/09/22 12:45	1
NMeFOSAA	ND		0.25	0.028	ug/Kg	☼	02/06/22 18:59	02/09/22 12:45	1
NMeFOSE	ND		0.25	0.058	ug/Kg	☼	02/06/22 18:59	02/09/22 12:45	1
4:2 FTS	ND		0.25	0.063	ug/Kg	☼	02/06/22 18:59	02/09/22 12:45	1
6:2 FTS	ND		0.25	0.033	ug/Kg	☼	02/06/22 18:59	02/09/22 12:45	1
8:2 FTS	ND		0.25	0.043	ug/Kg	☼	02/06/22 18:59	02/09/22 12:45	1
11Cl-PF3OUdS	ND		0.25	0.038	ug/Kg	☼	02/06/22 18:59	02/09/22 12:45	1
9Cl-PF3ONS	ND		0.25	0.043	ug/Kg	☼	02/06/22 18:59	02/09/22 12:45	1
HFPO-DA (GenX)	ND		0.25	0.051	ug/Kg	☼	02/06/22 18:59	02/09/22 12:45	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		0.25	0.048	ug/Kg	☼	02/06/22 18:59	02/09/22 12:45	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*65*		*50 - 150*	*02/06/22 18:59*	*02/09/22 12:45*	*1*
13C5 PFPeA	*83*		*50 - 150*	*02/06/22 18:59*	*02/09/22 12:45*	*1*
13C2 PFHxA	*96*		*50 - 150*	*02/06/22 18:59*	*02/09/22 12:45*	*1*
13C4 PFHpA	*94*		*50 - 150*	*02/06/22 18:59*	*02/09/22 12:45*	*1*
13C4 PFOA	*91*		*50 - 150*	*02/06/22 18:59*	*02/09/22 12:45*	*1*
13C5 PFNA	*97*		*50 - 150*	*02/06/22 18:59*	*02/09/22 12:45*	*1*
13C2 PFDA	*95*		*50 - 150*	*02/06/22 18:59*	*02/09/22 12:45*	*1*
13C2 PFUnA	*102*		*50 - 150*	*02/06/22 18:59*	*02/09/22 12:45*	*1*
13C2 PFDoA	*94*		*50 - 150*	*02/06/22 18:59*	*02/09/22 12:45*	*1*
13C2 PFTeDA	*95*		*50 - 150*	*02/06/22 18:59*	*02/09/22 12:45*	*1*
13C3 PFBS	*89*		*50 - 150*	*02/06/22 18:59*	*02/09/22 12:45*	*1*
18O2 PFHxS	*88*		*50 - 150*	*02/06/22 18:59*	*02/09/22 12:45*	*1*
13C4 PFOS	*87*		*50 - 150*	*02/06/22 18:59*	*02/09/22 12:45*	*1*

Client Sample Results

Client: Woodard & Curran, Inc.
Project/Site: PFAS, San Jose Fuel

Job ID: 320-84393-1

Client Sample ID: L7-2-5

Date Collected: 02/01/22 10:28
Date Received: 02/01/22 16:12

Lab Sample ID: 320-84393-4

Matrix: Solid
Percent Solids: 77.3

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15 (Continued)

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C8 FOSA	*89*		*50 - 150*	*02/06/22 18:59*	*02/09/22 12:45*	*1*
M2-4:2 FTS	*84*		*50 - 150*	*02/06/22 18:59*	*02/09/22 12:45*	*1*
M2-6:2 FTS	*83*		*50 - 150*	*02/06/22 18:59*	*02/09/22 12:45*	*1*
M2-8:2 FTS	*83*		*50 - 150*	*02/06/22 18:59*	*02/09/22 12:45*	*1*
d5-NEtFOSAA	*103*		*50 - 150*	*02/06/22 18:59*	*02/09/22 12:45*	*1*
d3-NMeFOSAA	*78*		*50 - 150*	*02/06/22 18:59*	*02/09/22 12:45*	*1*
d-N-EtFOSA-M	*97*		*50 - 150*	*02/06/22 18:59*	*02/09/22 12:45*	*1*
d9-N-EtFOSE-M	*97*		*50 - 150*	*02/06/22 18:59*	*02/09/22 12:45*	*1*
d7-N-MeFOSE-M	*97*		*50 - 150*	*02/06/22 18:59*	*02/09/22 12:45*	*1*
d-N-MeFOSA-M	*94*		*50 - 150*	*02/06/22 18:59*	*02/09/22 12:45*	*1*
13C3 HFPO-DA	*89*		*50 - 150*	*02/06/22 18:59*	*02/09/22 12:45*	*1*

General Chemistry

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	**22.7**		0.1	0.1	%			02/03/22 15:05	1
Percent Solids	**77.3**		0.1	0.1	%			02/03/22 15:05	1

Client Sample Results

Client Sample ID: L7-2-10

Date Collected: 02/01/22 10:30
Date Received: 02/01/22 16:12

Lab Sample ID: 320-84393-5
Matrix: Solid
Percent Solids: 79.0

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		0.25	0.057	ug/Kg	☼	02/06/22 18:59	02/09/22 12:55	1
Perfluoropentanoic acid (PFPeA)	**0.071**	**J**	0.25	0.050	ug/Kg	☼	02/06/22 18:59	02/09/22 12:55	1
Perfluorohexanoic acid (PFHxA)	**0.24**	**J**	0.25	0.038	ug/Kg	☼	02/06/22 18:59	02/09/22 12:55	1
Perfluoroheptanoic acid (PFHpA)	ND		0.25	0.047	ug/Kg	☼	02/06/22 18:59	02/09/22 12:55	1
Perfluorooctanoic acid (PFOA)	ND		0.25	0.065	ug/Kg	☼	02/06/22 18:59	02/09/22 12:55	1
Perfluorononanoic acid (PFNA)	ND		0.25	0.027	ug/Kg	☼	02/06/22 18:59	02/09/22 12:55	1
Perfluorodecanoic acid (PFDA)	ND		0.25	0.059	ug/Kg	☼	02/06/22 18:59	02/09/22 12:55	1
Perfluoroundecanoic acid (PFUnA)	ND		0.25	0.052	ug/Kg	☼	02/06/22 18:59	02/09/22 12:55	1
Perfluorododecanoic acid (PFDoA)	ND		0.25	0.037	ug/Kg	☼	02/06/22 18:59	02/09/22 12:55	1
Perfluorotridecanoic acid (PFTrDA)	ND		0.25	0.026	ug/Kg	☼	02/06/22 18:59	02/09/22 12:55	1
Perfluorotetradecanoic acid (PFTeA)	ND		0.25	0.046	ug/Kg	☼	02/06/22 18:59	02/09/22 12:55	1
Perfluorobutanesulfonic acid (PFBS)	**0.11**	**J**	0.25	0.047	ug/Kg	☼	02/06/22 18:59	02/09/22 12:55	1
Perfluoropentanesulfonic acid (PFPeS)	**0.11**	**J**	0.25	0.046	ug/Kg	☼	02/06/22 18:59	02/09/22 12:55	1
Perfluorohexanesulfonic acid (PFHxS)	**0.21**	**J**	0.25	0.036	ug/Kg	☼	02/06/22 18:59	02/09/22 12:55	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		0.25	0.060	ug/Kg	☼	02/06/22 18:59	02/09/22 12:55	1
Perfluorooctanesulfonic acid (PFOS)	ND		0.25	0.053	ug/Kg	☼	02/06/22 18:59	02/09/22 12:55	1
Perfluorodecanesulfonic acid (PFDS)	ND		0.25	0.064	ug/Kg	☼	02/06/22 18:59	02/09/22 12:55	1
Perfluorooctanesulfonamide (FOSA)	ND		0.25	0.041	ug/Kg	☼	02/06/22 18:59	02/09/22 12:55	1
NEtFOSA	ND		0.25	0.058	ug/Kg	☼	02/06/22 18:59	02/09/22 12:55	1
NEtFOSAA	ND		0.25	0.059	ug/Kg	☼	02/06/22 18:59	02/09/22 12:55	1
NEtFOSE	ND		0.25	0.034	ug/Kg	☼	02/06/22 18:59	02/09/22 12:55	1
NMeFOSA	ND		0.25	0.060	ug/Kg	☼	02/06/22 18:59	02/09/22 12:55	1
NMeFOSAA	ND		0.25	0.028	ug/Kg	☼	02/06/22 18:59	02/09/22 12:55	1
NMeFOSE	ND		0.25	0.058	ug/Kg	☼	02/06/22 18:59	02/09/22 12:55	1
4:2 FTS	ND		0.25	0.063	ug/Kg	☼	02/06/22 18:59	02/09/22 12:55	1
6:2 FTS	ND		0.25	0.033	ug/Kg	☼	02/06/22 18:59	02/09/22 12:55	1
8:2 FTS	ND		0.25	0.043	ug/Kg	☼	02/06/22 18:59	02/09/22 12:55	1
11Cl-PF3OUdS	ND		0.25	0.038	ug/Kg	☼	02/06/22 18:59	02/09/22 12:55	1
9Cl-PF3ONS	ND		0.25	0.043	ug/Kg	☼	02/06/22 18:59	02/09/22 12:55	1
HFPO-DA (GenX)	ND		0.25	0.050	ug/Kg	☼	02/06/22 18:59	02/09/22 12:55	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		0.25	0.048	ug/Kg	☼	02/06/22 18:59	02/09/22 12:55	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*57*		*50 - 150*	*02/06/22 18:59*	*02/09/22 12:55*	*1*
13C5 PFPeA	*75*		*50 - 150*	*02/06/22 18:59*	*02/09/22 12:55*	*1*
13C2 PFHxA	*94*		*50 - 150*	*02/06/22 18:59*	*02/09/22 12:55*	*1*
13C4 PFHpA	*89*		*50 - 150*	*02/06/22 18:59*	*02/09/22 12:55*	*1*
13C4 PFOA	*83*		*50 - 150*	*02/06/22 18:59*	*02/09/22 12:55*	*1*
13C5 PFNA	*82*		*50 - 150*	*02/06/22 18:59*	*02/09/22 12:55*	*1*
13C2 PFDA	*84*		*50 - 150*	*02/06/22 18:59*	*02/09/22 12:55*	*1*
13C2 PFUnA	*99*		*50 - 150*	*02/06/22 18:59*	*02/09/22 12:55*	*1*
13C2 PFDoA	*87*		*50 - 150*	*02/06/22 18:59*	*02/09/22 12:55*	*1*
13C2 PFTeDA	*91*		*50 - 150*	*02/06/22 18:59*	*02/09/22 12:55*	*1*
13C3 PFBS	*88*		*50 - 150*	*02/06/22 18:59*	*02/09/22 12:55*	*1*
18O2 PFHxS	*81*		*50 - 150*	*02/06/22 18:59*	*02/09/22 12:55*	*1*
13C4 PFOS	*85*		*50 - 150*	*02/06/22 18:59*	*02/09/22 12:55*	*1*

Client Sample Results

Client: Woodard & Curran, Inc.
Project/Site: PFAS, San Jose Fuel

Job ID: 320-84393-1

Client Sample ID: L7-2-10

Date Collected: 02/01/22 10:30
Date Received: 02/01/22 16:12

Lab Sample ID: 320-84393-5
Matrix: Solid
Percent Solids: 79.0

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15 (Continued)

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C8 FOSA	*80*		*50 - 150*	*02/06/22 18:59*	*02/09/22 12:55*	*1*
M2-4:2 FTS	*85*		*50 - 150*	*02/06/22 18:59*	*02/09/22 12:55*	*1*
M2-6:2 FTS	*86*		*50 - 150*	*02/06/22 18:59*	*02/09/22 12:55*	*1*
M2-8:2 FTS	*86*		*50 - 150*	*02/06/22 18:59*	*02/09/22 12:55*	*1*
d5-NEtFOSAA	*105*		*50 - 150*	*02/06/22 18:59*	*02/09/22 12:55*	*1*
d3-NMeFOSAA	*91*		*50 - 150*	*02/06/22 18:59*	*02/09/22 12:55*	*1*
d-N-EtFOSA-M	*84*		*50 - 150*	*02/06/22 18:59*	*02/09/22 12:55*	*1*
d9-N-EtFOSE-M	*89*		*50 - 150*	*02/06/22 18:59*	*02/09/22 12:55*	*1*
d7-N-MeFOSE-M	*92*		*50 - 150*	*02/06/22 18:59*	*02/09/22 12:55*	*1*
d-N-MeFOSA-M	*86*		*50 - 150*	*02/06/22 18:59*	*02/09/22 12:55*	*1*
13C3 HFPO-DA	*76*		*50 - 150*	*02/06/22 18:59*	*02/09/22 12:55*	*1*

General Chemistry

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	**21.0**		0.1	0.1	%			02/03/22 15:05	1
Percent Solids	**79.0**		0.1	0.1	%			02/03/22 15:05	1

Client Sample Results

Client: Woodard & Curran, Inc.
Project/Site: PFAS, San Jose Fuel

Job ID: 320-84393-1

Client Sample ID: L7-3-5
Date Collected: 02/01/22 13:25
Date Received: 02/01/22 16:12

Lab Sample ID: 320-84393-6
Matrix: Solid
Percent Solids: 87.9

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**0.18**	**J**	0.22	0.051	ug/Kg	☼	02/06/22 18:59	02/09/22 13:06	1
Perfluoropentanoic acid (PFPeA)	**0.44**		0.22	0.045	ug/Kg	☼	02/06/22 18:59	02/09/22 13:06	1
Perfluorohexanoic acid (PFHxA)	**0.084**	**J**	0.22	0.034	ug/Kg	☼	02/06/22 18:59	02/09/22 13:06	1
Perfluoroheptanoic acid (PFHpA)	ND		0.22	0.042	ug/Kg	☼	02/06/22 18:59	02/09/22 13:06	1
Perfluorooctanoic acid (PFOA)	ND		0.22	0.058	ug/Kg	☼	02/06/22 18:59	02/09/22 13:06	1
Perfluorononanoic acid (PFNA)	ND		0.22	0.024	ug/Kg	☼	02/06/22 18:59	02/09/22 13:06	1
Perfluorodecanoic acid (PFDA)	ND		0.22	0.053	ug/Kg	☼	02/06/22 18:59	02/09/22 13:06	1
Perfluoroundecanoic acid (PFUnA)	ND		0.22	0.046	ug/Kg	☼	02/06/22 18:59	02/09/22 13:06	1
Perfluorododecanoic acid (PFDoA)	ND		0.22	0.033	ug/Kg	☼	02/06/22 18:59	02/09/22 13:06	1
Perfluorotridecanoic acid (PFTrDA)	ND		0.22	0.023	ug/Kg	☼	02/06/22 18:59	02/09/22 13:06	1
Perfluorotetradecanoic acid (PFTeA)	ND		0.22	0.041	ug/Kg	☼	02/06/22 18:59	02/09/22 13:06	1
Perfluorobutanesulfonic acid (PFBS)	ND		0.22	0.042	ug/Kg	☼	02/06/22 18:59	02/09/22 13:06	1
Perfluoropentanesulfonic acid (PFPeS)	ND		0.22	0.041	ug/Kg	☼	02/06/22 18:59	02/09/22 13:06	1
Perfluorohexanesulfonic acid (PFHxS)	ND		0.22	0.032	ug/Kg	☼	02/06/22 18:59	02/09/22 13:06	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		0.22	0.054	ug/Kg	☼	02/06/22 18:59	02/09/22 13:06	1
Perfluorooctanesulfonic acid (PFOS)	ND		0.22	0.047	ug/Kg	☼	02/06/22 18:59	02/09/22 13:06	1
Perfluorodecanesulfonic acid (PFDS)	ND		0.22	0.057	ug/Kg	☼	02/06/22 18:59	02/09/22 13:06	1
Perfluorooctanesulfonamide (FOSA)	ND		0.22	0.036	ug/Kg	☼	02/06/22 18:59	02/09/22 13:06	1
NEtFOSA	ND		0.22	0.052	ug/Kg	☼	02/06/22 18:59	02/09/22 13:06	1
NEtFOSAA	ND		0.22	0.053	ug/Kg	☼	02/06/22 18:59	02/09/22 13:06	1
NEtFOSE	ND		0.22	0.031	ug/Kg	☼	02/06/22 18:59	02/09/22 13:06	1
NMeFOSA	ND		0.22	0.054	ug/Kg	☼	02/06/22 18:59	02/09/22 13:06	1
NMeFOSAA	ND		0.22	0.025	ug/Kg	☼	02/06/22 18:59	02/09/22 13:06	1
NMeFOSE	ND		0.22	0.052	ug/Kg	☼	02/06/22 18:59	02/09/22 13:06	1
4:2 FTS	ND		0.22	0.056	ug/Kg	☼	02/06/22 18:59	02/09/22 13:06	1
6:2 FTS	ND		0.22	0.030	ug/Kg	☼	02/06/22 18:59	02/09/22 13:06	1
8:2 FTS	ND		0.22	0.039	ug/Kg	☼	02/06/22 18:59	02/09/22 13:06	1
11Cl-PF3OUdS	ND		0.22	0.034	ug/Kg	☼	02/06/22 18:59	02/09/22 13:06	1
9Cl-PF3ONS	ND		0.22	0.039	ug/Kg	☼	02/06/22 18:59	02/09/22 13:06	1
HFPO-DA (GenX)	ND		0.22	0.045	ug/Kg	☼	02/06/22 18:59	02/09/22 13:06	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		0.22	0.043	ug/Kg	☼	02/06/22 18:59	02/09/22 13:06	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*64*		*50 - 150*	*02/06/22 18:59*	*02/09/22 13:06*	*1*
13C5 PFPeA	*94*		*50 - 150*	*02/06/22 18:59*	*02/09/22 13:06*	*1*
13C2 PFHxA	*99*		*50 - 150*	*02/06/22 18:59*	*02/09/22 13:06*	*1*
13C4 PFHpA	*98*		*50 - 150*	*02/06/22 18:59*	*02/09/22 13:06*	*1*
13C4 PFOA	*96*		*50 - 150*	*02/06/22 18:59*	*02/09/22 13:06*	*1*
13C5 PFNA	*96*		*50 - 150*	*02/06/22 18:59*	*02/09/22 13:06*	*1*
13C2 PFDA	*93*		*50 - 150*	*02/06/22 18:59*	*02/09/22 13:06*	*1*
13C2 PFUnA	*100*		*50 - 150*	*02/06/22 18:59*	*02/09/22 13:06*	*1*
13C2 PFDoA	*101*		*50 - 150*	*02/06/22 18:59*	*02/09/22 13:06*	*1*
13C2 PFTeDA	*98*		*50 - 150*	*02/06/22 18:59*	*02/09/22 13:06*	*1*
13C3 PFBS	*88*		*50 - 150*	*02/06/22 18:59*	*02/09/22 13:06*	*1*
18O2 PFHxS	*88*		*50 - 150*	*02/06/22 18:59*	*02/09/22 13:06*	*1*
13C4 PFOS	*84*		*50 - 150*	*02/06/22 18:59*	*02/09/22 13:06*	*1*
13C8 FOSA	*91*		*50 - 150*	*02/06/22 18:59*	*02/09/22 13:06*	*1*
M2-4:2 FTS	*79*		*50 - 150*	*02/06/22 18:59*	*02/09/22 13:06*	*1*

Client Sample ID: L7-3-5

Date Collected: 02/01/22 13:25
Date Received: 02/01/22 16:12

Lab Sample ID: 320-84393-6
Matrix: Solid
Percent Solids: 87.9

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15 (Continued)

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
M2-6:2 FTS	*83*		*50 - 150*	*02/06/22 18:59*	*02/09/22 13:06*	*1*
M2-8:2 FTS	*85*		*50 - 150*	*02/06/22 18:59*	*02/09/22 13:06*	*1*
d5-NEtFOSAA	*107*		*50 - 150*	*02/06/22 18:59*	*02/09/22 13:06*	*1*
d3-NMeFOSAA	*93*		*50 - 150*	*02/06/22 18:59*	*02/09/22 13:06*	*1*
d-N-EtFOSA-M	*93*		*50 - 150*	*02/06/22 18:59*	*02/09/22 13:06*	*1*
d9-N-EtFOSE-M	*89*		*50 - 150*	*02/06/22 18:59*	*02/09/22 13:06*	*1*
d7-N-MeFOSE-M	*89*		*50 - 150*	*02/06/22 18:59*	*02/09/22 13:06*	*1*
d-N-MeFOSA-M	*100*		*50 - 150*	*02/06/22 18:59*	*02/09/22 13:06*	*1*
13C3 HFPO-DA	*89*		*50 - 150*	*02/06/22 18:59*	*02/09/22 13:06*	*1*

General Chemistry

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	**12.1**		0.1	0.1	%			02/03/22 15:05	1
Percent Solids	**87.9**		0.1	0.1	%			02/03/22 15:05	1

Client Sample ID: L7-3-10 Lab Sample ID: 320-84393-7

Date Collected: 02/01/22 13:27
Matrix: Solid

Date Received: 02/01/22 16:12
Percent Solids: 82.0

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**0.65**		0.24	0.055	ug/Kg	☼	02/06/22 18:59	02/09/22 13:16	1
Perfluoropentanoic acid (PFPeA)	**2.6**		0.24	0.049	ug/Kg	☼	02/06/22 18:59	02/09/22 13:16	1
Perfluorohexanoic acid (PFHxA)	**0.92**		0.24	0.037	ug/Kg	☼	02/06/22 18:59	02/09/22 13:16	1
Perfluoroheptanoic acid (PFHpA)	ND		0.24	0.046	ug/Kg	☼	02/06/22 18:59	02/09/22 13:16	1
Perfluorooctanoic acid (PFOA)	ND		0.24	0.064	ug/Kg	☼	02/06/22 18:59	02/09/22 13:16	1
Perfluorononanoic acid (PFNA)	ND		0.24	0.027	ug/Kg	☼	02/06/22 18:59	02/09/22 13:16	1
Perfluorodecanoic acid (PFDA)	ND		0.24	0.058	ug/Kg	☼	02/06/22 18:59	02/09/22 13:16	1
Perfluoroundecanoic acid (PFUnA)	ND		0.24	0.051	ug/Kg	☼	02/06/22 18:59	02/09/22 13:16	1
Perfluorododecanoic acid (PFDoA)	ND		0.24	0.036	ug/Kg	☼	02/06/22 18:59	02/09/22 13:16	1
Perfluorotridecanoic acid (PFTrDA)	ND		0.24	0.025	ug/Kg	☼	02/06/22 18:59	02/09/22 13:16	1
Perfluorotetradecanoic acid (PFTeA)	ND		0.24	0.045	ug/Kg	☼	02/06/22 18:59	02/09/22 13:16	1
Perfluorobutanesulfonic acid (PFBS)	ND		0.24	0.046	ug/Kg	☼	02/06/22 18:59	02/09/22 13:16	1
Perfluoropentanesulfonic acid (PFPeS)	ND		0.24	0.045	ug/Kg	☼	02/06/22 18:59	02/09/22 13:16	1
Perfluorohexanesulfonic acid (PFHxS)	ND		0.24	0.035	ug/Kg	☼	02/06/22 18:59	02/09/22 13:16	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		0.24	0.059	ug/Kg	☼	02/06/22 18:59	02/09/22 13:16	1
Perfluorooctanesulfonic acid (PFOS)	ND		0.24	0.052	ug/Kg	☼	02/06/22 18:59	02/09/22 13:16	1
Perfluorodecanesulfonic acid (PFDS)	ND		0.24	0.063	ug/Kg	☼	02/06/22 18:59	02/09/22 13:16	1
Perfluorooctanesulfonamide (FOSA)	ND		0.24	0.040	ug/Kg	☼	02/06/22 18:59	02/09/22 13:16	1
NEtFOSA	ND		0.24	0.057	ug/Kg	☼	02/06/22 18:59	02/09/22 13:16	1
NEtFOSAA	ND		0.24	0.058	ug/Kg	☼	02/06/22 18:59	02/09/22 13:16	1
NEtFOSE	ND		0.24	0.034	ug/Kg	☼	02/06/22 18:59	02/09/22 13:16	1
NMeFOSA	ND		0.24	0.059	ug/Kg	☼	02/06/22 18:59	02/09/22 13:16	1
NMeFOSAA	ND		0.24	0.028	ug/Kg	☼	02/06/22 18:59	02/09/22 13:16	1
NMeFOSE	ND		0.24	0.057	ug/Kg	☼	02/06/22 18:59	02/09/22 13:16	1
4:2 FTS	ND		0.24	0.061	ug/Kg	☼	02/06/22 18:59	02/09/22 13:16	1
6:2 FTS	ND		0.24	0.033	ug/Kg	☼	02/06/22 18:59	02/09/22 13:16	1
8:2 FTS	ND		0.24	0.042	ug/Kg	☼	02/06/22 18:59	02/09/22 13:16	1
11Cl-PF3OUdS	ND		0.24	0.037	ug/Kg	☼	02/06/22 18:59	02/09/22 13:16	1
9Cl-PF3ONS	ND		0.24	0.042	ug/Kg	☼	02/06/22 18:59	02/09/22 13:16	1
HFPO-DA (GenX)	ND		0.24	0.049	ug/Kg	☼	02/06/22 18:59	02/09/22 13:16	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		0.24	0.047	ug/Kg	☼	02/06/22 18:59	02/09/22 13:16	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*64*		*50 - 150*	*02/06/22 18:59*	*02/09/22 13:16*	*1*
13C5 PFPeA	*88*		*50 - 150*	*02/06/22 18:59*	*02/09/22 13:16*	*1*
13C2 PFHxA	*90*		*50 - 150*	*02/06/22 18:59*	*02/09/22 13:16*	*1*
13C4 PFHpA	*90*		*50 - 150*	*02/06/22 18:59*	*02/09/22 13:16*	*1*
13C4 PFOA	*88*		*50 - 150*	*02/06/22 18:59*	*02/09/22 13:16*	*1*
13C5 PFNA	*91*		*50 - 150*	*02/06/22 18:59*	*02/09/22 13:16*	*1*
13C2 PFDA	*89*		*50 - 150*	*02/06/22 18:59*	*02/09/22 13:16*	*1*
13C2 PFUnA	*92*		*50 - 150*	*02/06/22 18:59*	*02/09/22 13:16*	*1*
13C2 PFDoA	*94*		*50 - 150*	*02/06/22 18:59*	*02/09/22 13:16*	*1*
13C2 PFTeDA	*90*		*50 - 150*	*02/06/22 18:59*	*02/09/22 13:16*	*1*
13C3 PFBS	*85*		*50 - 150*	*02/06/22 18:59*	*02/09/22 13:16*	*1*
18O2 PFHxS	*84*		*50 - 150*	*02/06/22 18:59*	*02/09/22 13:16*	*1*
13C4 PFOS	*82*		*50 - 150*	*02/06/22 18:59*	*02/09/22 13:16*	*1*
13C8 FOSA	*86*		*50 - 150*	*02/06/22 18:59*	*02/09/22 13:16*	*1*
M2-4:2 FTS	*88*		*50 - 150*	*02/06/22 18:59*	*02/09/22 13:16*	*1*

Client Sample Results

Client: Woodard & Curran, Inc.
Project/Site: PFAS, San Jose Fuel

Job ID: 320-84393-1

Client Sample ID: L7-3-10

Date Collected: 02/01/22 13:27
Date Received: 02/01/22 16:12

Lab Sample ID: 320-84393-7

Matrix: Solid
Percent Solids: 82.0

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15 (Continued)

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
M2-6:2 FTS	*75*		*50 - 150*	*02/06/22 18:59*	*02/09/22 13:16*	*1*
M2-8:2 FTS	*85*		*50 - 150*	*02/06/22 18:59*	*02/09/22 13:16*	*1*
d5-NEtFOSAA	*95*		*50 - 150*	*02/06/22 18:59*	*02/09/22 13:16*	*1*
d3-NMeFOSAA	*88*		*50 - 150*	*02/06/22 18:59*	*02/09/22 13:16*	*1*
d-N-EtFOSA-M	*90*		*50 - 150*	*02/06/22 18:59*	*02/09/22 13:16*	*1*
d9-N-EtFOSE-M	*84*		*50 - 150*	*02/06/22 18:59*	*02/09/22 13:16*	*1*
d7-N-MeFOSE-M	*88*		*50 - 150*	*02/06/22 18:59*	*02/09/22 13:16*	*1*
d-N-MeFOSA-M	*92*		*50 - 150*	*02/06/22 18:59*	*02/09/22 13:16*	*1*
13C3 HFPO-DA	*81*		*50 - 150*	*02/06/22 18:59*	*02/09/22 13:16*	*1*

General Chemistry

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	**18.0**		0.1	0.1	%			02/03/22 15:05	1
Percent Solids	**82.0**		0.1	0.1	%			02/03/22 15:05	1

Client Sample Results

Client: Woodard & Curran, Inc.
Project/Site: PFAS, San Jose Fuel

Job ID: 320-84393-1

Client Sample ID: L7-4-1

Date Collected: 02/01/22 14:50
Date Received: 02/01/22 16:12

Lab Sample ID: 320-84393-8

Matrix: Solid
Percent Solids: 90.3

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**0.32**		0.22	0.050	ug/Kg	☼	02/06/22 18:59	02/12/22 13:49	1
Perfluoropentanoic acid (PFPeA)	**1.2**		0.22	0.045	ug/Kg	☼	02/06/22 18:59	02/12/22 13:49	1
Perfluorohexanoic acid (PFHxA)	**0.54**		0.22	0.034	ug/Kg	☼	02/06/22 18:59	02/12/22 13:49	1
Perfluoroheptanoic acid (PFHpA)	**0.75**		0.22	0.041	ug/Kg	☼	02/06/22 18:59	02/12/22 13:49	1
Perfluorooctanoic acid (PFOA)	**0.65**		0.22	0.058	ug/Kg	☼	02/06/22 18:59	02/12/22 13:49	1
Perfluorononanoic acid (PFNA)	**0.14**	**J**	0.22	0.024	ug/Kg	☼	02/06/22 18:59	02/12/22 13:49	1
Perfluorodecanoic acid (PFDA)	**0.076**	**J**	0.22	0.052	ug/Kg	☼	02/06/22 18:59	02/12/22 13:49	1
Perfluoroundecanoic acid (PFUnA)	ND		0.22	0.046	ug/Kg	☼	02/06/22 18:59	02/12/22 13:49	1
Perfluorododecanoic acid (PFDoA)	ND		0.22	0.033	ug/Kg	☼	02/06/22 18:59	02/12/22 13:49	1
Perfluorotridecanoic acid (PFTrDA)	ND		0.22	0.023	ug/Kg	☼	02/06/22 18:59	02/12/22 13:49	1
Perfluorotetradecanoic acid (PFTeA)	ND		0.22	0.040	ug/Kg	☼	02/06/22 18:59	02/12/22 13:49	1
Perfluorobutanesulfonic acid (PFBS)	ND		0.22	0.041	ug/Kg	☼	02/06/22 18:59	02/12/22 13:49	1
Perfluoropentanesulfonic acid (PFPeS)	ND		0.22	0.040	ug/Kg	☼	02/06/22 18:59	02/12/22 13:49	1
Perfluorohexanesulfonic acid (PFHxS)	**0.032**	**J**	0.22	0.032	ug/Kg	☼	02/06/22 18:59	02/12/22 13:49	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		0.22	0.053	ug/Kg	☼	02/06/22 18:59	02/12/22 13:49	1
Perfluorooctanesulfonic acid (PFOS)	**0.21**	**J**	0.22	0.047	ug/Kg	☼	02/06/22 18:59	02/12/22 13:49	1
Perfluorodecanesulfonic acid (PFDS)	ND		0.22	0.057	ug/Kg	☼	02/06/22 18:59	02/12/22 13:49	1
Perfluorooctanesulfonamide (FOSA)	ND		0.22	0.036	ug/Kg	☼	02/06/22 18:59	02/12/22 13:49	1
NEtFOSA	ND		0.22	0.051	ug/Kg	☼	02/06/22 18:59	02/12/22 13:49	1
NEtFOSAA	ND		0.22	0.052	ug/Kg	☼	02/06/22 18:59	02/12/22 13:49	1
NEtFOSE	ND		0.22	0.031	ug/Kg	☼	02/06/22 18:59	02/12/22 13:49	1
NMeFOSA	ND		0.22	0.053	ug/Kg	☼	02/06/22 18:59	02/12/22 13:49	1
NMeFOSAA	ND		0.22	0.025	ug/Kg	☼	02/06/22 18:59	02/12/22 13:49	1
NMeFOSE	ND		0.22	0.051	ug/Kg	☼	02/06/22 18:59	02/12/22 13:49	1
4:2 FTS	ND		0.22	0.056	ug/Kg	☼	02/06/22 18:59	02/12/22 13:49	1
6:2 FTS	**5.2**		0.22	0.029	ug/Kg	☼	02/06/22 18:59	02/12/22 13:49	1
11Cl-PF3OUdS	ND		0.22	0.034	ug/Kg	☼	02/06/22 18:59	02/12/22 13:49	1
9Cl-PF3ONS	ND		0.22	0.038	ug/Kg	☼	02/06/22 18:59	02/12/22 13:49	1
HFPO-DA (GenX)	ND		0.22	0.045	ug/Kg	☼	02/06/22 18:59	02/12/22 13:49	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		0.22	0.043	ug/Kg	☼	02/06/22 18:59	02/12/22 13:49	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*45*	**5-*	*50 - 150*	*02/06/22 18:59*	*02/12/22 13:49*	*1*
13C5 PFPeA	*84*		*50 - 150*	*02/06/22 18:59*	*02/12/22 13:49*	*1*
13C2 PFHxA	*91*		*50 - 150*	*02/06/22 18:59*	*02/12/22 13:49*	*1*
13C4 PFHpA	*83*		*50 - 150*	*02/06/22 18:59*	*02/12/22 13:49*	*1*
13C4 PFOA	*88*		*50 - 150*	*02/06/22 18:59*	*02/12/22 13:49*	*1*
13C5 PFNA	*93*		*50 - 150*	*02/06/22 18:59*	*02/12/22 13:49*	*1*
13C2 PFDA	*110*		*50 - 150*	*02/06/22 18:59*	*02/12/22 13:49*	*1*
13C2 PFUnA	*104*		*50 - 150*	*02/06/22 18:59*	*02/12/22 13:49*	*1*
13C2 PFDoA	*98*		*50 - 150*	*02/06/22 18:59*	*02/12/22 13:49*	*1*
13C2 PFTeDA	*84*		*50 - 150*	*02/06/22 18:59*	*02/12/22 13:49*	*1*
13C3 PFBS	*87*		*50 - 150*	*02/06/22 18:59*	*02/12/22 13:49*	*1*
18O2 PFHxS	*83*		*50 - 150*	*02/06/22 18:59*	*02/12/22 13:49*	*1*
13C4 PFOS	*91*		*50 - 150*	*02/06/22 18:59*	*02/12/22 13:49*	*1*
13C8 FOSA	*87*		*50 - 150*	*02/06/22 18:59*	*02/12/22 13:49*	*1*

Client Sample ID: L7-4-1

Date Collected: 02/01/22 14:50

Date Received: 02/01/22 16:12

Lab Sample ID: 320-84393-8

Matrix: Solid

Percent Solids: 90.3

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15 (Continued)

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
M2-4:2 FTS	*116*		*50 - 150*	*02/06/22 18:59*	*02/12/22 13:49*	*1*
M2-6:2 FTS	*140*		*50 - 150*	*02/06/22 18:59*	*02/12/22 13:49*	*1*
d5-NEtFOSAA	*122*		*50 - 150*	*02/06/22 18:59*	*02/12/22 13:49*	*1*
d3-NMeFOSAA	*111*		*50 - 150*	*02/06/22 18:59*	*02/12/22 13:49*	*1*
d-N-EtFOSA-M	*81*		*50 - 150*	*02/06/22 18:59*	*02/12/22 13:49*	*1*
d9-N-EtFOSE-M	*75*		*50 - 150*	*02/06/22 18:59*	*02/12/22 13:49*	*1*
d7-N-MeFOSE-M	*72*		*50 - 150*	*02/06/22 18:59*	*02/12/22 13:49*	*1*
d-N-MeFOSA-M	*78*		*50 - 150*	*02/06/22 18:59*	*02/12/22 13:49*	*1*
13C3 HFPO-DA	*75*		*50 - 150*	*02/06/22 18:59*	*02/12/22 13:49*	*1*

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15 - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
8:2 FTS	ND		2.2	0.38	ug/Kg	☼	02/06/22 18:59	02/12/22 13:39	10

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
M2-8:2 FTS	*100*		*50 - 150*	*02/06/22 18:59*	*02/12/22 13:39*	*10*

General Chemistry

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	**9.7**		0.1	0.1	%			02/03/22 15:05	1
Percent Solids	**90.3**		0.1	0.1	%			02/03/22 15:05	1

Client Sample ID: L7-4-5 Lab Sample ID: 320-84393-9

Date Collected: 02/01/22 15:07 **Matrix: Solid**
Date Received: 02/01/22 16:12 **Percent Solids: 89.4**

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**0.15**	**J**	0.21	0.048	ug/Kg	☼	02/06/22 18:59	02/09/22 13:37	1
Perfluoropentanoic acid (PFPeA)	**0.094**	**J**	0.21	0.043	ug/Kg	☼	02/06/22 18:59	02/09/22 13:37	1
Perfluorohexanoic acid (PFHxA)	ND		0.21	0.032	ug/Kg	☼	02/06/22 18:59	02/09/22 13:37	1
Perfluoroheptanoic acid (PFHpA)	ND		0.21	0.040	ug/Kg	☼	02/06/22 18:59	02/09/22 13:37	1
Perfluorooctanoic acid (PFOA)	**0.098**	**J**	0.21	0.056	ug/Kg	☼	02/06/22 18:59	02/09/22 13:37	1
Perfluorononanoic acid (PFNA)	ND		0.21	0.023	ug/Kg	☼	02/06/22 18:59	02/09/22 13:37	1
Perfluorodecanoic acid (PFDA)	ND		0.21	0.050	ug/Kg	☼	02/06/22 18:59	02/09/22 13:37	1
Perfluoroundecanoic acid (PFUnA)	ND		0.21	0.044	ug/Kg	☼	02/06/22 18:59	02/09/22 13:37	1
Perfluorododecanoic acid (PFDoA)	ND		0.21	0.031	ug/Kg	☼	02/06/22 18:59	02/09/22 13:37	1
Perfluorotridecanoic acid (PFTrDA)	ND		0.21	0.022	ug/Kg	☼	02/06/22 18:59	02/09/22 13:37	1
Perfluorotetradecanoic acid (PFTeA)	ND		0.21	0.039	ug/Kg	☼	02/06/22 18:59	02/09/22 13:37	1
Perfluorobutanesulfonic acid (PFBS)	ND		0.21	0.040	ug/Kg	☼	02/06/22 18:59	02/09/22 13:37	1
Perfluoropentanesulfonic acid (PFPeS)	ND		0.21	0.039	ug/Kg	☼	02/06/22 18:59	02/09/22 13:37	1
Perfluorohexanesulfonic acid (PFHxS)	ND		0.21	0.030	ug/Kg	☼	02/06/22 18:59	02/09/22 13:37	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		0.21	0.051	ug/Kg	☼	02/06/22 18:59	02/09/22 13:37	1
Perfluorooctanesulfonic acid (PFOS)	**0.14**	**J**	0.21	0.045	ug/Kg	☼	02/06/22 18:59	02/09/22 13:37	1
Perfluorodecanesulfonic acid (PFDS)	ND		0.21	0.054	ug/Kg	☼	02/06/22 18:59	02/09/22 13:37	1
Perfluorooctanesulfonamide (FOSA)	ND		0.21	0.035	ug/Kg	☼	02/06/22 18:59	02/09/22 13:37	1
NEtFOSA	ND		0.21	0.049	ug/Kg	☼	02/06/22 18:59	02/09/22 13:37	1
NEtFOSAA	ND		0.21	0.050	ug/Kg	☼	02/06/22 18:59	02/09/22 13:37	1
NEtFOSE	ND		0.21	0.029	ug/Kg	☼	02/06/22 18:59	02/09/22 13:37	1
NMeFOSA	ND		0.21	0.051	ug/Kg	☼	02/06/22 18:59	02/09/22 13:37	1
NMeFOSAA	ND		0.21	0.024	ug/Kg	☼	02/06/22 18:59	02/09/22 13:37	1
NMeFOSE	ND		0.21	0.049	ug/Kg	☼	02/06/22 18:59	02/09/22 13:37	1
4:2 FTS	ND		0.21	0.053	ug/Kg	☼	02/06/22 18:59	02/09/22 13:37	1
6:2 FTS	**0.035**	**J**	0.21	0.028	ug/Kg	☼	02/06/22 18:59	02/09/22 13:37	1
8:2 FTS	ND		0.21	0.037	ug/Kg	☼	02/06/22 18:59	02/09/22 13:37	1
11Cl-PF3OUdS	ND		0.21	0.032	ug/Kg	☼	02/06/22 18:59	02/09/22 13:37	1
9Cl-PF3ONS	ND		0.21	0.037	ug/Kg	☼	02/06/22 18:59	02/09/22 13:37	1
HFPO-DA (GenX)	ND		0.21	0.043	ug/Kg	☼	02/06/22 18:59	02/09/22 13:37	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		0.21	0.041	ug/Kg	☼	02/06/22 18:59	02/09/22 13:37	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*62*		*50 - 150*	*02/06/22 18:59*	*02/09/22 13:37*	*1*
13C5 PFPeA	*83*		*50 - 150*	*02/06/22 18:59*	*02/09/22 13:37*	*1*
13C2 PFHxA	*89*		*50 - 150*	*02/06/22 18:59*	*02/09/22 13:37*	*1*
13C4 PFHpA	*92*		*50 - 150*	*02/06/22 18:59*	*02/09/22 13:37*	*1*
13C4 PFOA	*87*		*50 - 150*	*02/06/22 18:59*	*02/09/22 13:37*	*1*
13C5 PFNA	*93*		*50 - 150*	*02/06/22 18:59*	*02/09/22 13:37*	*1*
13C2 PFDA	*89*		*50 - 150*	*02/06/22 18:59*	*02/09/22 13:37*	*1*
13C2 PFUnA	*104*		*50 - 150*	*02/06/22 18:59*	*02/09/22 13:37*	*1*
13C2 PFDoA	*100*		*50 - 150*	*02/06/22 18:59*	*02/09/22 13:37*	*1*
13C2 PFTeDA	*97*		*50 - 150*	*02/06/22 18:59*	*02/09/22 13:37*	*1*
13C3 PFBS	*83*		*50 - 150*	*02/06/22 18:59*	*02/09/22 13:37*	*1*
18O2 PFHxS	*80*		*50 - 150*	*02/06/22 18:59*	*02/09/22 13:37*	*1*
13C4 PFOS	*91*		*50 - 150*	*02/06/22 18:59*	*02/09/22 13:37*	*1*
13C8 FOSA	*87*		*50 - 150*	*02/06/22 18:59*	*02/09/22 13:37*	*1*

Client Sample ID: L7-4-5

Lab Sample ID: 320-84393-9

Date Collected: 02/01/22 15:07
Date Received: 02/01/22 16:12

Matrix: Solid
Percent Solids: 89.4

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15 (Continued)

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
M2-4:2 FTS	*84*		*50 - 150*	*02/06/22 18:59*	*02/09/22 13:37*	*1*
M2-6:2 FTS	*82*		*50 - 150*	*02/06/22 18:59*	*02/09/22 13:37*	*1*
M2-8:2 FTS	*86*		*50 - 150*	*02/06/22 18:59*	*02/09/22 13:37*	*1*
d5-NEtFOSAA	*95*		*50 - 150*	*02/06/22 18:59*	*02/09/22 13:37*	*1*
d3-NMeFOSAA	*77*		*50 - 150*	*02/06/22 18:59*	*02/09/22 13:37*	*1*
d-N-EtFOSA-M	*95*		*50 - 150*	*02/06/22 18:59*	*02/09/22 13:37*	*1*
d9-N-EtFOSE-M	*91*		*50 - 150*	*02/06/22 18:59*	*02/09/22 13:37*	*1*
d7-N-MeFOSE-M	*94*		*50 - 150*	*02/06/22 18:59*	*02/09/22 13:37*	*1*
d-N-MeFOSA-M	*99*		*50 - 150*	*02/06/22 18:59*	*02/09/22 13:37*	*1*
13C3 HFPO-DA	*77*		*50 - 150*	*02/06/22 18:59*	*02/09/22 13:37*	*1*

General Chemistry

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	**10.6**		0.1	0.1	%			02/03/22 15:05	1
Percent Solids	**89.4**		0.1	0.1	%			02/03/22 15:05	1

Client Sample Results

Client: Woodard & Curran, Inc.
Project/Site: PFAS, San Jose Fuel

Job ID: 320-84393-1

Client Sample ID: L7-5-1

Date Collected: 02/01/22 13:43
Date Received: 02/01/22 16:12

Lab Sample ID: 320-84393-10

Matrix: Solid
Percent Solids: 87.8

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**0.35**		0.21	0.049	ug/Kg	☼	02/06/22 18:59	02/12/22 10:52	1
Perfluoropentanoic acid (PFPeA)	**2.1**		0.21	0.044	ug/Kg	☼	02/06/22 18:59	02/12/22 10:52	1
Perfluorohexanoic acid (PFHxA)	**1.0**		0.21	0.033	ug/Kg	☼	02/06/22 18:59	02/12/22 10:52	1
Perfluoroheptanoic acid (PFHpA)	**0.30**		0.21	0.041	ug/Kg	☼	02/06/22 18:59	02/12/22 10:52	1
Perfluorooctanoic acid (PFOA)	**0.70**		0.21	0.056	ug/Kg	☼	02/06/22 18:59	02/12/22 10:52	1
Perfluorononanoic acid (PFNA)	**0.098**	**J**	0.21	0.023	ug/Kg	☼	02/06/22 18:59	02/12/22 10:52	1
Perfluorodecanoic acid (PFDA)	ND		0.21	0.051	ug/Kg	☼	02/06/22 18:59	02/12/22 10:52	1
Perfluoroundecanoic acid (PFUnA)	ND		0.21	0.045	ug/Kg	☼	02/06/22 18:59	02/12/22 10:52	1
Perfluorododecanoic acid (PFDoA)	ND		0.21	0.032	ug/Kg	☼	02/06/22 18:59	02/12/22 10:52	1
Perfluorotridecanoic acid (PFTrDA)	ND		0.21	0.022	ug/Kg	☼	02/06/22 18:59	02/12/22 10:52	1
Perfluorotetradecanoic acid (PFTeA)	ND		0.21	0.039	ug/Kg	☼	02/06/22 18:59	02/12/22 10:52	1
Perfluorobutanesulfonic acid (PFBS)	ND		0.21	0.041	ug/Kg	☼	02/06/22 18:59	02/12/22 10:52	1
Perfluoropentanesulfonic acid (PFPeS)	ND		0.21	0.039	ug/Kg	☼	02/06/22 18:59	02/12/22 10:52	1
Perfluorohexanesulfonic acid (PFHxS)	**0.23**		0.21	0.031	ug/Kg	☼	02/06/22 18:59	02/12/22 10:52	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		0.21	0.052	ug/Kg	☼	02/06/22 18:59	02/12/22 10:52	1
Perfluorooctanesulfonic acid (PFOS)	**1.3**		0.21	0.046	ug/Kg	☼	02/06/22 18:59	02/12/22 10:52	1
Perfluorodecanesulfonic acid (PFDS)	ND		0.21	0.055	ug/Kg	☼	02/06/22 18:59	02/12/22 10:52	1
Perfluorooctanesulfonamide (FOSA)	ND		0.21	0.035	ug/Kg	☼	02/06/22 18:59	02/12/22 10:52	1
NEtFOSA	ND		0.21	0.050	ug/Kg	☼	02/06/22 18:59	02/12/22 10:52	1
NEtFOSAA	ND		0.21	0.051	ug/Kg	☼	02/06/22 18:59	02/12/22 10:52	1
NEtFOSE	ND		0.21	0.030	ug/Kg	☼	02/06/22 18:59	02/12/22 10:52	1
NMeFOSA	ND		0.21	0.052	ug/Kg	☼	02/06/22 18:59	02/12/22 10:52	1
NMeFOSAA	ND		0.21	0.025	ug/Kg	☼	02/06/22 18:59	02/12/22 10:52	1
NMeFOSE	ND		0.21	0.050	ug/Kg	☼	02/06/22 18:59	02/12/22 10:52	1
4:2 FTS	ND		0.21	0.054	ug/Kg	☼	02/06/22 18:59	02/12/22 10:52	1
6:2 FTS	**0.057**	**J I**	0.21	0.029	ug/Kg	☼	02/06/22 18:59	02/12/22 10:52	1
8:2 FTS	ND		0.21	0.037	ug/Kg	☼	02/06/22 18:59	02/12/22 10:52	1
11Cl-PF3OUdS	ND		0.21	0.033	ug/Kg	☼	02/06/22 18:59	02/12/22 10:52	1
9Cl-PF3ONS	ND		0.21	0.037	ug/Kg	☼	02/06/22 18:59	02/12/22 10:52	1
HFPO-DA (GenX)	ND		0.21	0.044	ug/Kg	☼	02/06/22 18:59	02/12/22 10:52	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		0.21	0.042	ug/Kg	☼	02/06/22 18:59	02/12/22 10:52	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*70*		*50 - 150*	*02/06/22 18:59*	*02/12/22 10:52*	*1*
13C5 PFPeA	*89*		*50 - 150*	*02/06/22 18:59*	*02/12/22 10:52*	*1*
13C2 PFHxA	*94*		*50 - 150*	*02/06/22 18:59*	*02/12/22 10:52*	*1*
13C4 PFHpA	*92*		*50 - 150*	*02/06/22 18:59*	*02/12/22 10:52*	*1*
13C4 PFOA	*91*		*50 - 150*	*02/06/22 18:59*	*02/12/22 10:52*	*1*
13C5 PFNA	*94*		*50 - 150*	*02/06/22 18:59*	*02/12/22 10:52*	*1*
13C2 PFDA	*96*		*50 - 150*	*02/06/22 18:59*	*02/12/22 10:52*	*1*
13C2 PFUnA	*100*		*50 - 150*	*02/06/22 18:59*	*02/12/22 10:52*	*1*
13C2 PFDoA	*95*		*50 - 150*	*02/06/22 18:59*	*02/12/22 10:52*	*1*
13C2 PFTeDA	*97*		*50 - 150*	*02/06/22 18:59*	*02/12/22 10:52*	*1*
13C3 PFBS	*84*		*50 - 150*	*02/06/22 18:59*	*02/12/22 10:52*	*1*
18O2 PFHxS	*84*		*50 - 150*	*02/06/22 18:59*	*02/12/22 10:52*	*1*
13C4 PFOS	*91*		*50 - 150*	*02/06/22 18:59*	*02/12/22 10:52*	*1*

Client Sample Results

Client: Woodard & Curran, Inc.
Project/Site: PFAS, San Jose Fuel

Job ID: 320-84393-1

Client Sample ID: L7-5-1
Date Collected: 02/01/22 13:43
Date Received: 02/01/22 16:12

Lab Sample ID: 320-84393-10
Matrix: Solid
Percent Solids: 87.8

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15 (Continued)

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C8 FOSA	*89*		*50 - 150*	*02/06/22 18:59*	*02/12/22 10:52*	*1*
M2-4:2 FTS	*78*		*50 - 150*	*02/06/22 18:59*	*02/12/22 10:52*	*1*
M2-6:2 FTS	*77*		*50 - 150*	*02/06/22 18:59*	*02/12/22 10:52*	*1*
M2-8:2 FTS	*100*		*50 - 150*	*02/06/22 18:59*	*02/12/22 10:52*	*1*
d5-NEtFOSAA	*96*		*50 - 150*	*02/06/22 18:59*	*02/12/22 10:52*	*1*
d3-NMeFOSAA	*78*		*50 - 150*	*02/06/22 18:59*	*02/12/22 10:52*	*1*
d-N-EtFOSA-M	*86*		*50 - 150*	*02/06/22 18:59*	*02/12/22 10:52*	*1*
d9-N-EtFOSE-M	*91*		*50 - 150*	*02/06/22 18:59*	*02/12/22 10:52*	*1*
d7-N-MeFOSE-M	*88*		*50 - 150*	*02/06/22 18:59*	*02/12/22 10:52*	*1*
d-N-MeFOSA-M	*89*		*50 - 150*	*02/06/22 18:59*	*02/12/22 10:52*	*1*
13C3 HFPO-DA	*85*		*50 - 150*	*02/06/22 18:59*	*02/12/22 10:52*	*1*

General Chemistry

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	**12.2**		0.1	0.1	%			02/03/22 17:03	1
Percent Solids	**87.8**		0.1	0.1	%			02/03/22 17:03	1

Client Sample Results

Client: Woodard & Curran, Inc.
Project/Site: PFAS, San Jose Fuel

Job ID: 320-84393-1

Client Sample ID: L7-5-5

Date Collected: 02/01/22 14:00
Date Received: 02/01/22 16:12

Lab Sample ID: 320-84393-11

Matrix: Solid
Percent Solids: 93.2

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**0.066**	**J**	0.20	0.047	ug/Kg	☼	02/06/22 18:59	02/12/22 11:02	1
Perfluoropentanoic acid (PFPeA)	**0.30**		0.20	0.042	ug/Kg	☼	02/06/22 18:59	02/12/22 11:02	1
Perfluorohexanoic acid (PFHxA)	**0.22**		0.20	0.032	ug/Kg	☼	02/06/22 18:59	02/12/22 11:02	1
Perfluoroheptanoic acid (PFHpA)	**0.15**	**J**	0.20	0.039	ug/Kg	☼	02/06/22 18:59	02/12/22 11:02	1
Perfluorooctanoic acid (PFOA)	**1.1**		0.20	0.054	ug/Kg	☼	02/06/22 18:59	02/12/22 11:02	1
Perfluorononanoic acid (PFNA)	**0.051**	**J**	0.20	0.023	ug/Kg	☼	02/06/22 18:59	02/12/22 11:02	1
Perfluorodecanoic acid (PFDA)	ND		0.20	0.049	ug/Kg	☼	02/06/22 18:59	02/12/22 11:02	1
Perfluoroundecanoic acid (PFUnA)	ND		0.20	0.043	ug/Kg	☼	02/06/22 18:59	02/12/22 11:02	1
Perfluorododecanoic acid (PFDoA)	ND		0.20	0.031	ug/Kg	☼	02/06/22 18:59	02/12/22 11:02	1
Perfluorotridecanoic acid (PFTrDA)	ND		0.20	0.022	ug/Kg	☼	02/06/22 18:59	02/12/22 11:02	1
Perfluorotetradecanoic acid (PFTeA)	ND		0.20	0.038	ug/Kg	☼	02/06/22 18:59	02/12/22 11:02	1
Perfluorobutanesulfonic acid (PFBS)	ND		0.20	0.039	ug/Kg	☼	02/06/22 18:59	02/12/22 11:02	1
Perfluoropentanesulfonic acid (PFPeS)	ND		0.20	0.038	ug/Kg	☼	02/06/22 18:59	02/12/22 11:02	1
Perfluorohexanesulfonic acid (PFHxS)	**0.29**		0.20	0.030	ug/Kg	☼	02/06/22 18:59	02/12/22 11:02	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		0.20	0.050	ug/Kg	☼	02/06/22 18:59	02/12/22 11:02	1
Perfluorooctanesulfonic acid (PFOS)	**0.97**		0.20	0.044	ug/Kg	☼	02/06/22 18:59	02/12/22 11:02	1
Perfluorodecanesulfonic acid (PFDS)	ND		0.20	0.053	ug/Kg	☼	02/06/22 18:59	02/12/22 11:02	1
Perfluorooctanesulfonamide (FOSA)	ND		0.20	0.034	ug/Kg	☼	02/06/22 18:59	02/12/22 11:02	1
NEtFOSA	ND		0.20	0.048	ug/Kg	☼	02/06/22 18:59	02/12/22 11:02	1
NEtFOSAA	ND		0.20	0.049	ug/Kg	☼	02/06/22 18:59	02/12/22 11:02	1
NEtFOSE	ND		0.20	0.029	ug/Kg	☼	02/06/22 18:59	02/12/22 11:02	1
NMeFOSA	ND		0.20	0.050	ug/Kg	☼	02/06/22 18:59	02/12/22 11:02	1
NMeFOSAA	ND		0.20	0.024	ug/Kg	☼	02/06/22 18:59	02/12/22 11:02	1
NMeFOSE	ND		0.20	0.048	ug/Kg	☼	02/06/22 18:59	02/12/22 11:02	1
4:2 FTS	ND		0.20	0.052	ug/Kg	☼	02/06/22 18:59	02/12/22 11:02	1
6:2 FTS	ND		0.20	0.028	ug/Kg	☼	02/06/22 18:59	02/12/22 11:02	1
8:2 FTS	ND		0.20	0.036	ug/Kg	☼	02/06/22 18:59	02/12/22 11:02	1
11Cl-PF3OUdS	ND		0.20	0.032	ug/Kg	☼	02/06/22 18:59	02/12/22 11:02	1
9Cl-PF3ONS	ND		0.20	0.036	ug/Kg	☼	02/06/22 18:59	02/12/22 11:02	1
HFPO-DA (GenX)	ND		0.20	0.042	ug/Kg	☼	02/06/22 18:59	02/12/22 11:02	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		0.20	0.040	ug/Kg	☼	02/06/22 18:59	02/12/22 11:02	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*61*		*50 - 150*	*02/06/22 18:59*	*02/12/22 11:02*	*1*
13C5 PFPeA	*88*		*50 - 150*	*02/06/22 18:59*	*02/12/22 11:02*	*1*
13C2 PFHxA	*85*		*50 - 150*	*02/06/22 18:59*	*02/12/22 11:02*	*1*
13C4 PFHpA	*84*		*50 - 150*	*02/06/22 18:59*	*02/12/22 11:02*	*1*
13C4 PFOA	*89*		*50 - 150*	*02/06/22 18:59*	*02/12/22 11:02*	*1*
13C5 PFNA	*93*		*50 - 150*	*02/06/22 18:59*	*02/12/22 11:02*	*1*
13C2 PFDA	*93*		*50 - 150*	*02/06/22 18:59*	*02/12/22 11:02*	*1*
13C2 PFUnA	*91*		*50 - 150*	*02/06/22 18:59*	*02/12/22 11:02*	*1*
13C2 PFDoA	*86*		*50 - 150*	*02/06/22 18:59*	*02/12/22 11:02*	*1*
13C2 PFTeDA	*88*		*50 - 150*	*02/06/22 18:59*	*02/12/22 11:02*	*1*
13C3 PFBS	*84*		*50 - 150*	*02/06/22 18:59*	*02/12/22 11:02*	*1*
18O2 PFHxS	*86*		*50 - 150*	*02/06/22 18:59*	*02/12/22 11:02*	*1*
13C4 PFOS	*89*		*50 - 150*	*02/06/22 18:59*	*02/12/22 11:02*	*1*

Client Sample ID: L7-5-5

Date Collected: 02/01/22 14:00
Date Received: 02/01/22 16:12

Lab Sample ID: 320-84393-11

Matrix: Solid
Percent Solids: 93.2

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15 (Continued)

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C8 FOSA	*91*		*50 - 150*	*02/06/22 18:59*	*02/12/22 11:02*	*1*
M2-4:2 FTS	*83*		*50 - 150*	*02/06/22 18:59*	*02/12/22 11:02*	*1*
M2-6:2 FTS	*74*		*50 - 150*	*02/06/22 18:59*	*02/12/22 11:02*	*1*
M2-8:2 FTS	*91*		*50 - 150*	*02/06/22 18:59*	*02/12/22 11:02*	*1*
d5-NEtFOSAA	*90*		*50 - 150*	*02/06/22 18:59*	*02/12/22 11:02*	*1*
d3-NMeFOSAA	*89*		*50 - 150*	*02/06/22 18:59*	*02/12/22 11:02*	*1*
d-N-EtFOSA-M	*84*		*50 - 150*	*02/06/22 18:59*	*02/12/22 11:02*	*1*
d9-N-EtFOSE-M	*74*		*50 - 150*	*02/06/22 18:59*	*02/12/22 11:02*	*1*
d7-N-MeFOSE-M	*80*		*50 - 150*	*02/06/22 18:59*	*02/12/22 11:02*	*1*
d-N-MeFOSA-M	*88*		*50 - 150*	*02/06/22 18:59*	*02/12/22 11:02*	*1*
13C3 HFPO-DA	*84*		*50 - 150*	*02/06/22 18:59*	*02/12/22 11:02*	*1*

General Chemistry

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	**6.8**		0.1	0.1	%			02/03/22 17:03	1
Percent Solids	**93.2**		0.1	0.1	%			02/03/22 17:03	1

Client Sample Results

Client Sample ID: L7-5-10 Lab Sample ID: 320-84393-12

Date Collected: 02/01/22 14:10 **Matrix: Solid**
Date Received: 02/01/22 16:12 **Percent Solids: 83.9**

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**0.11**	**J**	0.22	0.050	ug/Kg	☼	02/06/22 18:59	02/12/22 11:13	1
Perfluoropentanoic acid (PFPeA)	**0.77**		0.22	0.045	ug/Kg	☼	02/06/22 18:59	02/12/22 11:13	1
Perfluorohexanoic acid (PFHxA)	**0.66**		0.22	0.034	ug/Kg	☼	02/06/22 18:59	02/12/22 11:13	1
Perfluoroheptanoic acid (PFHpA)	**0.27**		0.22	0.042	ug/Kg	☼	02/06/22 18:59	02/12/22 11:13	1
Perfluorooctanoic acid (PFOA)	ND		0.22	0.058	ug/Kg	☼	02/06/22 18:59	02/12/22 11:13	1
Perfluorononanoic acid (PFNA)	ND		0.22	0.024	ug/Kg	☼	02/06/22 18:59	02/12/22 11:13	1
Perfluorodecanoic acid (PFDA)	ND		0.22	0.053	ug/Kg	☼	02/06/22 18:59	02/12/22 11:13	1
Perfluoroundecanoic acid (PFUnA)	ND		0.22	0.046	ug/Kg	☼	02/06/22 18:59	02/12/22 11:13	1
Perfluorododecanoic acid (PFDoA)	ND		0.22	0.033	ug/Kg	☼	02/06/22 18:59	02/12/22 11:13	1
Perfluorotridecanoic acid (PFTrDA)	ND		0.22	0.023	ug/Kg	☼	02/06/22 18:59	02/12/22 11:13	1
Perfluorotetradecanoic acid (PFTeA)	ND		0.22	0.041	ug/Kg	☼	02/06/22 18:59	02/12/22 11:13	1
Perfluorobutanesulfonic acid (PFBS)	ND		0.22	0.042	ug/Kg	☼	02/06/22 18:59	02/12/22 11:13	1
Perfluoropentanesulfonic acid (PFPeS)	ND		0.22	0.041	ug/Kg	☼	02/06/22 18:59	02/12/22 11:13	1
Perfluorohexanesulfonic acid (PFHxS)	**0.059**	**J**	0.22	0.032	ug/Kg	☼	02/06/22 18:59	02/12/22 11:13	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		0.22	0.054	ug/Kg	☼	02/06/22 18:59	02/12/22 11:13	1
Perfluorooctanesulfonic acid (PFOS)	ND		0.22	0.047	ug/Kg	☼	02/06/22 18:59	02/12/22 11:13	1
Perfluorodecanesulfonic acid (PFDS)	ND		0.22	0.057	ug/Kg	☼	02/06/22 18:59	02/12/22 11:13	1
Perfluorooctanesulfonamide (FOSA)	ND		0.22	0.036	ug/Kg	☼	02/06/22 18:59	02/12/22 11:13	1
NEtFOSA	ND		0.22	0.051	ug/Kg	☼	02/06/22 18:59	02/12/22 11:13	1
NEtFOSAA	ND		0.22	0.053	ug/Kg	☼	02/06/22 18:59	02/12/22 11:13	1
NEtFOSE	ND		0.22	0.031	ug/Kg	☼	02/06/22 18:59	02/12/22 11:13	1
NMeFOSA	ND		0.22	0.054	ug/Kg	☼	02/06/22 18:59	02/12/22 11:13	1
NMeFOSAA	ND		0.22	0.025	ug/Kg	☼	02/06/22 18:59	02/12/22 11:13	1
NMeFOSE	ND		0.22	0.051	ug/Kg	☼	02/06/22 18:59	02/12/22 11:13	1
4:2 FTS	ND		0.22	0.056	ug/Kg	☼	02/06/22 18:59	02/12/22 11:13	1
6:2 FTS	ND		0.22	0.030	ug/Kg	☼	02/06/22 18:59	02/12/22 11:13	1
8:2 FTS	ND		0.22	0.038	ug/Kg	☼	02/06/22 18:59	02/12/22 11:13	1
11Cl-PF3OUdS	ND		0.22	0.034	ug/Kg	☼	02/06/22 18:59	02/12/22 11:13	1
9Cl-PF3ONS	ND		0.22	0.038	ug/Kg	☼	02/06/22 18:59	02/12/22 11:13	1
HFPO-DA (GenX)	ND		0.22	0.045	ug/Kg	☼	02/06/22 18:59	02/12/22 11:13	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		0.22	0.043	ug/Kg	☼	02/06/22 18:59	02/12/22 11:13	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*63*		*50 - 150*	*02/06/22 18:59*	*02/12/22 11:13*	*1*
13C5 PFPeA	*89*		*50 - 150*	*02/06/22 18:59*	*02/12/22 11:13*	*1*
13C2 PFHxA	*98*		*50 - 150*	*02/06/22 18:59*	*02/12/22 11:13*	*1*
13C4 PFHpA	*96*		*50 - 150*	*02/06/22 18:59*	*02/12/22 11:13*	*1*
13C4 PFOA	*92*		*50 - 150*	*02/06/22 18:59*	*02/12/22 11:13*	*1*
13C5 PFNA	*97*		*50 - 150*	*02/06/22 18:59*	*02/12/22 11:13*	*1*
13C2 PFDA	*97*		*50 - 150*	*02/06/22 18:59*	*02/12/22 11:13*	*1*
13C2 PFUnA	*101*		*50 - 150*	*02/06/22 18:59*	*02/12/22 11:13*	*1*
13C2 PFDoA	*95*		*50 - 150*	*02/06/22 18:59*	*02/12/22 11:13*	*1*
13C2 PFTeDA	*95*		*50 - 150*	*02/06/22 18:59*	*02/12/22 11:13*	*1*
13C3 PFBS	*87*		*50 - 150*	*02/06/22 18:59*	*02/12/22 11:13*	*1*
18O2 PFHxS	*87*		*50 - 150*	*02/06/22 18:59*	*02/12/22 11:13*	*1*
13C4 PFOS	*99*		*50 - 150*	*02/06/22 18:59*	*02/12/22 11:13*	*1*
13C8 FOSA	*94*		*50 - 150*	*02/06/22 18:59*	*02/12/22 11:13*	*1*

Client Sample ID: L7-5-10
Lab Sample ID: 320-84393-12
Date Collected: 02/01/22 14:10
Matrix: Solid
Date Received: 02/01/22 16:12
Percent Solids: 83.9

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15 (Continued)

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
M2-4:2 FTS	*81*		*50 - 150*	*02/06/22 18:59*	*02/12/22 11:13*	*1*
M2-6:2 FTS	*75*		*50 - 150*	*02/06/22 18:59*	*02/12/22 11:13*	*1*
M2-8:2 FTS	*84*		*50 - 150*	*02/06/22 18:59*	*02/12/22 11:13*	*1*
d5-NEtFOSAA	*89*		*50 - 150*	*02/06/22 18:59*	*02/12/22 11:13*	*1*
d3-NMeFOSAA	*79*		*50 - 150*	*02/06/22 18:59*	*02/12/22 11:13*	*1*
d-N-EtFOSA-M	*89*		*50 - 150*	*02/06/22 18:59*	*02/12/22 11:13*	*1*
d9-N-EtFOSE-M	*84*		*50 - 150*	*02/06/22 18:59*	*02/12/22 11:13*	*1*
d7-N-MeFOSE-M	*90*		*50 - 150*	*02/06/22 18:59*	*02/12/22 11:13*	*1*
d-N-MeFOSA-M	*92*		*50 - 150*	*02/06/22 18:59*	*02/12/22 11:13*	*1*
13C3 HFPO-DA	*86*		*50 - 150*	*02/06/22 18:59*	*02/12/22 11:13*	*1*

General Chemistry

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	**16.1**		0.1	0.1	%			02/04/22 21:23	1
Percent Solids	**83.9**		0.1	0.1	%			02/04/22 21:23	1

Client Sample Results

Client: Woodard & Curran, Inc.
Project/Site: PFAS, San Jose Fuel

Job ID: 320-84393-1

Client Sample ID: L7-6-1

Date Collected: 02/01/22 11:25
Date Received: 02/01/22 16:12

Lab Sample ID: 320-84393-13

Matrix: Solid
Percent Solids: 84.8

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**2.3**		0.22	0.051	ug/Kg	☼	02/06/22 18:59	02/12/22 11:23	1
Perfluoropentanoic acid (PFPeA)	**12**		0.22	0.046	ug/Kg	☼	02/06/22 18:59	02/12/22 11:23	1
Perfluorohexanoic acid (PFHxA)	**10**		0.22	0.034	ug/Kg	☼	02/06/22 18:59	02/12/22 11:23	1
Perfluoroheptanoic acid (PFHpA)	**8.5**		0.22	0.042	ug/Kg	☼	02/06/22 18:59	02/12/22 11:23	1
Perfluorooctanoic acid (PFOA)	**9.5**		0.22	0.059	ug/Kg	☼	02/06/22 18:59	02/12/22 11:23	1
Perfluorononanoic acid (PFNA)	**0.79**		0.22	0.024	ug/Kg	☼	02/06/22 18:59	02/12/22 11:23	1
Perfluorodecanoic acid (PFDA)	**0.11**	**J**	0.22	0.053	ug/Kg	☼	02/06/22 18:59	02/12/22 11:23	1
Perfluoroundecanoic acid (PFUnA)	ND		0.22	0.047	ug/Kg	☼	02/06/22 18:59	02/12/22 11:23	1
Perfluorododecanoic acid (PFDoA)	ND		0.22	0.033	ug/Kg	☼	02/06/22 18:59	02/12/22 11:23	1
Perfluorotridecanoic acid (PFTrDA)	ND		0.22	0.023	ug/Kg	☼	02/06/22 18:59	02/12/22 11:23	1
Perfluorotetradecanoic acid (PFTeA)	ND		0.22	0.041	ug/Kg	☼	02/06/22 18:59	02/12/22 11:23	1
Perfluorobutanesulfonic acid (PFBS)	ND		0.22	0.042	ug/Kg	☼	02/06/22 18:59	02/12/22 11:23	1
Perfluoropentanesulfonic acid (PFPeS)	ND		0.22	0.041	ug/Kg	☼	02/06/22 18:59	02/12/22 11:23	1
Perfluorohexanesulfonic acid (PFHxS)	**0.18**	**J**	0.22	0.032	ug/Kg	☼	02/06/22 18:59	02/12/22 11:23	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		0.22	0.055	ug/Kg	☼	02/06/22 18:59	02/12/22 11:23	1
Perfluorooctanesulfonic acid (PFOS)	**0.75**		0.22	0.048	ug/Kg	☼	02/06/22 18:59	02/12/22 11:23	1
Perfluorodecanesulfonic acid (PFDS)	ND		0.22	0.058	ug/Kg	☼	02/06/22 18:59	02/12/22 11:23	1
Perfluorooctanesulfonamide (FOSA)	ND		0.22	0.037	ug/Kg	☼	02/06/22 18:59	02/12/22 11:23	1
NEtFOSA	ND		0.22	0.052	ug/Kg	☼	02/06/22 18:59	02/12/22 11:23	1
NEtFOSAA	ND		0.22	0.053	ug/Kg	☼	02/06/22 18:59	02/12/22 11:23	1
NEtFOSE	ND		0.22	0.031	ug/Kg	☼	02/06/22 18:59	02/12/22 11:23	1
NMeFOSA	ND		0.22	0.055	ug/Kg	☼	02/06/22 18:59	02/12/22 11:23	1
NMeFOSAA	ND		0.22	0.026	ug/Kg	☼	02/06/22 18:59	02/12/22 11:23	1
NMeFOSE	ND		0.22	0.052	ug/Kg	☼	02/06/22 18:59	02/12/22 11:23	1
4:2 FTS	ND		0.22	0.057	ug/Kg	☼	02/06/22 18:59	02/12/22 11:23	1
6:2 FTS	**0.34**		0.22	0.030	ug/Kg	☼	02/06/22 18:59	02/12/22 11:23	1
8:2 FTS	**4.3**		0.22	0.039	ug/Kg	☼	02/06/22 18:59	02/12/22 11:23	1
11Cl-PF3OUdS	ND		0.22	0.034	ug/Kg	☼	02/06/22 18:59	02/12/22 11:23	1
9Cl-PF3ONS	ND		0.22	0.039	ug/Kg	☼	02/06/22 18:59	02/12/22 11:23	1
HFPO-DA (GenX)	ND		0.22	0.046	ug/Kg	☼	02/06/22 18:59	02/12/22 11:23	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		0.22	0.043	ug/Kg	☼	02/06/22 18:59	02/12/22 11:23	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*56*		*50 - 150*	*02/06/22 18:59*	*02/12/22 11:23*	*1*
13C5 PFPeA	*76*		*50 - 150*	*02/06/22 18:59*	*02/12/22 11:23*	*1*
13C2 PFHxA	*90*		*50 - 150*	*02/06/22 18:59*	*02/12/22 11:23*	*1*
13C4 PFHpA	*81*		*50 - 150*	*02/06/22 18:59*	*02/12/22 11:23*	*1*
13C4 PFOA	*87*		*50 - 150*	*02/06/22 18:59*	*02/12/22 11:23*	*1*
13C5 PFNA	*92*		*50 - 150*	*02/06/22 18:59*	*02/12/22 11:23*	*1*
13C2 PFDA	*95*		*50 - 150*	*02/06/22 18:59*	*02/12/22 11:23*	*1*
13C2 PFUnA	*91*		*50 - 150*	*02/06/22 18:59*	*02/12/22 11:23*	*1*
13C2 PFDoA	*87*		*50 - 150*	*02/06/22 18:59*	*02/12/22 11:23*	*1*
13C2 PFTeDA	*91*		*50 - 150*	*02/06/22 18:59*	*02/12/22 11:23*	*1*
13C3 PFBS	*70*		*50 - 150*	*02/06/22 18:59*	*02/12/22 11:23*	*1*
18O2 PFHxS	*71*		*50 - 150*	*02/06/22 18:59*	*02/12/22 11:23*	*1*
13C4 PFOS	*72*		*50 - 150*	*02/06/22 18:59*	*02/12/22 11:23*	*1*

Client Sample Results

Client Sample ID: L7-6-1

Lab Sample ID: 320-84393-13
Date Collected: 02/01/22 11:25
Matrix: Solid
Date Received: 02/01/22 16:12
Percent Solids: 84.8

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15 (Continued)

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C8 FOSA	*63*		*50 - 150*	*02/06/22 18:59*	*02/12/22 11:23*	*1*
M2-4:2 FTS	*68*		*50 - 150*	*02/06/22 18:59*	*02/12/22 11:23*	*1*
M2-6:2 FTS	*61*		*50 - 150*	*02/06/22 18:59*	*02/12/22 11:23*	*1*
M2-8:2 FTS	*83*		*50 - 150*	*02/06/22 18:59*	*02/12/22 11:23*	*1*
d5-NEtFOSAA	*89*		*50 - 150*	*02/06/22 18:59*	*02/12/22 11:23*	*1*
d3-NMeFOSAA	*79*		*50 - 150*	*02/06/22 18:59*	*02/12/22 11:23*	*1*
d-N-EtFOSA-M	*81*		*50 - 150*	*02/06/22 18:59*	*02/12/22 11:23*	*1*
d9-N-EtFOSE-M	*76*		*50 - 150*	*02/06/22 18:59*	*02/12/22 11:23*	*1*
d7-N-MeFOSE-M	*81*		*50 - 150*	*02/06/22 18:59*	*02/12/22 11:23*	*1*
d-N-MeFOSA-M	*75*		*50 - 150*	*02/06/22 18:59*	*02/12/22 11:23*	*1*
13C3 HFPO-DA	*74*		*50 - 150*	*02/06/22 18:59*	*02/12/22 11:23*	*1*

General Chemistry

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	**15.2**		0.1	0.1	%			02/04/22 21:23	1
Percent Solids	**84.8**		0.1	0.1	%			02/04/22 21:23	1

Client Sample Results

Client: Woodard & Curran, Inc.
Project/Site: PFAS, San Jose Fuel

Job ID: 320-84393-1

Client Sample ID: L7-6-5

Date Collected: 02/01/22 12:29
Date Received: 02/01/22 16:12

Lab Sample ID: 320-84393-14

Matrix: Solid
Percent Solids: 87.2

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**1.3**		0.23	0.052	ug/Kg	☼	02/06/22 18:59	02/12/22 11:34	1
Perfluoropentanoic acid (PFPeA)	**5.4**		0.23	0.046	ug/Kg	☼	02/06/22 18:59	02/12/22 11:34	1
Perfluorohexanoic acid (PFHxA)	**4.0**		0.23	0.035	ug/Kg	☼	02/06/22 18:59	02/12/22 11:34	1
Perfluoroheptanoic acid (PFHpA)	**3.3**		0.23	0.043	ug/Kg	☼	02/06/22 18:59	02/12/22 11:34	1
Perfluorooctanoic acid (PFOA)	**2.4**		0.23	0.060	ug/Kg	☼	02/06/22 18:59	02/12/22 11:34	1
Perfluorononanoic acid (PFNA)	**0.035**	**J**	0.23	0.025	ug/Kg	☼	02/06/22 18:59	02/12/22 11:34	1
Perfluorodecanoic acid (PFDA)	ND		0.23	0.054	ug/Kg	☼	02/06/22 18:59	02/12/22 11:34	1
Perfluoroundecanoic acid (PFUnA)	ND		0.23	0.047	ug/Kg	☼	02/06/22 18:59	02/12/22 11:34	1
Perfluorododecanoic acid (PFDoA)	ND		0.23	0.034	ug/Kg	☼	02/06/22 18:59	02/12/22 11:34	1
Perfluorotridecanoic acid (PFTrDA)	ND		0.23	0.024	ug/Kg	☼	02/06/22 18:59	02/12/22 11:34	1
Perfluorotetradecanoic acid (PFTeA)	ND		0.23	0.042	ug/Kg	☼	02/06/22 18:59	02/12/22 11:34	1
Perfluorobutanesulfonic acid (PFBS)	ND		0.23	0.043	ug/Kg	☼	02/06/22 18:59	02/12/22 11:34	1
Perfluoropentanesulfonic acid (PFPeS)	ND		0.23	0.042	ug/Kg	☼	02/06/22 18:59	02/12/22 11:34	1
Perfluorohexanesulfonic acid (PFHxS)	**0.19**	**J**	0.23	0.033	ug/Kg	☼	02/06/22 18:59	02/12/22 11:34	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		0.23	0.055	ug/Kg	☼	02/06/22 18:59	02/12/22 11:34	1
Perfluorooctanesulfonic acid (PFOS)	**0.37**		0.23	0.049	ug/Kg	☼	02/06/22 18:59	02/12/22 11:34	1
Perfluorodecanesulfonic acid (PFDS)	ND		0.23	0.059	ug/Kg	☼	02/06/22 18:59	02/12/22 11:34	1
Perfluorooctanesulfonamide (FOSA)	ND		0.23	0.037	ug/Kg	☼	02/06/22 18:59	02/12/22 11:34	1
NEtFOSA	ND		0.23	0.053	ug/Kg	☼	02/06/22 18:59	02/12/22 11:34	1
NEtFOSAA	ND		0.23	0.054	ug/Kg	☼	02/06/22 18:59	02/12/22 11:34	1
NEtFOSE	ND		0.23	0.032	ug/Kg	☼	02/06/22 18:59	02/12/22 11:34	1
NMeFOSA	ND		0.23	0.055	ug/Kg	☼	02/06/22 18:59	02/12/22 11:34	1
NMeFOSAA	ND		0.23	0.026	ug/Kg	☼	02/06/22 18:59	02/12/22 11:34	1
NMeFOSE	ND		0.23	0.053	ug/Kg	☼	02/06/22 18:59	02/12/22 11:34	1
4:2 FTS	ND		0.23	0.058	ug/Kg	☼	02/06/22 18:59	02/12/22 11:34	1
6:2 FTS	ND		0.23	0.030	ug/Kg	☼	02/06/22 18:59	02/12/22 11:34	1
8:2 FTS	**0.41**		0.23	0.040	ug/Kg	☼	02/06/22 18:59	02/12/22 11:34	1
11Cl-PF3OUdS	ND		0.23	0.035	ug/Kg	☼	02/06/22 18:59	02/12/22 11:34	1
9Cl-PF3ONS	ND		0.23	0.040	ug/Kg	☼	02/06/22 18:59	02/12/22 11:34	1
HFPO-DA (GenX)	ND		0.23	0.046	ug/Kg	☼	02/06/22 18:59	02/12/22 11:34	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		0.23	0.044	ug/Kg	☼	02/06/22 18:59	02/12/22 11:34	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*54*		*50 - 150*	*02/06/22 18:59*	*02/12/22 11:34*	*1*
13C5 PFPeA	*79*		*50 - 150*	*02/06/22 18:59*	*02/12/22 11:34*	*1*
13C2 PFHxA	*90*		*50 - 150*	*02/06/22 18:59*	*02/12/22 11:34*	*1*
13C4 PFHpA	*85*		*50 - 150*	*02/06/22 18:59*	*02/12/22 11:34*	*1*
13C4 PFOA	*85*		*50 - 150*	*02/06/22 18:59*	*02/12/22 11:34*	*1*
13C5 PFNA	*87*		*50 - 150*	*02/06/22 18:59*	*02/12/22 11:34*	*1*
13C2 PFDA	*86*		*50 - 150*	*02/06/22 18:59*	*02/12/22 11:34*	*1*
13C2 PFUnA	*91*		*50 - 150*	*02/06/22 18:59*	*02/12/22 11:34*	*1*
13C2 PFDoA	*88*		*50 - 150*	*02/06/22 18:59*	*02/12/22 11:34*	*1*
13C2 PFTeDA	*87*		*50 - 150*	*02/06/22 18:59*	*02/12/22 11:34*	*1*
13C3 PFBS	*79*		*50 - 150*	*02/06/22 18:59*	*02/12/22 11:34*	*1*
18O2 PFHxS	*79*		*50 - 150*	*02/06/22 18:59*	*02/12/22 11:34*	*1*
13C4 PFOS	*84*		*50 - 150*	*02/06/22 18:59*	*02/12/22 11:34*	*1*

Client Sample ID: L7-6-5
Date Collected: 02/01/22 12:29
Date Received: 02/01/22 16:12

Lab Sample ID: 320-84393-14
Matrix: Solid
Percent Solids: 87.2

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15 (Continued)

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C8 FOSA	*81*		*50 - 150*	*02/06/22 18:59*	*02/12/22 11:34*	*1*
M2-4:2 FTS	*64*		*50 - 150*	*02/06/22 18:59*	*02/12/22 11:34*	*1*
M2-6:2 FTS	*64*		*50 - 150*	*02/06/22 18:59*	*02/12/22 11:34*	*1*
M2-8:2 FTS	*76*		*50 - 150*	*02/06/22 18:59*	*02/12/22 11:34*	*1*
d5-NEtFOSAA	*85*		*50 - 150*	*02/06/22 18:59*	*02/12/22 11:34*	*1*
d3-NMeFOSAA	*80*		*50 - 150*	*02/06/22 18:59*	*02/12/22 11:34*	*1*
d-N-EtFOSA-M	*81*		*50 - 150*	*02/06/22 18:59*	*02/12/22 11:34*	*1*
d9-N-EtFOSE-M	*77*		*50 - 150*	*02/06/22 18:59*	*02/12/22 11:34*	*1*
d7-N-MeFOSE-M	*80*		*50 - 150*	*02/06/22 18:59*	*02/12/22 11:34*	*1*
d-N-MeFOSA-M	*90*		*50 - 150*	*02/06/22 18:59*	*02/12/22 11:34*	*1*
13C3 HFPO-DA	*75*		*50 - 150*	*02/06/22 18:59*	*02/12/22 11:34*	*1*

General Chemistry

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	**12.8**		0.1	0.1	%			02/04/22 21:23	1
Percent Solids	**87.2**		0.1	0.1	%			02/04/22 21:23	1

Client Sample Results

Client: Woodard & Curran, Inc.
Project/Site: PFAS, San Jose Fuel

Job ID: 320-84393-1

Client Sample ID: L7-6-10

Date Collected: 02/01/22 12:31
Date Received: 02/01/22 16:12

Lab Sample ID: 320-84393-15

Matrix: Solid
Percent Solids: 80.4

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**1.2**		0.23	0.054	ug/Kg	☼	02/06/22 18:59	02/12/22 11:44	1
Perfluoropentanoic acid (PFPeA)	**6.2**		0.23	0.048	ug/Kg	☼	02/06/22 18:59	02/12/22 11:44	1
Perfluorohexanoic acid (PFHxA)	**7.5**		0.23	0.036	ug/Kg	☼	02/06/22 18:59	02/12/22 11:44	1
Perfluoroheptanoic acid (PFHpA)	**9.5**		0.23	0.044	ug/Kg	☼	02/06/22 18:59	02/12/22 11:44	1
Perfluorooctanoic acid (PFOA)	ND		0.23	0.062	ug/Kg	☼	02/06/22 18:59	02/12/22 11:44	1
Perfluorononanoic acid (PFNA)	ND		0.23	0.026	ug/Kg	☼	02/06/22 18:59	02/12/22 11:44	1
Perfluorodecanoic acid (PFDA)	ND		0.23	0.056	ug/Kg	☼	02/06/22 18:59	02/12/22 11:44	1
Perfluoroundecanoic acid (PFUnA)	ND		0.23	0.049	ug/Kg	☼	02/06/22 18:59	02/12/22 11:44	1
Perfluorododecanoic acid (PFDoA)	ND		0.23	0.035	ug/Kg	☼	02/06/22 18:59	02/12/22 11:44	1
Perfluorotridecanoic acid (PFTrDA)	ND		0.23	0.024	ug/Kg	☼	02/06/22 18:59	02/12/22 11:44	1
Perfluorotetradecanoic acid (PFTeA)	ND		0.23	0.043	ug/Kg	☼	02/06/22 18:59	02/12/22 11:44	1
Perfluorobutanesulfonic acid (PFBS)	ND		0.23	0.044	ug/Kg	☼	02/06/22 18:59	02/12/22 11:44	1
Perfluoropentanesulfonic acid (PFPeS)	ND		0.23	0.043	ug/Kg	☼	02/06/22 18:59	02/12/22 11:44	1
Perfluorohexanesulfonic acid (PFHxS)	**0.063**	**J**	0.23	0.034	ug/Kg	☼	02/06/22 18:59	02/12/22 11:44	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		0.23	0.057	ug/Kg	☼	02/06/22 18:59	02/12/22 11:44	1
Perfluorooctanesulfonic acid (PFOS)	ND		0.23	0.050	ug/Kg	☼	02/06/22 18:59	02/12/22 11:44	1
Perfluorodecanesulfonic acid (PFDS)	ND		0.23	0.061	ug/Kg	☼	02/06/22 18:59	02/12/22 11:44	1
Perfluorooctanesulfonamide (FOSA)	ND		0.23	0.038	ug/Kg	☼	02/06/22 18:59	02/12/22 11:44	1
NEtFOSA	ND		0.23	0.055	ug/Kg	☼	02/06/22 18:59	02/12/22 11:44	1
NEtFOSAA	ND		0.23	0.056	ug/Kg	☼	02/06/22 18:59	02/12/22 11:44	1
NEtFOSE	ND		0.23	0.033	ug/Kg	☼	02/06/22 18:59	02/12/22 11:44	1
NMeFOSA	ND		0.23	0.057	ug/Kg	☼	02/06/22 18:59	02/12/22 11:44	1
NMeFOSAA	ND		0.23	0.027	ug/Kg	☼	02/06/22 18:59	02/12/22 11:44	1
NMeFOSE	ND		0.23	0.055	ug/Kg	☼	02/06/22 18:59	02/12/22 11:44	1
4:2 FTS	ND		0.23	0.059	ug/Kg	☼	02/06/22 18:59	02/12/22 11:44	1
6:2 FTS	ND		0.23	0.031	ug/Kg	☼	02/06/22 18:59	02/12/22 11:44	1
8:2 FTS	ND		0.23	0.041	ug/Kg	☼	02/06/22 18:59	02/12/22 11:44	1
11Cl-PF3OUdS	ND		0.23	0.036	ug/Kg	☼	02/06/22 18:59	02/12/22 11:44	1
9Cl-PF3ONS	ND		0.23	0.041	ug/Kg	☼	02/06/22 18:59	02/12/22 11:44	1
HFPO-DA (GenX)	ND		0.23	0.048	ug/Kg	☼	02/06/22 18:59	02/12/22 11:44	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		0.23	0.045	ug/Kg	☼	02/06/22 18:59	02/12/22 11:44	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*61*		*50 - 150*	*02/06/22 18:59*	*02/12/22 11:44*	*1*
13C5 PFPeA	*89*		*50 - 150*	*02/06/22 18:59*	*02/12/22 11:44*	*1*
13C2 PFHxA	*93*		*50 - 150*	*02/06/22 18:59*	*02/12/22 11:44*	*1*
13C4 PFHpA	*94*		*50 - 150*	*02/06/22 18:59*	*02/12/22 11:44*	*1*
13C4 PFOA	*88*		*50 - 150*	*02/06/22 18:59*	*02/12/22 11:44*	*1*
13C5 PFNA	*97*		*50 - 150*	*02/06/22 18:59*	*02/12/22 11:44*	*1*
13C2 PFDA	*91*		*50 - 150*	*02/06/22 18:59*	*02/12/22 11:44*	*1*
13C2 PFUnA	*94*		*50 - 150*	*02/06/22 18:59*	*02/12/22 11:44*	*1*
13C2 PFDoA	*85*		*50 - 150*	*02/06/22 18:59*	*02/12/22 11:44*	*1*
13C2 PFTeDA	*89*		*50 - 150*	*02/06/22 18:59*	*02/12/22 11:44*	*1*
13C3 PFBS	*84*		*50 - 150*	*02/06/22 18:59*	*02/12/22 11:44*	*1*
18O2 PFHxS	*81*		*50 - 150*	*02/06/22 18:59*	*02/12/22 11:44*	*1*
13C4 PFOS	*88*		*50 - 150*	*02/06/22 18:59*	*02/12/22 11:44*	*1*
13C8 FOSA	*86*		*50 - 150*	*02/06/22 18:59*	*02/12/22 11:44*	*1*

Client Sample Results

Client: Woodard & Curran, Inc.
Project/Site: PFAS, San Jose Fuel

Job ID: 320-84393-1

Client Sample ID: L7-6-10

Date Collected: 02/01/22 12:31
Date Received: 02/01/22 16:12

Lab Sample ID: 320-84393-15

Matrix: Solid
Percent Solids: 80.4

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15 (Continued)

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
M2-4:2 FTS	*67*		*50 - 150*	*02/06/22 18:59*	*02/12/22 11:44*	*1*
M2-6:2 FTS	*66*		*50 - 150*	*02/06/22 18:59*	*02/12/22 11:44*	*1*
M2-8:2 FTS	*78*		*50 - 150*	*02/06/22 18:59*	*02/12/22 11:44*	*1*
d5-NEtFOSAA	*87*		*50 - 150*	*02/06/22 18:59*	*02/12/22 11:44*	*1*
d3-NMeFOSAA	*76*		*50 - 150*	*02/06/22 18:59*	*02/12/22 11:44*	*1*
d-N-EtFOSA-M	*81*		*50 - 150*	*02/06/22 18:59*	*02/12/22 11:44*	*1*
d9-N-EtFOSE-M	*82*		*50 - 150*	*02/06/22 18:59*	*02/12/22 11:44*	*1*
d7-N-MeFOSE-M	*88*		*50 - 150*	*02/06/22 18:59*	*02/12/22 11:44*	*1*
d-N-MeFOSA-M	*86*		*50 - 150*	*02/06/22 18:59*	*02/12/22 11:44*	*1*
13C3 HFPO-DA	*83*		*50 - 150*	*02/06/22 18:59*	*02/12/22 11:44*	*1*

General Chemistry

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	**19.6**		0.1	0.1	%			02/04/22 21:23	1
Percent Solids	**80.4**		0.1	0.1	%			02/04/22 21:23	1

Isotope Dilution Summary

Client: Woodard & Curran, Inc. Job ID: 320-84393-1
Project/Site: PFAS, San Jose Fuel

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

Matrix: Solid **Prep Type: Total/NA**

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	**Client Sample ID**	**PFBA (50-150)**	**PFPeA (50-150)**	**PFHxA (50-150)**	**C4PFHA (50-150)**	**PFOA (50-150)**	**PFNA (50-150)**	**PFDA (50-150)**	**PFUnA (50-150)**
320-84393-1	L7-1-5	65	86	99	91	96	96	97	115
320-84393-2	L7-1-10	67	79	93	87	83	82	87	95
320-84393-4	L7-2-5	65	83	96	94	91	97	95	102
320-84393-5	L7-2-10	57	75	94	89	83	82	84	99
320-84393-6	L7-3-5	64	94	99	98	96	96	93	100
320-84393-7	L7-3-10	64	88	90	90	88	91	89	92
320-84393-8 - DL	L7-4-1								
320-84393-8	L7-4-1	45 *5-	84	91	83	88	93	110	104
320-84393-9	L7-4-5	62	83	89	92	87	93	89	104
320-84393-10	L7-5-1	70	89	94	92	91	94	96	100
320-84393-11	L7-5-5	61	88	85	84	89	93	93	91
320-84393-12	L7-5-10	63	89	98	96	92	97	97	101
320-84393-13	L7-6-1	56	76	90	81	87	92	95	91
320-84393-14	L7-6-5	54	79	90	85	85	87	86	91
320-84393-15	L7-6-10	61	89	93	94	88	97	91	94
LCS 320-563765/2-A	Lab Control Sample	57	77	86	87	80	88	83	92
MB 320-563765/1-A	Method Blank	58	75	86	82	80	81	83	83

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	**Client Sample ID**	**PFDoA (50-150)**	**PFTDA (50-150)**	**C3PFBS (50-150)**	**PFHxS (50-150)**	**PFOS (50-150)**	**PFOSA (50-150)**	**M242FTS (50-150)**	**M262FTS (50-150)**
320-84393-1	L7-1-5	106	103	91	85	91	88	100	97
320-84393-2	L7-1-10	91	86	84	78	80	79	88	77
320-84393-4	L7-2-5	94	95	89	88	87	89	84	83
320-84393-5	L7-2-10	87	91	88	81	85	80	85	86
320-84393-6	L7-3-5	101	98	88	88	84	91	79	83
320-84393-7	L7-3-10	94	90	85	84	82	86	88	75
320-84393-8 - DL	L7-4-1								
320-84393-8	L7-4-1	98	84	87	83	91	87	116	140
320-84393-9	L7-4-5	100	97	83	80	91	87	84	82
320-84393-10	L7-5-1	95	97	84	84	91	89	78	77
320-84393-11	L7-5-5	86	88	84	86	89	91	83	74
320-84393-12	L7-5-10	95	95	87	87	99	94	81	75
320-84393-13	L7-6-1	87	91	70	71	72	63	68	61
320-84393-14	L7-6-5	88	87	79	79	84	81	64	64
320-84393-15	L7-6-10	85	89	84	81	88	86	67	66
LCS 320-563765/2-A	Lab Control Sample	85	76	92	92	91	79	99	81
MB 320-563765/1-A	Method Blank	84	85	82	78	82	78	85	80

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	**Client Sample ID**	**M282FTS (50-150)**	**d5NEFOS (50-150)**	**d3NMFOS (50-150)**	**dEtFOSA (50-150)**	**NEFM (50-150)**	**NMFM (50-150)**	**dMeFOSA (50-150)**	**HFPODA (50-150)**
320-84393-1	L7-1-5	125	125	100	88	93	98	91	81
320-84393-2	L7-1-10	78	91	80	82	83	82	84	88
320-84393-4	L7-2-5	83	103	78	97	97	97	94	89
320-84393-5	L7-2-10	86	105	91	84	89	92	86	76
320-84393-6	L7-3-5	85	107	93	93	89	89	100	89
320-84393-7	L7-3-10	85	95	88	90	84	88	92	81
320-84393-8 - DL	L7-4-1	100							
320-84393-8	L7-4-1		122	111	81	75	72	78	75
320-84393-9	L7-4-5	86	95	77	95	91	94	99	77

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15

Isotope Dilution Summary

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15 (Continued)

Matrix: Solid **Prep Type: Total/NA**

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	M282FTS (50-150)	d5NEFOS (50-150)	d3NMFOS (50-150)	dEtFOSA (50-150)	NEFM (50-150)	NMFM (50-150)	dMeFOSA (50-150)	HFPODA (50-150)
320-84393-10	L7-5-1	100	96	78	86	91	88	89	85
320-84393-11	L7-5-5	91	90	89	84	74	80	88	84
320-84393-12	L7-5-10	84	89	79	89	84	90	92	86
320-84393-13	L7-6-1	83	89	79	81	76	81	75	74
320-84393-14	L7-6-5	76	85	80	81	77	80	90	75
320-84393-15	L7-6-10	78	87	76	81	82	88	86	83
LCS 320-563765/2-A	Lab Control Sample	94	96	87	85	85	82	88	77
MB 320-563765/1-A	Method Blank	92	87	81	82	78	78	77	71

Surrogate Legend

PFBA = 13C4 PFBA
PFPeA = 13C5 PFPeA
PFHxA = 13C2 PFHxA
C4PFHA = 13C4 PFHpA
PFOA = 13C4 PFOA
PFNA = 13C5 PFNA
PFDA = 13C2 PFDA
PFUnA = 13C2 PFUnA
PFDoA = 13C2 PFDoA
PFTDA = 13C2 PFTeDA
C3PFBS = 13C3 PFBS
PFHxS = 18O2 PFHxS
PFOS = 13C4 PFOS
PFOSA = 13C8 FOSA
M242FTS = M2-4:2 FTS
M262FTS = M2-6:2 FTS
M282FTS = M2-8:2 FTS
d5NEFOS = d5-NEtFOSAA
d3NMFOS = d3-NMeFOSAA
dEtFOSA = d-N-EtFOSA-M
NEFM = d9-N-EtFOSE-M
NMFM = d7-N-MeFOSE-M
dMeFOSA = d-N-MeFOSA-M
HFPODA = 13C3 HFPO-DA

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

Matrix: Water **Prep Type: Total/NA**

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	PFBA (50-150)	PFPeA (50-150)	PFHxA (50-150)	C4PFHA (50-150)	PFOA (50-150)	PFNA (50-150)	PFDA (50-150)	PFUnA (50-150)
320-84393-3	FB-1-020122	95	95	99	101	104	101	100	99
LCS 320-563274/2-A	Lab Control Sample	88	90	90	95	96	92	93	97
LCSD 320-563274/3-A	Lab Control Sample Dup	90	90	96	97	98	97	96	102
MB 320-563274/1-A	Method Blank	88	89	93	99	101	92	94	106

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	PFDoA (50-150)	PFTDA (50-150)	C3PFBS (50-150)	PFHxS (50-150)	PFOS (50-150)	PFOSA (50-150)	M242FTS (50-150)	M262FTS (50-150)
320-84393-3	FB-1-020122	105	114	98	101	100	102	83	78
LCS 320-563274/2-A	Lab Control Sample	97	103	91	93	93	92	76	70
LCSD 320-563274/3-A	Lab Control Sample Dup	101	114	89	93	96	95	76	70

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15 (Continued)

Matrix: Water
Prep Type: Total/NA

		Percent Isotope Dilution Recovery (Acceptance Limits)							
		PFDoA	PFTDA	C3PFBS	PFHxS	PFOS	PFOSA	M242FTS	M262FTS
Lab Sample ID	Client Sample ID	(50-150)	(50-150)	(50-150)	(50-150)	(50-150)	(50-150)	(50-150)	(50-150)
MB 320-563274/1-A	Method Blank	109	112	89	98	101	101	82	75

		Percent Isotope Dilution Recovery (Acceptance Limits)					
		M282FTS	d5NEFOS	d3NMFOS	dEtFOSA	NMFM	HFPODA
Lab Sample ID	Client Sample ID	(50-150)	(50-150)	(50-150)	(50-150)	(50-150)	(50-150)
320-84393-3	FB-1-020122	74	116	106	99	104	91
LCS 320-563274/2-A	Lab Control Sample	67	106	98	87	106	82
LCSD 320-563274/3-A	Lab Control Sample Dup	72	112	101	95	109	87
MB 320-563274/1-A	Method Blank	69	115	102	97	105	86

Surrogate Legend

PFBA = 13C4 PFBA
PFPeA = 13C5 PFPeA
PFHxA = 13C2 PFHxA
C4PFHA = 13C4 PFHpA
PFOA = 13C4 PFOA
PFNA = 13C5 PFNA
PFDA = 13C2 PFDA
PFUnA = 13C2 PFUnA
PFDoA = 13C2 PFDoA
PFTDA = 13C2 PFTeDA
C3PFBS = 13C3 PFBS
PFHxS = 18O2 PFHxS
PFOS = 13C4 PFOS
PFOSA = 13C8 FOSA
M242FTS = M2-4:2 FTS
M262FTS = M2-6:2 FTS
M282FTS = M2-8:2 FTS
d5NEFOS = d5-NEtFOSAA
d3NMFOS = d3-NMeFOSAA
dEtFOSA = d-N-EtFOSA-M
NMFM = d7-N-MeFOSE-M
HFPODA = 13C3 HFPO-DA

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

Matrix: Water
Prep Type: Total/NA

		Percent Isotope Dilution Recovery (Acceptance Limits)	
		NEFM	dMeFOSA
Lab Sample ID	Client Sample ID	(50-150)	(50-150)
320-84393-3 - RA	FB-1-020122	99	91
LCS 320-563274/2-A - RA	Lab Control Sample	88	85
LCSD 320-563274/3-A - RA	Lab Control Sample Dup	84	78
MB 320-563274/1-A - RA	Method Blank	88	91

Surrogate Legend

NEFM = d9-N-EtFOSE-M
dMeFOSA = d-N-MeFOSA-M

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

Lab Sample ID: MB 320-563274/1-A
Matrix: Water
Analysis Batch: 563667

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 563274

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		5.0	2.4	ng/L		02/04/22 04:55	02/06/22 02:24	1
Perfluoropentanoic acid (PFPeA)	ND		2.0	0.49	ng/L		02/04/22 04:55	02/06/22 02:24	1
Perfluorohexanoic acid (PFHxA)	ND		2.0	0.58	ng/L		02/04/22 04:55	02/06/22 02:24	1
Perfluoroheptanoic acid (PFHpA)	ND		2.0	0.25	ng/L		02/04/22 04:55	02/06/22 02:24	1
Perfluorooctanoic acid (PFOA)	ND		2.0	0.85	ng/L		02/04/22 04:55	02/06/22 02:24	1
Perfluorononanoic acid (PFNA)	ND		2.0	0.27	ng/L		02/04/22 04:55	02/06/22 02:24	1
Perfluorodecanoic acid (PFDA)	ND		2.0	0.31	ng/L		02/04/22 04:55	02/06/22 02:24	1
Perfluoroundecanoic acid (PFUnA)	ND		2.0	1.1	ng/L		02/04/22 04:55	02/06/22 02:24	1
Perfluorododecanoic acid (PFDoA)	ND		2.0	0.55	ng/L		02/04/22 04:55	02/06/22 02:24	1
Perfluorotridecanoic acid (PFTrDA)	ND		2.0	1.3	ng/L		02/04/22 04:55	02/06/22 02:24	1
Perfluorotetradecanoic acid (PFTeA)	ND		2.0	0.73	ng/L		02/04/22 04:55	02/06/22 02:24	1
Perfluorobutanesulfonic acid (PFBS)	ND		2.0	0.20	ng/L		02/04/22 04:55	02/06/22 02:24	1
Perfluoropentanesulfonic acid (PFPeS)	ND		2.0	0.30	ng/L		02/04/22 04:55	02/06/22 02:24	1
Perfluorohexanesulfonic acid (PFHxS)	ND		2.0	0.57	ng/L		02/04/22 04:55	02/06/22 02:24	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		2.0	0.19	ng/L		02/04/22 04:55	02/06/22 02:24	1
Perfluorooctanesulfonic acid (PFOS)	ND		2.0	0.54	ng/L		02/04/22 04:55	02/06/22 02:24	1
Perfluorodecanesulfonic acid (PFDS)	ND		2.0	0.32	ng/L		02/04/22 04:55	02/06/22 02:24	1
Perfluorooctanesulfonamide (FOSA)	ND		2.0	0.98	ng/L		02/04/22 04:55	02/06/22 02:24	1
NEtFOSA	ND		2.0	0.87	ng/L		02/04/22 04:55	02/06/22 02:24	1
NEtFOSAA	ND		5.0	1.3	ng/L		02/04/22 04:55	02/06/22 02:24	1
NMeFOSAA	ND		5.0	1.2	ng/L		02/04/22 04:55	02/06/22 02:24	1
NMeFOSE	ND		4.0	1.4	ng/L		02/04/22 04:55	02/06/22 02:24	1
4:2 FTS	ND		2.0	0.24	ng/L		02/04/22 04:55	02/06/22 02:24	1
6:2 FTS	ND		5.0	2.5	ng/L		02/04/22 04:55	02/06/22 02:24	1
8:2 FTS	ND		2.0	0.46	ng/L		02/04/22 04:55	02/06/22 02:24	1
11Cl-PF3OUdS	ND		2.0	0.32	ng/L		02/04/22 04:55	02/06/22 02:24	1
9Cl-PF3ONS	ND		2.0	0.24	ng/L		02/04/22 04:55	02/06/22 02:24	1
HFPO-DA (GenX)	ND		4.0	1.5	ng/L		02/04/22 04:55	02/06/22 02:24	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		2.0	0.40	ng/L		02/04/22 04:55	02/06/22 02:24	1

Isotope Dilution	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*88*		*50 - 150*	*02/04/22 04:55*	*02/06/22 02:24*	*1*
13C5 PFPeA	*89*		*50 - 150*	*02/04/22 04:55*	*02/06/22 02:24*	*1*
13C2 PFHxA	*93*		*50 - 150*	*02/04/22 04:55*	*02/06/22 02:24*	*1*
13C4 PFHpA	*99*		*50 - 150*	*02/04/22 04:55*	*02/06/22 02:24*	*1*
13C4 PFOA	*101*		*50 - 150*	*02/04/22 04:55*	*02/06/22 02:24*	*1*
13C5 PFNA	*92*		*50 - 150*	*02/04/22 04:55*	*02/06/22 02:24*	*1*
13C2 PFDA	*94*		*50 - 150*	*02/04/22 04:55*	*02/06/22 02:24*	*1*
13C2 PFUnA	*106*		*50 - 150*	*02/04/22 04:55*	*02/06/22 02:24*	*1*
13C2 PFDoA	*109*		*50 - 150*	*02/04/22 04:55*	*02/06/22 02:24*	*1*
13C2 PFTeDA	*112*		*50 - 150*	*02/04/22 04:55*	*02/06/22 02:24*	*1*
13C3 PFBS	*89*		*50 - 150*	*02/04/22 04:55*	*02/06/22 02:24*	*1*
18O2 PFHxS	*98*		*50 - 150*	*02/04/22 04:55*	*02/06/22 02:24*	*1*
13C4 PFOS	*101*		*50 - 150*	*02/04/22 04:55*	*02/06/22 02:24*	*1*
13C8 FOSA	*101*		*50 - 150*	*02/04/22 04:55*	*02/06/22 02:24*	*1*
M2-4:2 FTS	*82*		*50 - 150*	*02/04/22 04:55*	*02/06/22 02:24*	*1*

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15 (Continued)

Lab Sample ID: MB 320-563274/1-A
Matrix: Water
Analysis Batch: 563667

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 563274

Isotope Dilution	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
M2-6:2 FTS	*75*		*50 - 150*	*02/04/22 04:55*	*02/06/22 02:24*	*1*
M2-8:2 FTS	*69*		*50 - 150*	*02/04/22 04:55*	*02/06/22 02:24*	*1*
d5-NEtFOSAA	*115*		*50 - 150*	*02/04/22 04:55*	*02/06/22 02:24*	*1*
d3-NMeFOSAA	*102*		*50 - 150*	*02/04/22 04:55*	*02/06/22 02:24*	*1*
d-N-EtFOSA-M	*97*		*50 - 150*	*02/04/22 04:55*	*02/06/22 02:24*	*1*
d7-N-MeFOSE-M	*105*		*50 - 150*	*02/04/22 04:55*	*02/06/22 02:24*	*1*
13C3 HFPO-DA	*86*		*50 - 150*	*02/04/22 04:55*	*02/06/22 02:24*	*1*

Lab Sample ID: LCS 320-563274/2-A
Matrix: Water
Analysis Batch: 563667

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 563274

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Perfluorobutanoic acid (PFBA)	40.0	36.6		ng/L		92	73 - 129
Perfluoropentanoic acid (PFPeA)	40.0	34.0		ng/L		85	72 - 129
Perfluorohexanoic acid (PFHxA)	40.0	35.4		ng/L		89	72 - 129
Perfluoroheptanoic acid (PFHpA)	40.0	39.3		ng/L		98	72 - 130
Perfluorooctanoic acid (PFOA)	40.0	35.4		ng/L		89	71 - 133
Perfluorononanoic acid (PFNA)	40.0	37.5		ng/L		94	69 - 130
Perfluorodecanoic acid (PFDA)	40.0	36.5		ng/L		91	71 - 129
Perfluoroundecanoic acid (PFUnA)	40.0	34.5		ng/L		86	69 - 133
Perfluorododecanoic acid (PFDoA)	40.0	38.9		ng/L		97	72 - 134
Perfluorotridecanoic acid (PFTrDA)	40.0	40.5		ng/L		101	65 - 144
Perfluorotetradecanoic acid (PFTeA)	40.0	38.6		ng/L		96	71 - 132
Perfluorobutanesulfonic acid (PFBS)	35.4	30.7		ng/L		87	72 - 130
Perfluoropentanesulfonic acid (PFPeS)	37.5	35.3		ng/L		94	71 - 127
Perfluorohexanesulfonic acid (PFHxS)	36.4	32.4		ng/L		89	68 - 131
Perfluoroheptanesulfonic Acid (PFHpS)	38.1	37.2		ng/L		98	69 - 134
Perfluorooctanesulfonic acid (PFOS)	37.1	32.1		ng/L		86	65 - 140
Perfluorodecanesulfonic acid (PFDS)	38.6	33.5		ng/L		87	53 - 142
Perfluorooctanesulfonamide (FOSA)	40.0	38.8		ng/L		97	67 - 137
NEtFOSA	40.0	37.5		ng/L		94	67 - 127
NEtFOSAA	40.0	33.9		ng/L		85	61 - 135
NMeFOSAA	40.0	36.2		ng/L		90	65 - 136
NMeFOSE	40.0	38.8		ng/L		97	60 - 137
4:2 FTS	37.4	33.1		ng/L		89	63 - 143
6:2 FTS	37.9	36.0		ng/L		95	64 - 140
8:2 FTS	38.3	36.0		ng/L		94	67 - 138
11Cl-PF3OUdS	37.7	34.7		ng/L		92	76 - 136
9Cl-PF3ONS	37.3	30.2		ng/L		81	77 - 137
HFPO-DA (GenX)	40.0	39.5		ng/L		99	72 - 132

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15 (Continued)

Lab Sample ID: LCS 320-563274/2-A
Matrix: Water
Analysis Batch: 563667

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 563274

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	37.7	36.8		ng/L		98	81 - 141

Isotope Dilution	*LCS %Recovery*	*LCS Qualifier*	*Limits*
13C4 PFBA	*88*		*50 - 150*
13C5 PFPeA	*90*		*50 - 150*
13C2 PFHxA	*90*		*50 - 150*
13C4 PFHpA	*95*		*50 - 150*
13C4 PFOA	*96*		*50 - 150*
13C5 PFNA	*92*		*50 - 150*
13C2 PFDA	*93*		*50 - 150*
13C2 PFUnA	*97*		*50 - 150*
13C2 PFDoA	*97*		*50 - 150*
13C2 PFTeDA	*103*		*50 - 150*
13C3 PFBS	*91*		*50 - 150*
18O2 PFHxS	*93*		*50 - 150*
13C4 PFOS	*93*		*50 - 150*
13C8 FOSA	*92*		*50 - 150*
M2-4:2 FTS	*76*		*50 - 150*
M2-6:2 FTS	*70*		*50 - 150*
M2-8:2 FTS	*67*		*50 - 150*
d5-NEtFOSAA	*106*		*50 - 150*
d3-NMeFOSAA	*98*		*50 - 150*
d-N-EtFOSA-M	*87*		*50 - 150*
d7-N-MeFOSE-M	*106*		*50 - 150*
13C3 HFPO-DA	*82*		*50 - 150*

Lab Sample ID: LCSD 320-563274/3-A
Matrix: Water
Analysis Batch: 563667

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 563274

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Perfluorobutanoic acid (PFBA)	40.0	38.7		ng/L		97	73 - 129	5	30
Perfluoropentanoic acid (PFPeA)	40.0	36.7		ng/L		92	72 - 129	7	30
Perfluorohexanoic acid (PFHxA)	40.0	37.1		ng/L		93	72 - 129	5	30
Perfluoroheptanoic acid (PFHpA)	40.0	40.7		ng/L		102	72 - 130	4	30
Perfluorooctanoic acid (PFOA)	40.0	38.1		ng/L		95	71 - 133	7	30
Perfluorononanoic acid (PFNA)	40.0	39.6		ng/L		99	69 - 130	5	30
Perfluorodecanoic acid (PFDA)	40.0	38.0		ng/L		95	71 - 129	4	30
Perfluoroundecanoic acid (PFUnA)	40.0	36.7		ng/L		92	69 - 133	6	30
Perfluorododecanoic acid (PFDoA)	40.0	39.4		ng/L		98	72 - 134	1	30
Perfluorotridecanoic acid (PFTrDA)	40.0	37.9		ng/L		95	65 - 144	7	30
Perfluorotetradecanoic acid (PFTeA)	40.0	41.9		ng/L		105	71 - 132	8	30
Perfluorobutanesulfonic acid (PFBS)	35.4	36.0		ng/L		102	72 - 130	16	30
Perfluoropentanesulfonic acid (PFPeS)	37.5	39.0		ng/L		104	71 - 127	10	30

QC Sample Results

Client: Woodard & Curran, Inc.
Project/Site: PFAS, San Jose Fuel

Job ID: 320-84393-1

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15 (Continued)

Lab Sample ID: LCSD 320-563274/3-A
Matrix: Water
Analysis Batch: 563667

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 563274

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Perfluorohexanesulfonic acid (PFHxS)			36.4	36.2		ng/L		99	68 - 131	11	30
Perfluoroheptanesulfonic Acid (PFHpS)			38.1	37.9		ng/L		100	69 - 134	2	30
Perfluorooctanesulfonic acid (PFOS)			37.1	34.3		ng/L		92	65 - 140	7	30
Perfluorodecanesulfonic acid (PFDS)			38.6	34.2		ng/L		89	53 - 142	2	30
Perfluorooctanesulfonamide (FOSA)			40.0	39.9		ng/L		100	67 - 137	3	30
NEtFOSA			40.0	40.4		ng/L		101	67 - 127	7	30
NEtFOSAA			40.0	34.5		ng/L		86	61 - 135	2	30
NMeFOSAA			40.0	38.6		ng/L		96	65 - 136	6	30
NMeFOSE			40.0	42.7		ng/L		107	60 - 137	10	30
4:2 FTS			37.4	36.2		ng/L		97	63 - 143	9	30
6:2 FTS			37.9	39.8		ng/L		105	64 - 140	10	30
8:2 FTS			38.3	36.5		ng/L		95	67 - 138	1	30
11Cl-PF3OUdS			37.7	34.8		ng/L		92	76 - 136	0	30
9Cl-PF3ONS			37.3	33.3		ng/L		89	77 - 137	10	30
HFPO-DA (GenX)			40.0	41.5		ng/L		104	72 - 132	5	30
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)			37.7	37.6		ng/L		100	81 - 141	2	30

Isotope Dilution	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
13C4 PFBA	*90*		*50 - 150*
13C5 PFPeA	*90*		*50 - 150*
13C2 PFHxA	*96*		*50 - 150*
13C4 PFHpA	*97*		*50 - 150*
13C4 PFOA	*98*		*50 - 150*
13C5 PFNA	*97*		*50 - 150*
13C2 PFDA	*96*		*50 - 150*
13C2 PFUnA	*102*		*50 - 150*
13C2 PFDoA	*101*		*50 - 150*
13C2 PFTeDA	*114*		*50 - 150*
13C3 PFBS	*89*		*50 - 150*
18O2 PFHxS	*93*		*50 - 150*
13C4 PFOS	*96*		*50 - 150*
13C8 FOSA	*95*		*50 - 150*
M2-4:2 FTS	*76*		*50 - 150*
M2-6:2 FTS	*70*		*50 - 150*
M2-8:2 FTS	*72*		*50 - 150*
d5-NEtFOSAA	*112*		*50 - 150*
d3-NMeFOSAA	*101*		*50 - 150*
d-N-EtFOSA-M	*95*		*50 - 150*
d7-N-MeFOSE-M	*109*		*50 - 150*
13C3 HFPO-DA	*87*		*50 - 150*

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15 (Continued)

Lab Sample ID: MB 320-563765/1-A
Matrix: Solid
Analysis Batch: 564688

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 563765

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		0.20	0.046	ug/Kg		02/06/22 18:59	02/09/22 12:03	1
Perfluoropentanoic acid (PFPeA)	ND		0.20	0.041	ug/Kg		02/06/22 18:59	02/09/22 12:03	1
Perfluorohexanoic acid (PFHxA)	ND		0.20	0.031	ug/Kg		02/06/22 18:59	02/09/22 12:03	1
Perfluoroheptanoic acid (PFHpA)	ND		0.20	0.038	ug/Kg		02/06/22 18:59	02/09/22 12:03	1
Perfluorooctanoic acid (PFOA)	ND		0.20	0.053	ug/Kg		02/06/22 18:59	02/09/22 12:03	1
Perfluorononanoic acid (PFNA)	ND		0.20	0.022	ug/Kg		02/06/22 18:59	02/09/22 12:03	1
Perfluorodecanoic acid (PFDA)	ND		0.20	0.048	ug/Kg		02/06/22 18:59	02/09/22 12:03	1
Perfluoroundecanoic acid (PFUnA)	ND		0.20	0.042	ug/Kg		02/06/22 18:59	02/09/22 12:03	1
Perfluorododecanoic acid (PFDoA)	ND		0.20	0.030	ug/Kg		02/06/22 18:59	02/09/22 12:03	1
Perfluorotridecanoic acid (PFTrDA)	ND		0.20	0.021	ug/Kg		02/06/22 18:59	02/09/22 12:03	1
Perfluorotetradecanoic acid (PFTeA)	ND		0.20	0.037	ug/Kg		02/06/22 18:59	02/09/22 12:03	1
Perfluorobutanesulfonic acid (PFBS)	ND		0.20	0.038	ug/Kg		02/06/22 18:59	02/09/22 12:03	1
Perfluoropentanesulfonic acid (PFPeS)	ND		0.20	0.037	ug/Kg		02/06/22 18:59	02/09/22 12:03	1
Perfluorohexanesulfonic acid (PFHxS)	ND		0.20	0.029	ug/Kg		02/06/22 18:59	02/09/22 12:03	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		0.20	0.049	ug/Kg		02/06/22 18:59	02/09/22 12:03	1
Perfluorooctanesulfonic acid (PFOS)	ND		0.20	0.043	ug/Kg		02/06/22 18:59	02/09/22 12:03	1
Perfluorodecanesulfonic acid (PFDS)	ND		0.20	0.052	ug/Kg		02/06/22 18:59	02/09/22 12:03	1
Perfluorooctanesulfonamide (FOSA)	ND		0.20	0.033	ug/Kg		02/06/22 18:59	02/09/22 12:03	1
NEtFOSA	ND		0.20	0.047	ug/Kg		02/06/22 18:59	02/09/22 12:03	1
NEtFOSAA	ND		0.20	0.048	ug/Kg		02/06/22 18:59	02/09/22 12:03	1
NEtFOSE	ND		0.20	0.028	ug/Kg		02/06/22 18:59	02/09/22 12:03	1
NMeFOSA	ND		0.20	0.049	ug/Kg		02/06/22 18:59	02/09/22 12:03	1
NMeFOSAA	ND		0.20	0.023	ug/Kg		02/06/22 18:59	02/09/22 12:03	1
NMeFOSE	ND		0.20	0.047	ug/Kg		02/06/22 18:59	02/09/22 12:03	1
4:2 FTS	ND		0.20	0.051	ug/Kg		02/06/22 18:59	02/09/22 12:03	1
6:2 FTS	ND		0.20	0.027	ug/Kg		02/06/22 18:59	02/09/22 12:03	1
8:2 FTS	ND		0.20	0.035	ug/Kg		02/06/22 18:59	02/09/22 12:03	1
11Cl-PF3OUdS	ND		0.20	0.031	ug/Kg		02/06/22 18:59	02/09/22 12:03	1
9Cl-PF3ONS	ND		0.20	0.035	ug/Kg		02/06/22 18:59	02/09/22 12:03	1
HFPO-DA (GenX)	ND		0.20	0.041	ug/Kg		02/06/22 18:59	02/09/22 12:03	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		0.20	0.039	ug/Kg		02/06/22 18:59	02/09/22 12:03	1

Isotope Dilution	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*58*		*50 - 150*	*02/06/22 18:59*	*02/09/22 12:03*	*1*
13C5 PFPeA	*75*		*50 - 150*	*02/06/22 18:59*	*02/09/22 12:03*	*1*
13C2 PFHxA	*86*		*50 - 150*	*02/06/22 18:59*	*02/09/22 12:03*	*1*
13C4 PFHpA	*82*		*50 - 150*	*02/06/22 18:59*	*02/09/22 12:03*	*1*
13C4 PFOA	*80*		*50 - 150*	*02/06/22 18:59*	*02/09/22 12:03*	*1*
13C5 PFNA	*81*		*50 - 150*	*02/06/22 18:59*	*02/09/22 12:03*	*1*
13C2 PFDA	*83*		*50 - 150*	*02/06/22 18:59*	*02/09/22 12:03*	*1*
13C2 PFUnA	*83*		*50 - 150*	*02/06/22 18:59*	*02/09/22 12:03*	*1*
13C2 PFDoA	*84*		*50 - 150*	*02/06/22 18:59*	*02/09/22 12:03*	*1*
13C2 PFTeDA	*85*		*50 - 150*	*02/06/22 18:59*	*02/09/22 12:03*	*1*
13C3 PFBS	*82*		*50 - 150*	*02/06/22 18:59*	*02/09/22 12:03*	*1*
18O2 PFHxS	*78*		*50 - 150*	*02/06/22 18:59*	*02/09/22 12:03*	*1*
13C4 PFOS	*82*		*50 - 150*	*02/06/22 18:59*	*02/09/22 12:03*	*1*

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15 (Continued)

Lab Sample ID: MB 320-563765/1-A
Matrix: Solid
Analysis Batch: 564688

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 563765

Isotope Dilution	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C8 FOSA	*78*		*50 - 150*	*02/06/22 18:59*	*02/09/22 12:03*	*1*
M2-4:2 FTS	*85*		*50 - 150*	*02/06/22 18:59*	*02/09/22 12:03*	*1*
M2-6:2 FTS	*80*		*50 - 150*	*02/06/22 18:59*	*02/09/22 12:03*	*1*
M2-8:2 FTS	*92*		*50 - 150*	*02/06/22 18:59*	*02/09/22 12:03*	*1*
d5-NEtFOSAA	*87*		*50 - 150*	*02/06/22 18:59*	*02/09/22 12:03*	*1*
d3-NMeFOSAA	*81*		*50 - 150*	*02/06/22 18:59*	*02/09/22 12:03*	*1*
d-N-EtFOSA-M	*82*		*50 - 150*	*02/06/22 18:59*	*02/09/22 12:03*	*1*
d9-N-EtFOSE-M	*78*		*50 - 150*	*02/06/22 18:59*	*02/09/22 12:03*	*1*
d7-N-MeFOSE-M	*78*		*50 - 150*	*02/06/22 18:59*	*02/09/22 12:03*	*1*
d-N-MeFOSA-M	*77*		*50 - 150*	*02/06/22 18:59*	*02/09/22 12:03*	*1*
13C3 HFPO-DA	*71*		*50 - 150*	*02/06/22 18:59*	*02/09/22 12:03*	*1*

Lab Sample ID: LCS 320-563765/2-A
Matrix: Solid
Analysis Batch: 564688

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 563765

Analyte	**Spike Added**	**LCS Result**	**LCS Qualifier**	**Unit**	**D**	**%Rec**	**%Rec. Limits**
Perfluorobutanoic acid (PFBA)	2.00	2.14		ug/Kg		107	71 - 135
Perfluoropentanoic acid (PFPeA)	2.00	2.12		ug/Kg		106	69 - 132
Perfluorohexanoic acid (PFHxA)	2.00	2.11		ug/Kg		106	70 - 132
Perfluoroheptanoic acid (PFHpA)	2.00	2.05		ug/Kg		102	71 - 131
Perfluorooctanoic acid (PFOA)	2.00	2.16		ug/Kg		108	69 - 133
Perfluorononanoic acid (PFNA)	2.00	1.92		ug/Kg		96	72 - 129
Perfluorodecanoic acid (PFDA)	2.00	2.33		ug/Kg		117	69 - 133
Perfluoroundecanoic acid (PFUnA)	2.00	2.13		ug/Kg		106	64 - 136
Perfluorododecanoic acid (PFDoA)	2.00	2.18		ug/Kg		109	69 - 135
Perfluorotridecanoic acid (PFTrDA)	2.00	2.18		ug/Kg		109	66 - 139
Perfluorotetradecanoic acid (PFTeA)	2.00	1.94		ug/Kg		97	69 - 133
Perfluorobutanesulfonic acid (PFBS)	1.77	1.57		ug/Kg		89	72 - 128
Perfluoropentanesulfonic acid (PFPeS)	1.88	1.77		ug/Kg		94	73 - 123
Perfluorohexanesulfonic acid (PFHxS)	1.82	1.62		ug/Kg		89	67 - 130
Perfluoroheptanesulfonic Acid (PFHpS)	1.90	1.76		ug/Kg		92	70 - 132
Perfluorooctanesulfonic acid (PFOS)	1.86	1.78		ug/Kg		96	68 - 136
Perfluorodecanesulfonic acid (PFDS)	1.93	2.05		ug/Kg		106	59 - 134
Perfluorooctanesulfonamide (FOSA)	2.00	2.15		ug/Kg		107	67 - 137
NEtFOSA	2.00	2.08		ug/Kg		104	68 - 128
NEtFOSAA	2.00	1.91		ug/Kg		96	61 - 139
NEtFOSE	2.00	2.06		ug/Kg		103	71 - 131
NMeFOSA	2.00	2.03		ug/Kg		101	67 - 127
NMeFOSAA	2.00	2.10		ug/Kg		105	63 - 144
NMeFOSE	2.00	2.09		ug/Kg		105	72 - 132

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15 (Continued)

Lab Sample ID: LCS 320-563765/2-A
Matrix: Solid
Analysis Batch: 564688

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 563765

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
4:2 FTS	1.87	1.73		ug/Kg		93	62 - 145
6:2 FTS	1.90	2.28		ug/Kg		120	64 - 140
8:2 FTS	1.92	1.98		ug/Kg		103	65 - 137
11Cl-PF3OUdS	1.88	1.92		ug/Kg		102	76 - 136
9Cl-PF3ONS	1.86	1.76		ug/Kg		95	75 - 135
HFPO-DA (GenX)	2.00	2.07		ug/Kg		104	77 - 137
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	1.88	1.81		ug/Kg		96	79 - 139

Isotope Dilution	*LCS %Recovery*	*LCS Qualifier*	*Limits*
13C4 PFBA	*57*		*50 - 150*
13C5 PFPeA	*77*		*50 - 150*
13C2 PFHxA	*86*		*50 - 150*
13C4 PFHpA	*87*		*50 - 150*
13C4 PFOA	*80*		*50 - 150*
13C5 PFNA	*88*		*50 - 150*
13C2 PFDA	*83*		*50 - 150*
13C2 PFUnA	*92*		*50 - 150*
13C2 PFDoA	*85*		*50 - 150*
13C2 PFTeDA	*76*		*50 - 150*
13C3 PFBS	*92*		*50 - 150*
18O2 PFHxS	*92*		*50 - 150*
13C4 PFOS	*91*		*50 - 150*
13C8 FOSA	*79*		*50 - 150*
M2-4:2 FTS	*99*		*50 - 150*
M2-6:2 FTS	*81*		*50 - 150*
M2-8:2 FTS	*94*		*50 - 150*
d5-NEtFOSAA	*96*		*50 - 150*
d3-NMeFOSAA	*87*		*50 - 150*
d-N-EtFOSA-M	*85*		*50 - 150*
d9-N-EtFOSE-M	*85*		*50 - 150*
d7-N-MeFOSE-M	*82*		*50 - 150*
d-N-MeFOSA-M	*88*		*50 - 150*
13C3 HFPO-DA	*77*		*50 - 150*

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15 - RA

Lab Sample ID: MB 320-563274/1-A
Matrix: Water
Analysis Batch: 565379

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 563274

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
NEtFOSE - RA	ND		2.0	0.85	ng/L		02/04/22 04:55	02/12/22 08:26	1
NMeFOSA - RA	ND		2.0	0.43	ng/L		02/04/22 04:55	02/12/22 08:26	1

Isotope Dilution	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
d9-N-EtFOSE-M - RA	*88*		*50 - 150*	*02/04/22 04:55*	*02/12/22 08:26*	*1*
d-N-MeFOSA-M - RA	*91*		*50 - 150*	*02/04/22 04:55*	*02/12/22 08:26*	*1*

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15 - RA (Continued)

Lab Sample ID: LCS 320-563274/2-A
Matrix: Water
Analysis Batch: 564660

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 563274

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
NEtFOSE - RA			40.0	32.9		ng/L		82	70 - 130		
NMeFOSA - RA			40.0	35.7		ng/L		89	68 - 141		

Isotope Dilution	*LCS %Recovery*	*LCS Qualifier*	*Limits*
d9-N-EtFOSE-M - RA	*88*		*50 - 150*
d-N-MeFOSA-M - RA	*85*		*50 - 150*

Lab Sample ID: LCSD 320-563274/3-A
Matrix: Water
Analysis Batch: 564660

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 563274

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
NEtFOSE - RA			40.0	39.0		ng/L		97	70 - 130	17	30
NMeFOSA - RA			40.0	37.4		ng/L		94	68 - 141	5	30

Isotope Dilution	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
d9-N-EtFOSE-M - RA	*84*		*50 - 150*
d-N-MeFOSA-M - RA	*78*		*50 - 150*

Method: D 2216 - Percent Moisture

Lab Sample ID: 320-84393-10 DU
Matrix: Solid
Analysis Batch: 563223

Client Sample ID: L7-5-1
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Percent Moisture	12.2			12.5		%				3	20
Percent Solids	87.8			87.5		%				0.4	20

QC Association Summary

Client: Woodard & Curran, Inc.
Project/Site: PFAS, San Jose Fuel

Job ID: 320-84393-1

LCMS

Prep Batch: 563274

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-84393-3	FB-1-020122	Total/NA	Water	3535	
320-84393-3 - RA	FB-1-020122	Total/NA	Water	3535	
MB 320-563274/1-A	Method Blank	Total/NA	Water	3535	
MB 320-563274/1-A - RA	Method Blank	Total/NA	Water	3535	
LCS 320-563274/2-A	Lab Control Sample	Total/NA	Water	3535	
LCS 320-563274/2-A - RA	Lab Control Sample	Total/NA	Water	3535	
LCSD 320-563274/3-A	Lab Control Sample Dup	Total/NA	Water	3535	
LCSD 320-563274/3-A - RA	Lab Control Sample Dup	Total/NA	Water	3535	

Analysis Batch: 563667

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-84393-3	FB-1-020122	Total/NA	Water	EPA 537(Mod)	563274
MB 320-563274/1-A	Method Blank	Total/NA	Water	EPA 537(Mod)	563274
LCS 320-563274/2-A	Lab Control Sample	Total/NA	Water	EPA 537(Mod)	563274
LCSD 320-563274/3-A	Lab Control Sample Dup	Total/NA	Water	EPA 537(Mod)	563274

Prep Batch: 563765

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-84393-1	L7-1-5	Total/NA	Solid	SHAKE	
320-84393-2	L7-1-10	Total/NA	Solid	SHAKE	
320-84393-4	L7-2-5	Total/NA	Solid	SHAKE	
320-84393-5	L7-2-10	Total/NA	Solid	SHAKE	
320-84393-6	L7-3-5	Total/NA	Solid	SHAKE	
320-84393-7	L7-3-10	Total/NA	Solid	SHAKE	
320-84393-8	L7-4-1	Total/NA	Solid	SHAKE	
320-84393-8 - DL	L7-4-1	Total/NA	Solid	SHAKE	
320-84393-9	L7-4-5	Total/NA	Solid	SHAKE	
320-84393-10	L7-5-1	Total/NA	Solid	SHAKE	
320-84393-11	L7-5-5	Total/NA	Solid	SHAKE	
320-84393-12	L7-5-10	Total/NA	Solid	SHAKE	
320-84393-13	L7-6-1	Total/NA	Solid	SHAKE	
320-84393-14	L7-6-5	Total/NA	Solid	SHAKE	
320-84393-15	L7-6-10	Total/NA	Solid	SHAKE	
MB 320-563765/1-A	Method Blank	Total/NA	Solid	SHAKE	
LCS 320-563765/2-A	Lab Control Sample	Total/NA	Solid	SHAKE	

Analysis Batch: 564660

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-84393-3 - RA	FB-1-020122	Total/NA	Water	EPA 537(Mod)	563274
LCS 320-563274/2-A - RA	Lab Control Sample	Total/NA	Water	EPA 537(Mod)	563274
LCSD 320-563274/3-A - RA	Lab Control Sample Dup	Total/NA	Water	EPA 537(Mod)	563274

Analysis Batch: 564688

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-84393-1	L7-1-5	Total/NA	Solid	EPA 537(Mod)	563765
320-84393-2	L7-1-10	Total/NA	Solid	EPA 537(Mod)	563765
320-84393-4	L7-2-5	Total/NA	Solid	EPA 537(Mod)	563765
320-84393-5	L7-2-10	Total/NA	Solid	EPA 537(Mod)	563765
320-84393-6	L7-3-5	Total/NA	Solid	EPA 537(Mod)	563765
320-84393-7	L7-3-10	Total/NA	Solid	EPA 537(Mod)	563765
320-84393-9	L7-4-5	Total/NA	Solid	EPA 537(Mod)	563765

LCMS (Continued)

Analysis Batch: 564688 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 320-563765/1-A	Method Blank	Total/NA	Solid	EPA 537(Mod)	563765
LCS 320-563765/2-A	Lab Control Sample	Total/NA	Solid	EPA 537(Mod)	563765

Analysis Batch: 565379

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 320-563274/1-A - RA	Method Blank	Total/NA	Water	EPA 537(Mod)	563274

Analysis Batch: 565384

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-84393-8 - DL	L7-4-1	Total/NA	Solid	EPA 537(Mod)	563765
320-84393-8	L7-4-1	Total/NA	Solid	EPA 537(Mod)	563765
320-84393-10	L7-5-1	Total/NA	Solid	EPA 537(Mod)	563765
320-84393-11	L7-5-5	Total/NA	Solid	EPA 537(Mod)	563765
320-84393-12	L7-5-10	Total/NA	Solid	EPA 537(Mod)	563765
320-84393-13	L7-6-1	Total/NA	Solid	EPA 537(Mod)	563765
320-84393-14	L7-6-5	Total/NA	Solid	EPA 537(Mod)	563765
320-84393-15	L7-6-10	Total/NA	Solid	EPA 537(Mod)	563765

General Chemistry

Analysis Batch: 563170

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-84393-1	L7-1-5	Total/NA	Solid	D 2216	
320-84393-4	L7-2-5	Total/NA	Solid	D 2216	
320-84393-5	L7-2-10	Total/NA	Solid	D 2216	
320-84393-6	L7-3-5	Total/NA	Solid	D 2216	
320-84393-7	L7-3-10	Total/NA	Solid	D 2216	
320-84393-8	L7-4-1	Total/NA	Solid	D 2216	
320-84393-9	L7-4-5	Total/NA	Solid	D 2216	

Analysis Batch: 563223

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-84393-10	L7-5-1	Total/NA	Solid	D 2216	
320-84393-11	L7-5-5	Total/NA	Solid	D 2216	
320-84393-10 DU	L7-5-1	Total/NA	Solid	D 2216	

Analysis Batch: 563556

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-84393-2	L7-1-10	Total/NA	Solid	D 2216	
320-84393-12	L7-5-10	Total/NA	Solid	D 2216	
320-84393-13	L7-6-1	Total/NA	Solid	D 2216	
320-84393-14	L7-6-5	Total/NA	Solid	D 2216	
320-84393-15	L7-6-10	Total/NA	Solid	D 2216	

Lab Chronicle

Client: Woodard & Curran, Inc.
Project/Site: PFAS, San Jose Fuel

Job ID: 320-84393-1

Client Sample ID: L7-1-5
Date Collected: 02/01/22 09:30
Date Received: 02/01/22 16:12

Lab Sample ID: 320-84393-1
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1			563170	02/03/22 15:05	JP	TAL SAC

Client Sample ID: L7-1-5
Date Collected: 02/01/22 09:30
Date Received: 02/01/22 16:12

Lab Sample ID: 320-84393-1
Matrix: Solid
Percent Solids: 84.3

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			5.36 g	10.0 mL	563765	02/06/22 18:59	FX	TAL SAC
Total/NA	Analysis	EPA 537(Mod)		1			564688	02/09/22 12:24	RS1	TAL SAC

Client Sample ID: L7-1-10
Date Collected: 02/01/22 09:32
Date Received: 02/01/22 16:12

Lab Sample ID: 320-84393-2
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1			563556	02/04/22 21:23	JP	TAL SAC

Client Sample ID: L7-1-10
Date Collected: 02/01/22 09:32
Date Received: 02/01/22 16:12

Lab Sample ID: 320-84393-2
Matrix: Solid
Percent Solids: 79.7

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			5.26 g	10.0 mL	563765	02/06/22 18:59	FX	TAL SAC
Total/NA	Analysis	EPA 537(Mod)		1			564688	02/09/22 12:35	RS1	TAL SAC

Client Sample ID: FB-1-020122
Date Collected: 02/01/22 09:38
Date Received: 02/01/22 16:12

Lab Sample ID: 320-84393-3
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			268 mL	10.0 mL	563274	02/04/22 04:55	EG	TAL SAC
Total/NA	Analysis	EPA 537(Mod)		1			563667	02/06/22 03:14	S1M	TAL SAC
Total/NA	Prep	3535	RA		268 mL	10.0 mL	563274	02/04/22 04:55	EG	TAL SAC
Total/NA	Analysis	EPA 537(Mod)	RA	1			564660	02/08/22 20:05	RS1	TAL SAC

Client Sample ID: L7-2-5
Date Collected: 02/01/22 10:28
Date Received: 02/01/22 16:12

Lab Sample ID: 320-84393-4
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1			563170	02/03/22 15:05	JP	TAL SAC

Lab Chronicle

Client Sample ID: L7-2-5
Lab Sample ID: 320-84393-4

Date Collected: 02/01/22 10:28
Matrix: Solid
Date Received: 02/01/22 16:12
Percent Solids: 77.3

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			5.22 g	10.0 mL	563765	02/06/22 18:59	FX	TAL SAC
Total/NA	Analysis	EPA 537(Mod)		1			564688	02/09/22 12:45	RS1	TAL SAC

Client Sample ID: L7-2-10
Lab Sample ID: 320-84393-5

Date Collected: 02/01/22 10:30
Matrix: Solid
Date Received: 02/01/22 16:12

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1			563170	02/03/22 15:05	JP	TAL SAC

Client Sample ID: L7-2-10
Lab Sample ID: 320-84393-5

Date Collected: 02/01/22 10:30
Matrix: Solid
Date Received: 02/01/22 16:12
Percent Solids: 79.0

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			5.14 g	10.0 mL	563765	02/06/22 18:59	FX	TAL SAC
Total/NA	Analysis	EPA 537(Mod)		1			564688	02/09/22 12:55	RS1	TAL SAC

Client Sample ID: L7-3-5
Lab Sample ID: 320-84393-6

Date Collected: 02/01/22 13:25
Matrix: Solid
Date Received: 02/01/22 16:12

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1			563170	02/03/22 15:05	JP	TAL SAC

Client Sample ID: L7-3-5
Lab Sample ID: 320-84393-6

Date Collected: 02/01/22 13:25
Matrix: Solid
Date Received: 02/01/22 16:12
Percent Solids: 87.9

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			5.16 g	10.0 mL	563765	02/06/22 18:59	FX	TAL SAC
Total/NA	Analysis	EPA 537(Mod)		1			564688	02/09/22 13:06	RS1	TAL SAC

Client Sample ID: L7-3-10
Lab Sample ID: 320-84393-7

Date Collected: 02/01/22 13:27
Matrix: Solid
Date Received: 02/01/22 16:12

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1			563170	02/03/22 15:05	JP	TAL SAC

Lab Chronicle

Client: Woodard & Curran, Inc.
Project/Site: PFAS, San Jose Fuel

Job ID: 320-84393-1

Client Sample ID: L7-3-10
Date Collected: 02/01/22 13:27
Date Received: 02/01/22 16:12

Lab Sample ID: 320-84393-7
Matrix: Solid
Percent Solids: 82.0

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			5.06 g	10.0 mL	563765	02/06/22 18:59	FX	TAL SAC
Total/NA	Analysis	EPA 537(Mod)		1			564688	02/09/22 13:16	RS1	TAL SAC

Client Sample ID: L7-4-1
Date Collected: 02/01/22 14:50
Date Received: 02/01/22 16:12

Lab Sample ID: 320-84393-8
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1			563170	02/03/22 15:05	JP	TAL SAC

Client Sample ID: L7-4-1
Date Collected: 02/01/22 14:50
Date Received: 02/01/22 16:12

Lab Sample ID: 320-84393-8
Matrix: Solid
Percent Solids: 90.3

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE	DL		5.08 g	10.0 mL	563765	02/06/22 18:59	FX	TAL SAC
Total/NA	Analysis	EPA 537(Mod)	DL	10			565384	02/12/22 13:39	K1S	TAL SAC
Total/NA	Prep	SHAKE			5.08 g	10.0 mL	563765	02/06/22 18:59	FX	TAL SAC
Total/NA	Analysis	EPA 537(Mod)		1			565384	02/12/22 13:49	K1S	TAL SAC

Client Sample ID: L7-4-5
Date Collected: 02/01/22 15:07
Date Received: 02/01/22 16:12

Lab Sample ID: 320-84393-9
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1			563170	02/03/22 15:05	JP	TAL SAC

Client Sample ID: L7-4-5
Date Collected: 02/01/22 15:07
Date Received: 02/01/22 16:12

Lab Sample ID: 320-84393-9
Matrix: Solid
Percent Solids: 89.4

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			5.34 g	10.0 mL	563765	02/06/22 18:59	FX	TAL SAC
Total/NA	Analysis	EPA 537(Mod)		1			564688	02/09/22 13:37	RS1	TAL SAC

Client Sample ID: L7-5-1
Date Collected: 02/01/22 13:43
Date Received: 02/01/22 16:12

Lab Sample ID: 320-84393-10
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1			563223	02/03/22 17:03	JP	TAL SAC

Lab Chronicle

Client Sample ID: L7-5-1
Lab Sample ID: 320-84393-10

Date Collected: 02/01/22 13:43
Matrix: Solid
Date Received: 02/01/22 16:12
Percent Solids: 87.8

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			5.34 g	10.0 mL	563765	02/06/22 18:59	FX	TAL SAC
Total/NA	Analysis	EPA 537(Mod)		1			565384	02/12/22 10:52	K1S	TAL SAC

Client Sample ID: L7-5-5
Lab Sample ID: 320-84393-11

Date Collected: 02/01/22 14:00
Matrix: Solid
Date Received: 02/01/22 16:12

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1			563223	02/03/22 17:03	JP	TAL SAC

Client Sample ID: L7-5-5
Lab Sample ID: 320-84393-11

Date Collected: 02/01/22 14:00
Matrix: Solid
Date Received: 02/01/22 16:12
Percent Solids: 93.2

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			5.24 g	10.0 mL	563765	02/06/22 18:59	FX	TAL SAC
Total/NA	Analysis	EPA 537(Mod)		1			565384	02/12/22 11:02	K1S	TAL SAC

Client Sample ID: L7-5-10
Lab Sample ID: 320-84393-12

Date Collected: 02/01/22 14:10
Matrix: Solid
Date Received: 02/01/22 16:12

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1			563556	02/04/22 21:23	JP	TAL SAC

Client Sample ID: L7-5-10
Lab Sample ID: 320-84393-12

Date Collected: 02/01/22 14:10
Matrix: Solid
Date Received: 02/01/22 16:12
Percent Solids: 83.9

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			5.44 g	10.0 mL	563765	02/06/22 18:59	FX	TAL SAC
Total/NA	Analysis	EPA 537(Mod)		1			565384	02/12/22 11:13	K1S	TAL SAC

Client Sample ID: L7-6-1
Lab Sample ID: 320-84393-13

Date Collected: 02/01/22 11:25
Matrix: Solid
Date Received: 02/01/22 16:12

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1			563556	02/04/22 21:23	JP	TAL SAC

Lab Chronicle

Client: Woodard & Curran, Inc. Job ID: 320-84393-1
Project/Site: PFAS, San Jose Fuel

Client Sample ID: L7-6-1 Lab Sample ID: 320-84393-13

Date Collected: 02/01/22 11:25 **Matrix: Solid**
Date Received: 02/01/22 16:12 **Percent Solids: 84.8**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			5.30 g	10.0 mL	563765	02/06/22 18:59	FX	TAL SAC
Total/NA	Analysis	EPA 537(Mod)		1			565384	02/12/22 11:23	K1S	TAL SAC

Client Sample ID: L7-6-5 Lab Sample ID: 320-84393-14

Date Collected: 02/01/22 12:29 **Matrix: Solid**
Date Received: 02/01/22 16:12

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1			563556	02/04/22 21:23	JP	TAL SAC

Client Sample ID: L7-6-5 Lab Sample ID: 320-84393-14

Date Collected: 02/01/22 12:29 **Matrix: Solid**
Date Received: 02/01/22 16:12 **Percent Solids: 87.2**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			5.08 g	10.0 mL	563765	02/06/22 18:59	FX	TAL SAC
Total/NA	Analysis	EPA 537(Mod)		1			565384	02/12/22 11:34	K1S	TAL SAC

Client Sample ID: L7-6-10 Lab Sample ID: 320-84393-15

Date Collected: 02/01/22 12:31 **Matrix: Solid**
Date Received: 02/01/22 16:12

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1			563556	02/04/22 21:23	JP	TAL SAC

Client Sample ID: L7-6-10 Lab Sample ID: 320-84393-15

Date Collected: 02/01/22 12:31 **Matrix: Solid**
Date Received: 02/01/22 16:12 **Percent Solids: 80.4**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			5.34 g	10.0 mL	563765	02/06/22 18:59	FX	TAL SAC
Total/NA	Analysis	EPA 537(Mod)		1			565384	02/12/22 11:44	K1S	TAL SAC

Laboratory References:

TAL SAC = Eurofins Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600

Accreditation/Certification Summary

Client: Woodard & Curran, Inc.
Project/Site: PFAS, San Jose Fuel

Job ID: 320-84393-1

Laboratory: Eurofins Sacramento

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
California	State	2897	01-31-23

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
D 2216		Solid	Percent Moisture
D 2216		Solid	Percent Solids

Method Summary

Client: Woodard & Curran, Inc.
Project/Site: PFAS, San Jose Fuel

Job ID: 320-84393-1

Method	Method Description	Protocol	Laboratory
EPA 537(Mod)	PFAS for QSM 5.3, Table B-15	EPA	TAL SAC
D 2216	Percent Moisture	ASTM	TAL SAC
3535	Solid-Phase Extraction (SPE)	SW846	TAL SAC
SHAKE	Shake Extraction with Ultrasonic Bath Extraction	SW846	TAL SAC

Protocol References:

ASTM = ASTM International
EPA = US Environmental Protection Agency
SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL SAC = Eurofins Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600

Sample Summary

Client: Woodard & Curran, Inc.
Project/Site: PFAS, San Jose Fuel

Job ID: 320-84393-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
320-84393-1	L7-1-5	Solid	02/01/22 09:30	02/01/22 16:12
320-84393-2	L7-1-10	Solid	02/01/22 09:32	02/01/22 16:12
320-84393-3	FB-1-020122	Water	02/01/22 09:38	02/01/22 16:12
320-84393-4	L7-2-5	Solid	02/01/22 10:28	02/01/22 16:12
320-84393-5	L7-2-10	Solid	02/01/22 10:30	02/01/22 16:12
320-84393-6	L7-3-5	Solid	02/01/22 13:25	02/01/22 16:12
320-84393-7	L7-3-10	Solid	02/01/22 13:27	02/01/22 16:12
320-84393-8	L7-4-1	Solid	02/01/22 14:50	02/01/22 16:12
320-84393-9	L7-4-5	Solid	02/01/22 15:07	02/01/22 16:12
320-84393-10	L7-5-1	Solid	02/01/22 13:43	02/01/22 16:12
320-84393-11	L7-5-5	Solid	02/01/22 14:00	02/01/22 16:12
320-84393-12	L7-5-10	Solid	02/01/22 14:10	02/01/22 16:12
320-84393-13	L7-6-1	Solid	02/01/22 11:25	02/01/22 16:12
320-84393-14	L7-6-5	Solid	02/01/22 12:29	02/01/22 16:12
320-84393-15	L7-6-10	Solid	02/01/22 12:31	02/01/22 16:12

201954

Address: Eurofins TestAmerica West Sacramento
880 Riverside Pkwy
West Sacramento, CA

Chain of Custody Record

574713

eurofins | Environment Testing TestAmerica

320-84393

Regulatory Program ☐ DW ☐ NPDES ☐ RCRA ☐ Other:

TAL-8210

Client Contact	Project Manager: J M Strandberg	Site Contact: Kevin Almes 4ad	Date: 2/1/2022
Company Name: Woodard & Curran, Inc	Tel/Email: Jstrandberg@woodardcurran.com	Lab Contact: Linda Laver	Carrier: Drop off
Address: 2175 N California Blvd, Ste 315	**Analysis Turnaround Time**		
City/State/Zip: Walnut Creek, CA 94596	☐ CALENDAR DAYS ☒ WORKING DAYS		
Phone: (925) 627-4100	TAT if different from Below ______		
Fax: (925) 627-4101	☒ 2 weeks		
Project Name: SJC Fuel PFAS	☐ 1 week		
Site: San Jose Airport	☐ 2 days		
P O #	☐ 1 day		

COC No: 1 of 2 COCs

Sampler:

For Lab Use Only:

Walk-in Client:

Lab Sampling:

Job / SDG No

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y / N)	Perform MS / MSD (Y / N)	PFAS (31)	Sample Specific Notes:
L7-1-5	2/1/22	0930	G	S	1			X	
L7-1-10		0932	G	S	1			X	
FB-1-020122		0938	G	W	2			X	
L7-2-5		1028	G	S	1			X	
L7-2-10		1030	G	S	1			X	
L7-3-5		1325	G	S	1			X	
L7-3-10		1327	G	S	1			X	
L7-4-1		1450	G	S	1			X	
L7-4-5		1507	G	S	1			X	
L7-5-1		1343	G	S	1			X	
L7-5-5		1400	G	S	1			X	
L7-5-10		1410	G	✓	1			X	

320-84393 Chain of Custody

Preservation Used: 1= Ice, 2= HCl, 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other ______

Possible Hazard Identification
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.

☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☒ Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

☐ Return to Client ☒ Disposal by Lab ☐ Archive for ______ Months

Special Instructions/QC Requirements & Comments Standard TAT

25

Custody Seals Intact: ☐ Yes ☐ No

Custody Seal No.

Cooler Temp (°C) Obs'd. ______ Corr'd. ______ Therm ID No. ______

Relinquished by:	Company: Woodard & Curran	Date/Time: 2/1/22 1612	Received by:	Company: ETA SS	Date/Time: 2-1-22 1612
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company:	Date/Time:

201954

Address Eurofins TestAmerica West Sacramento
880 Riverside Pkwy
West Sacramento, CA

Chain of Custody Record

574712

320-84393

eurofins | Environment Testing TestAmerica

Regulatory Program ☐ DW ☐ NPDES ☐ RCRA ☐ Other:

TAL-8210

Client Contact	Project Manager: Jim Strandberg	Site Contact: Kevin Alves	Date: 2/1/2022
Company Name: Woodard & Curran, Inc.	Tel/Email: Jstrandberg@woodardcurran.com	Lab Contact: Linda Laver	Carrier: Drop-off
Address: 2175 N Cal Forma Blvd, Ste 315	**Analysis Turnaround Time**		
City/State/Zip: Walnut Creek, CA 94596	☐ CALENDAR DAYS ☒ WORKING DAYS		
Phone: (925) 627-4100	TAT if different from Below ______		
Fax: 925 627-4101	☒ 2 weeks		
Project Name: SJC Fuel PFAS	☐ 1 week		
Site: San Jose Airport	☐ 2 days		
P O #	☐ 1 day		

COC No
2 of 2 COCs
Sampler:
For Lab Use Only:
Walk-in Client:
Lab Sampling
Job / SDG No

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y / N)	Perform MS / MSD (Y / N)	PFAS (31)	Sample Specific Notes:
L7-6-1	2/1/22	1125	G	S	1			X	
L7-6-5	↓	1229	↓	↓	↓			X	
L7-6-10	↓	1231	↓	↓	↓			X	

Preservation Used 1= Ice, 2= HCl, 3= H2SO4, 4=HNO3 5=NaOH 6= Other ______

Possible Hazard Identification
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☒ Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return to Client ☒ Disposal by Lab ☐ Archive for ______ Months

Special Instructions/QC Requirements & Comments Standard TAT

Custody Seals Intact: ☐ Yes ☐ No | Custody Seal No. | Cooler Temp. (°C): Obs'd. ______ Corr'd ______ | Therm ID No ______

Relinquished by:	Company: Woodard & Curran	Date/Time: 2/1/22 1612	Received by:	Company: ETASJ	Date/Time 2-1-22 1615
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company:	Date/Time

Eurofins Sacramento
880 Riverside Parkway
West Sacramento, CA 95605
Phone: 916-373-5600 Fax: 916-372-1059

Chain of Custody Record

eurofins Environment Testing America

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Laver, Linda C.	Carrier Tracking No(s):	COC No: 320-257925.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: Linda.Laver@Eurofinset.com	State of Origin: California	Page: Page 1 of 2
Company: Eurofins Environment Testing Northern Ca		Accreditations Required (See note): State - California		Job #: 320-84393-1
Address: 880 Riverside Parkway, ,	Due Date Requested: 2/14/2022			
City: West Sacramento	TAT Requested (days):			
State, Zip: CA, 95605				
Phone: 916-373-5600(Tel) 916-372-1059(Fax)	PO #:			
Email:	WO #:			
Project Name: PFAS, San Jose Fuel	Project #: 32019161			
Site:	SSOW#:			

Preservation Codes:
A - HCL
B - NaOH
C - Zn Acetate
D - Nitric Acid
E - NaHSO4
F - MeOH
G - Amchlor
H - Ascorbic Acid
I - Ice
J - DI Water
K - EDTA
L - EDA
M - Hexane
N - None
O - AsNaO2
P - Na2O4S
Q - Na2SO3
R - Na2S2O3
S - H2SO4
T - TSP Dodecahydrate
U - Acetone
V - MCAA
W - pH 4-5
Z - other (specify)
Other:

Analysis Requested

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	PFC_IDA_B15/Shake_Bath_14D CA-DWQ 31 Required	Moisture	PFC_IDA_B15/3535_PFC CA-DWQ 31 Required	Total Number of containers	Special Instructions/Note:
			Preservation Code:								
L7-1-5 (320-84393-1)	2/1/22	09:30 Pacific		Solid			X	X		1	
L7-1-10 (320-84393-2)	2/1/22	09:32 Pacific		Solid			X	X		1	
FB-1-020122 (320-84393-3)	2/1/22	09:38 Pacific		Water					X	2	
L7-2-5 (320-84393-4)	2/1/22	10:28 Pacific		Solid			X	X		1	
L7-2-10 (320-84393-5)	2/1/22	10:30 Pacific		Solid			X	X		1	
L7-3-5 (320-84393-6)	2/1/22	13:25 Pacific		Solid			X	X		1	
L7-3-10 (320-84393-7)	2/1/22	13:27 Pacific		Solid			X	X		1	
L7-4-1 (320-84393-8)	2/1/22	14:50 Pacific		Solid			X	X		1	
L7-4-5 (320-84393-9)	2/1/22	15:07 Pacific		Solid			X	X		1	

Note: Since laboratory accreditations are subject to change, Eurofins Environment Testing Northern California, LLC places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins Environment Testing Northern California, LLC laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Environment Testing Northern California, LLC attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said complicance to Eurofins Environment Testing Northern California, LLC.

Possible Hazard Identification
Unconfirmed

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ *Return To Client* ☐ *Disposal By Lab* ☐ *Archive For* ______ *Months*

Deliverable Requested: I, II, III, IV, Other (specify)
Primary Deliverable Rank: 2
Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:		
Relinquished by:	Date/Time: 2-2-22 1630	Company ST	Received by:	Date/Time: 2-2-22 1630	Company DCS
Relinquished by:	Date/Time: 2-2-22 1940	Company DCS	Received by:	Date/Time: 2-2-22 19:40	Company EETSAL
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:		Cooler Temperature(s) °C and Other Remarks: 2.2		

Ver: 06/08/2021

Eurofins Sacramento
880 Riverside Parkway
West Sacramento, CA 95605
Phone: 916-373-5600 Fax: 916-372-1059

Chain of Custody Record

eurofins Environment Testing America

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Laver, Linda C.	Carrier Tracking No(s):	COC No: 320-257925.2
Client Contact: Shipping/Receiving	Phone:	E-Mail: Linda.Laver@Eurofinset.com	State of Origin: California	Page: Page 2 of 2
Company: Eurofins Environment Testing Northern Ca		Accreditations Required (See note): State - California		Job #: 320-84393-1
Address: 880 Riverside Parkway,	**Due Date Requested:** 2/14/2022			
City: West Sacramento	**TAT Requested (days):**			
State, Zip: CA, 95605				
Phone: 916-373-5600(Tel) 916-372-1059(Fax)	PO #:			
Email:	WO #:			
Project Name: PFAS, San Jose Fuel	Project #: 32019161			
Site:	SSOW#:			

Analysis Requested

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	PFC_IDA_B15/Shake_Bath_14D CA-DWQ 31 Required	Moisture	PFC_IDA_B15/3535_PFC CA-DWQ 31 Required	Total Number of containers	Special Instructions/Note:
			Preservation Code:								
L7-5-1 (320-84393-10)	2/1/22	13:43 Pacific		Solid			X	X		1	
L7-5-5 (320-84393-11)	2/1/22	14:00 Pacific		Solid			X	X		1	
L7-5-10 (320-84393-12)	2/1/22	14:10 Pacific		Solid			X	X		1	
L7-6-1 (320-84393-13)	2/1/22	11:25 Pacific		Solid			X	X		1	
L7-6-5 (320-84393-14)	2/1/22	12:29 Pacific		Solid			X	X		1	
L7-6-10 (320-84393-15)	2/1/22	12:31 Pacific		Solid			X	X		1	

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2O3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - pH 4-5
L - EDA	Z - other (specify)

Other:

Note: Since laboratory accreditations are subject to change, Eurofins Environment Testing Northern California, LLC places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins Environment Testing Northern California, LLC laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Environment Testing Northern California, LLC attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said complicance to Eurofins Environment Testing Northern California, LLC.

Possible Hazard Identification
Unconfirmed

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ *Return To Client* ☐ *Disposal By Lab* ☐ *Archive For* ________ *Months*

Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time: 2-2-22 1630	Company SJ	Received by:	Date/Time: 2-2-22 1630	Company DCS
Relinquished by:	Date/Time: 2-2-22 1940	Company DCS	Received by:	Date/Time: 2-2-22 19:40	Company EETSAC
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks: 2.2

Ver: 06/08/2021

Login Sample Receipt Checklist

Client: Woodard & Curran, Inc.

Job Number: 320-84393-1

Login Number: 84393
List Number: 1
Creator: Mullen, Joan

List Source: Eurofins Sacramento

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	N/A	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: Woodard & Curran, Inc.

Job Number: 320-84393-1

Login Number: 84393

List Number: 2

Creator: Cahill, Nicholas P

List Source: Eurofins Sacramento

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	N/A	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	2.2c
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	False	Received project as a subcontract.
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

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Environment Testing
America

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ANALYTICAL REPORT

Eurofins Sacramento
880 Riverside Parkway
West Sacramento, CA 95605
Tel: (916)373-5600

Laboratory Job ID: 320-84437-1
Client Project/Site: PFAS, San Jose Fuel

For:
Woodard & Curran, Inc.
2175 North California Blvd.
Suite 315
Walnut Creek, California 94596

Attn: Jim Strandberg

Linda C. Laver

Authorized for release by:
2/25/2022 5:06:11 PM

Linda C. Laver, Senior Project Manager
(916)374-4362
Linda.Laver@Eurofinset.com

Table of Contents

Definitions/Glossary

Client: Woodard & Curran, Inc.
Project/Site: PFAS, San Jose Fuel

Job ID: 320-84437-1

Qualifiers

LCMS

Qualifier	Qualifier Description
*5-	Isotope dilution analyte is outside acceptance limits, low biased.
I	Value is EMPC (estimated maximum possible concentration).
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Metals

Qualifier	Qualifier Description
4	MS, MSD: The analyte present in the original sample is greater than 4 times the matrix spike concentration; therefore, control limits are not applicable.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Case Narrative

Job ID: 320-84437-1

Laboratory: Eurofins Sacramento

Narrative

Job Narrative
320-84437-1

Receipt
The samples were received on 2/2/2022 2:50 PM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 2.5º C.

Metals
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

LCMS
Method EPA 537(Mod): The "I" qualifier means the transition mass ratio for the indicated analyte was above the established ratio limits. The qualitative identification of the analyte has some degree of uncertainty, and the reported value may have some high bias. However, analyst judgment was used to positively identify the analyte. L7-6-GW (320-84437-4) and L7-6D-GW (320-84437-5)

Method EPA 537(Mod): Isotope Dilution Analyte (IDA) recoveries are below the method recommended limit in the following sample: L7-5-GW (320-84437-6). Generally, data quality is not considered affected if the IDA signal-to-noise ratio is greater than 10:1, which is achieved for all IDA in the samples.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

General Chemistry
Method 300.0: The following samples were diluted due to the nature of the sample matrix: L7-6-GW (320-84437-4), L7-5-GW (320-84437-6) and L7-4-GW (320-84437-7). Elevated reporting limits (RLs) are provided.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Organic Prep
Method 3535: The following samples contained a thin layer of sediment at the bottom of the bottle prior to extraction: L7-6-GW (320-84437-4) and L7-5-GW (320-84437-6).
preparation batch 320-563436

Method 3535: During the solid phase extraction process, the following samples contain non-settable particulates which clogged the solid phase extraction column: L7-5-GW (320-84437-6).
preparation batch 320-563436

Method 3535: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 320-563436.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Detection Summary

Client: Woodard & Curran, Inc.
Project/Site: PFAS, San Jose Fuel

Job ID: 320-84437-1

Client Sample ID: L7-4-10

Lab Sample ID: 320-84437-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluoropentanoic acid (PFPeA)	0.14	J	0.23	0.047	ug/Kg	1	☼	EPA 537(Mod)	Total/NA

Client Sample ID: FB-2-020222

Lab Sample ID: 320-84437-2

No Detections.

Client Sample ID: EB-1-020222

Lab Sample ID: 320-84437-3

No Detections.

Client Sample ID: L7-6-GW

Lab Sample ID: 320-84437-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	56		5.0	1.9	mg/L	5		300.0	Total/NA
Nitrate as N	2.3		1.3	0.50	mg/L	5		300.0	Total/NA
Sulfate	310		10	3.6	mg/L	10		300.0	Total/NA
Perfluorobutanoic acid (PFBA)	67		4.9	2.3	ng/L	1		EPA 537(Mod)	Total/NA
Perfluoropentanoic acid (PFPeA)	55		1.9	0.48	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorohexanoic acid (PFHxA)	19		1.9	0.56	ng/L	1		EPA 537(Mod)	Total/NA
Perfluoroheptanoic acid (PFHpA)	5.4		1.9	0.24	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorooctanoic acid (PFOA)	11		1.9	0.82	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorononanoic acid (PFNA)	2.0		1.9	0.26	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	24		1.9	0.19	ng/L	1		EPA 537(Mod)	Total/NA
Perfluoropentanesulfonic acid (PFPeS)	20		1.9	0.29	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	100		1.9	0.55	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	7.8	I	1.9	0.52	ng/L	1		EPA 537(Mod)	Total/NA
6:2 FTS	33		4.9	2.4	ng/L	1		EPA 537(Mod)	Total/NA
8:2 FTS	14		1.9	0.45	ng/L	1		EPA 537(Mod)	Total/NA
Calcium	130		0.50	0.050	mg/L	1		6010B	Dissolved
Magnesium	180		0.50	0.040	mg/L	1		6010B	Dissolved
Potassium	0.39	J	1.0	0.093	mg/L	1		6010B	Dissolved
Sodium	95		1.0	0.25	mg/L	1		6010B	Dissolved
Bicarbonate Alkalinity	770		5.0	5.0	mg/L	1		SM 2320B	Total/NA
Total Dissolved Solids	1300		10	5.4	mg/L	1		SM 2540C	Total/NA

Client Sample ID: L7-6D-GW

Lab Sample ID: 320-84437-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	68		4.7	2.3	ng/L	1		EPA 537(Mod)	Total/NA
Perfluoropentanoic acid (PFPeA)	54		1.9	0.46	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorohexanoic acid (PFHxA)	18		1.9	0.54	ng/L	1		EPA 537(Mod)	Total/NA
Perfluoroheptanoic acid (PFHpA)	5.4		1.9	0.23	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorooctanoic acid (PFOA)	12		1.9	0.80	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorononanoic acid (PFNA)	1.9		1.9	0.25	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	24		1.9	0.19	ng/L	1		EPA 537(Mod)	Total/NA
Perfluoropentanesulfonic acid (PFPeS)	19		1.9	0.28	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	96		1.9	0.53	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	7.4	I	1.9	0.51	ng/L	1		EPA 537(Mod)	Total/NA
6:2 FTS	12		4.7	2.3	ng/L	1		EPA 537(Mod)	Total/NA
8:2 FTS	13		1.9	0.43	ng/L	1		EPA 537(Mod)	Total/NA

This Detection Summary does not include radiochemical test results.

Detection Summary

Client Sample ID: L7-5-GW

Lab Sample ID: 320-84437-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	77		5.0	1.9	mg/L	5		300.0	Total/NA
Sulfate	150		5.0	1.8	mg/L	5		300.0	Total/NA
Perfluorobutanoic acid (PFBA)	63		4.7	2.3	ng/L	1		EPA 537(Mod)	Total/NA
Perfluoropentanoic acid (PFPeA)	220		1.9	0.47	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorohexanoic acid (PFHxA)	99		1.9	0.55	ng/L	1		EPA 537(Mod)	Total/NA
Perfluoroheptanoic acid (PFHpA)	30		1.9	0.24	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorooctanoic acid (PFOA)	35		1.9	0.81	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorononanoic acid (PFNA)	1.4	J	1.9	0.26	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	9.5		1.9	0.19	ng/L	1		EPA 537(Mod)	Total/NA
Perfluoropentanesulfonic acid (PFPeS)	3.8		1.9	0.28	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	27		1.9	0.54	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	6.3		1.9	0.51	ng/L	1		EPA 537(Mod)	Total/NA
6:2 FTS	66		4.7	2.4	ng/L	1		EPA 537(Mod)	Total/NA
Bicarbonate Alkalinity	960		5.0	5.0	mg/L	1		SM 2320B	Total/NA

Client Sample ID: L7-4-GW

Lab Sample ID: 320-84437-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	42		5.0	1.9	mg/L	5		300.0	Total/NA
Sulfate	200		5.0	1.8	mg/L	5		300.0	Total/NA
Perfluorobutanoic acid (PFBA)	29		4.8	2.3	ng/L	1		EPA 537(Mod)	Total/NA
Perfluoropentanoic acid (PFPeA)	5.6		1.9	0.47	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorohexanoic acid (PFHxA)	5.5		1.9	0.55	ng/L	1		EPA 537(Mod)	Total/NA
Perfluoroheptanoic acid (PFHpA)	1.4	J	1.9	0.24	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorooctanoic acid (PFOA)	14		1.9	0.81	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	25		1.9	0.19	ng/L	1		EPA 537(Mod)	Total/NA
Perfluoropentanesulfonic acid (PFPeS)	22		1.9	0.29	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	93		1.9	0.54	ng/L	1		EPA 537(Mod)	Total/NA
Calcium	140		0.50	0.050	mg/L	1		6010B	Dissolved
Magnesium	130		0.50	0.040	mg/L	1		6010B	Dissolved
Potassium	1.1		1.0	0.093	mg/L	1		6010B	Dissolved
Sodium	82		1.0	0.25	mg/L	1		6010B	Dissolved
Bicarbonate Alkalinity	730		5.0	5.0	mg/L	1		SM 2320B	Total/NA
Total Dissolved Solids	1100		10	5.4	mg/L	1		SM 2540C	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: L7-4-10 Lab Sample ID: 320-84437-1

Date Collected: 02/02/22 09:05 **Matrix: Solid**
Date Received: 02/02/22 14:50 **Percent Solids: 86.5**

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		0.23	0.053	ug/Kg	☼	02/04/22 11:48	02/06/22 22:40	1
Perfluoropentanoic acid (PFPeA)	**0.14**	**J**	0.23	0.047	ug/Kg	☼	02/04/22 11:48	02/06/22 22:40	1
Perfluorohexanoic acid (PFHxA)	ND		0.23	0.036	ug/Kg	☼	02/04/22 11:48	02/06/22 22:40	1
Perfluoroheptanoic acid (PFHpA)	ND		0.23	0.044	ug/Kg	☼	02/04/22 11:48	02/06/22 22:40	1
Perfluorooctanoic acid (PFOA)	ND		0.23	0.061	ug/Kg	☼	02/04/22 11:48	02/06/22 22:40	1
Perfluorononanoic acid (PFNA)	ND		0.23	0.025	ug/Kg	☼	02/04/22 11:48	02/06/22 22:40	1
Perfluorodecanoic acid (PFDA)	ND		0.23	0.055	ug/Kg	☼	02/04/22 11:48	02/06/22 22:40	1
Perfluoroundecanoic acid (PFUnA)	ND		0.23	0.048	ug/Kg	☼	02/04/22 11:48	02/06/22 22:40	1
Perfluorododecanoic acid (PFDoA)	ND		0.23	0.035	ug/Kg	☼	02/04/22 11:48	02/06/22 22:40	1
Perfluorotridecanoic acid (PFTrDA)	ND		0.23	0.024	ug/Kg	☼	02/04/22 11:48	02/06/22 22:40	1
Perfluorotetradecanoic acid (PFTeA)	ND		0.23	0.043	ug/Kg	☼	02/04/22 11:48	02/06/22 22:40	1
Perfluorobutanesulfonic acid (PFBS)	ND		0.23	0.044	ug/Kg	☼	02/04/22 11:48	02/06/22 22:40	1
Perfluoropentanesulfonic acid (PFPeS)	ND		0.23	0.043	ug/Kg	☼	02/04/22 11:48	02/06/22 22:40	1
Perfluorohexanesulfonic acid (PFHxS)	ND		0.23	0.033	ug/Kg	☼	02/04/22 11:48	02/06/22 22:40	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		0.23	0.057	ug/Kg	☼	02/04/22 11:48	02/06/22 22:40	1
Perfluorooctanesulfonic acid (PFOS)	ND		0.23	0.050	ug/Kg	☼	02/04/22 11:48	02/06/22 22:40	1
Perfluorodecanesulfonic acid (PFDS)	ND		0.23	0.060	ug/Kg	☼	02/04/22 11:48	02/06/22 22:40	1
Perfluorooctanesulfonamide (FOSA)	ND		0.23	0.038	ug/Kg	☼	02/04/22 11:48	02/06/22 22:40	1
NEtFOSA	ND		0.23	0.054	ug/Kg	☼	02/04/22 11:48	02/06/22 22:40	1
NEtFOSAA	ND		0.23	0.055	ug/Kg	☼	02/04/22 11:48	02/06/22 22:40	1
NEtFOSE	ND		0.23	0.032	ug/Kg	☼	02/04/22 11:48	02/06/22 22:40	1
NMeFOSA	ND		0.23	0.057	ug/Kg	☼	02/04/22 11:48	02/06/22 22:40	1
NMeFOSAA	ND		0.23	0.027	ug/Kg	☼	02/04/22 11:48	02/06/22 22:40	1
NMeFOSE	ND		0.23	0.054	ug/Kg	☼	02/04/22 11:48	02/06/22 22:40	1
4:2 FTS	ND		0.23	0.059	ug/Kg	☼	02/04/22 11:48	02/06/22 22:40	1
6:2 FTS	ND		0.23	0.031	ug/Kg	☼	02/04/22 11:48	02/06/22 22:40	1
8:2 FTS	ND		0.23	0.040	ug/Kg	☼	02/04/22 11:48	02/06/22 22:40	1
11Cl-PF3OUdS	ND		0.23	0.036	ug/Kg	☼	02/04/22 11:48	02/06/22 22:40	1
9Cl-PF3ONS	ND		0.23	0.040	ug/Kg	☼	02/04/22 11:48	02/06/22 22:40	1
HFPO-DA (GenX)	ND		0.23	0.047	ug/Kg	☼	02/04/22 11:48	02/06/22 22:40	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		0.23	0.045	ug/Kg	☼	02/04/22 11:48	02/06/22 22:40	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*60*		*50 - 150*	*02/04/22 11:48*	*02/06/22 22:40*	*1*
13C5 PFPeA	*93*		*50 - 150*	*02/04/22 11:48*	*02/06/22 22:40*	*1*
13C2 PFHxA	*92*		*50 - 150*	*02/04/22 11:48*	*02/06/22 22:40*	*1*
13C4 PFHpA	*100*		*50 - 150*	*02/04/22 11:48*	*02/06/22 22:40*	*1*
13C4 PFOA	*99*		*50 - 150*	*02/04/22 11:48*	*02/06/22 22:40*	*1*
13C5 PFNA	*99*		*50 - 150*	*02/04/22 11:48*	*02/06/22 22:40*	*1*
13C2 PFDA	*99*		*50 - 150*	*02/04/22 11:48*	*02/06/22 22:40*	*1*
13C2 PFUnA	*98*		*50 - 150*	*02/04/22 11:48*	*02/06/22 22:40*	*1*
13C2 PFDoA	*98*		*50 - 150*	*02/04/22 11:48*	*02/06/22 22:40*	*1*
13C2 PFTeDA	*103*		*50 - 150*	*02/04/22 11:48*	*02/06/22 22:40*	*1*
13C3 PFBS	*90*		*50 - 150*	*02/04/22 11:48*	*02/06/22 22:40*	*1*
18O2 PFHxS	*89*		*50 - 150*	*02/04/22 11:48*	*02/06/22 22:40*	*1*
13C4 PFOS	*92*		*50 - 150*	*02/04/22 11:48*	*02/06/22 22:40*	*1*
13C8 FOSA	*93*		*50 - 150*	*02/04/22 11:48*	*02/06/22 22:40*	*1*
M2-4:2 FTS	*70*		*50 - 150*	*02/04/22 11:48*	*02/06/22 22:40*	*1*

Client Sample Results

Client Sample ID: L7-4-10

Date Collected: 02/02/22 09:05
Date Received: 02/02/22 14:50

Lab Sample ID: 320-84437-1

Matrix: Solid
Percent Solids: 86.5

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15 (Continued)

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
M2-6:2 FTS	*65*		*50 - 150*	*02/04/22 11:48*	*02/06/22 22:40*	*1*
M2-8:2 FTS	*64*		*50 - 150*	*02/04/22 11:48*	*02/06/22 22:40*	*1*
d5-NEtFOSAA	*100*		*50 - 150*	*02/04/22 11:48*	*02/06/22 22:40*	*1*
d3-NMeFOSAA	*86*		*50 - 150*	*02/04/22 11:48*	*02/06/22 22:40*	*1*
d-N-EtFOSA-M	*95*		*50 - 150*	*02/04/22 11:48*	*02/06/22 22:40*	*1*
d9-N-EtFOSE-M	*101*		*50 - 150*	*02/04/22 11:48*	*02/06/22 22:40*	*1*
d7-N-MeFOSE-M	*93*		*50 - 150*	*02/04/22 11:48*	*02/06/22 22:40*	*1*
d-N-MeFOSA-M	*95*		*50 - 150*	*02/04/22 11:48*	*02/06/22 22:40*	*1*
13C3 HFPO-DA	*92*		*50 - 150*	*02/04/22 11:48*	*02/06/22 22:40*	*1*

General Chemistry

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	**13.5**		0.1	0.1	%			02/07/22 21:16	1
Percent Solids	**86.5**		0.1	0.1	%			02/07/22 21:16	1

Client Sample Results

Client: Woodard & Curran, Inc.
Project/Site: PFAS, San Jose Fuel

Job ID: 320-84437-1

Client Sample ID: FB-2-020222

Date Collected: 02/02/22 10:10
Date Received: 02/02/22 14:50

Lab Sample ID: 320-84437-2
Matrix: Water

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		4.6	2.2	ng/L		02/04/22 13:22	02/05/22 18:27	1
Perfluoropentanoic acid (PFPeA)	ND		1.9	0.45	ng/L		02/04/22 13:22	02/05/22 18:27	1
Perfluorohexanoic acid (PFHxA)	ND		1.9	0.54	ng/L		02/04/22 13:22	02/05/22 18:27	1
Perfluoroheptanoic acid (PFHpA)	ND		1.9	0.23	ng/L		02/04/22 13:22	02/05/22 18:27	1
Perfluorooctanoic acid (PFOA)	ND		1.9	0.79	ng/L		02/04/22 13:22	02/05/22 18:27	1
Perfluorononanoic acid (PFNA)	ND		1.9	0.25	ng/L		02/04/22 13:22	02/05/22 18:27	1
Perfluorodecanoic acid (PFDA)	ND		1.9	0.29	ng/L		02/04/22 13:22	02/05/22 18:27	1
Perfluoroundecanoic acid (PFUnA)	ND		1.9	1.0	ng/L		02/04/22 13:22	02/05/22 18:27	1
Perfluorododecanoic acid (PFDoA)	ND		1.9	0.51	ng/L		02/04/22 13:22	02/05/22 18:27	1
Perfluorotridecanoic acid (PFTrDA)	ND		1.9	1.2	ng/L		02/04/22 13:22	02/05/22 18:27	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.9	0.68	ng/L		02/04/22 13:22	02/05/22 18:27	1
Perfluorobutanesulfonic acid (PFBS)	ND		1.9	0.19	ng/L		02/04/22 13:22	02/05/22 18:27	1
Perfluoropentanesulfonic acid (PFPeS)	ND		1.9	0.28	ng/L		02/04/22 13:22	02/05/22 18:27	1
Perfluorohexanesulfonic acid (PFHxS)	ND		1.9	0.53	ng/L		02/04/22 13:22	02/05/22 18:27	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		1.9	0.18	ng/L		02/04/22 13:22	02/05/22 18:27	1
Perfluorooctanesulfonic acid (PFOS)	ND		1.9	0.50	ng/L		02/04/22 13:22	02/05/22 18:27	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.9	0.30	ng/L		02/04/22 13:22	02/05/22 18:27	1
Perfluorooctanesulfonamide (FOSA)	ND		1.9	0.91	ng/L		02/04/22 13:22	02/05/22 18:27	1
NEtFOSA	ND		1.9	0.81	ng/L		02/04/22 13:22	02/05/22 18:27	1
NEtFOSAA	ND		4.6	1.2	ng/L		02/04/22 13:22	02/05/22 18:27	1
NEtFOSE	ND		1.9	0.79	ng/L		02/04/22 13:22	02/05/22 18:27	1
NMeFOSA	ND		1.9	0.40	ng/L		02/04/22 13:22	02/05/22 18:27	1
NMeFOSAA	ND		4.6	1.1	ng/L		02/04/22 13:22	02/05/22 18:27	1
NMeFOSE	ND		3.7	1.3	ng/L		02/04/22 13:22	02/05/22 18:27	1
4:2 FTS	ND		1.9	0.22	ng/L		02/04/22 13:22	02/05/22 18:27	1
6:2 FTS	ND		4.6	2.3	ng/L		02/04/22 13:22	02/05/22 18:27	1
8:2 FTS	ND		1.9	0.43	ng/L		02/04/22 13:22	02/05/22 18:27	1
11Cl-PF3OUdS	ND		1.9	0.30	ng/L		02/04/22 13:22	02/05/22 18:27	1
9Cl-PF3ONS	ND		1.9	0.22	ng/L		02/04/22 13:22	02/05/22 18:27	1
HFPO-DA (GenX)	ND		3.7	1.4	ng/L		02/04/22 13:22	02/05/22 18:27	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.9	0.37	ng/L		02/04/22 13:22	02/05/22 18:27	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*96*		*50 - 150*	*02/04/22 13:22*	*02/05/22 18:27*	*1*
13C5 PFPeA	*102*		*50 - 150*	*02/04/22 13:22*	*02/05/22 18:27*	*1*
13C2 PFHxA	*95*		*50 - 150*	*02/04/22 13:22*	*02/05/22 18:27*	*1*
13C4 PFHpA	*95*		*50 - 150*	*02/04/22 13:22*	*02/05/22 18:27*	*1*
13C4 PFOA	*94*		*50 - 150*	*02/04/22 13:22*	*02/05/22 18:27*	*1*
13C5 PFNA	*90*		*50 - 150*	*02/04/22 13:22*	*02/05/22 18:27*	*1*
13C2 PFDA	*93*		*50 - 150*	*02/04/22 13:22*	*02/05/22 18:27*	*1*
13C2 PFUnA	*90*		*50 - 150*	*02/04/22 13:22*	*02/05/22 18:27*	*1*
13C2 PFDoA	*88*		*50 - 150*	*02/04/22 13:22*	*02/05/22 18:27*	*1*
13C2 PFTeDA	*84*		*50 - 150*	*02/04/22 13:22*	*02/05/22 18:27*	*1*
13C3 PFBS	*103*		*50 - 150*	*02/04/22 13:22*	*02/05/22 18:27*	*1*
18O2 PFHxS	*93*		*50 - 150*	*02/04/22 13:22*	*02/05/22 18:27*	*1*
13C4 PFOS	*95*		*50 - 150*	*02/04/22 13:22*	*02/05/22 18:27*	*1*
13C8 FOSA	*83*		*50 - 150*	*02/04/22 13:22*	*02/05/22 18:27*	*1*
M2-4:2 FTS	*77*		*50 - 150*	*02/04/22 13:22*	*02/05/22 18:27*	*1*

Client Sample ID: FB-2-020222

Date Collected: 02/02/22 10:10
Date Received: 02/02/22 14:50

Lab Sample ID: 320-84437-2

Matrix: Water

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15 (Continued)

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
M2-6:2 FTS	*68*		*50 - 150*	*02/04/22 13:22*	*02/05/22 18:27*	*1*
M2-8:2 FTS	*71*		*50 - 150*	*02/04/22 13:22*	*02/05/22 18:27*	*1*
d5-NEtFOSAA	*77*		*50 - 150*	*02/04/22 13:22*	*02/05/22 18:27*	*1*
d3-NMeFOSAA	*71*		*50 - 150*	*02/04/22 13:22*	*02/05/22 18:27*	*1*
d-N-EtFOSA-M	*77*		*50 - 150*	*02/04/22 13:22*	*02/05/22 18:27*	*1*
d9-N-EtFOSE-M	*84*		*50 - 150*	*02/04/22 13:22*	*02/05/22 18:27*	*1*
d7-N-MeFOSE-M	*86*		*50 - 150*	*02/04/22 13:22*	*02/05/22 18:27*	*1*
d-N-MeFOSA-M	*77*		*50 - 150*	*02/04/22 13:22*	*02/05/22 18:27*	*1*
13C3 HFPO-DA	*95*		*50 - 150*	*02/04/22 13:22*	*02/05/22 18:27*	*1*

Client Sample ID: EB-1-020222

Lab Sample ID: 320-84437-3

Date Collected: 02/02/22 10:20
Date Received: 02/02/22 14:50
Matrix: Water

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		4.6	2.2	ng/L		02/04/22 13:22	02/05/22 18:37	1
Perfluoropentanoic acid (PFPeA)	ND		1.9	0.45	ng/L		02/04/22 13:22	02/05/22 18:37	1
Perfluorohexanoic acid (PFHxA)	ND		1.9	0.54	ng/L		02/04/22 13:22	02/05/22 18:37	1
Perfluoroheptanoic acid (PFHpA)	ND		1.9	0.23	ng/L		02/04/22 13:22	02/05/22 18:37	1
Perfluorooctanoic acid (PFOA)	ND		1.9	0.79	ng/L		02/04/22 13:22	02/05/22 18:37	1
Perfluorononanoic acid (PFNA)	ND		1.9	0.25	ng/L		02/04/22 13:22	02/05/22 18:37	1
Perfluorodecanoic acid (PFDA)	ND		1.9	0.29	ng/L		02/04/22 13:22	02/05/22 18:37	1
Perfluoroundecanoic acid (PFUnA)	ND		1.9	1.0	ng/L		02/04/22 13:22	02/05/22 18:37	1
Perfluorododecanoic acid (PFDoA)	ND		1.9	0.51	ng/L		02/04/22 13:22	02/05/22 18:37	1
Perfluorotridecanoic acid (PFTrDA)	ND		1.9	1.2	ng/L		02/04/22 13:22	02/05/22 18:37	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.9	0.68	ng/L		02/04/22 13:22	02/05/22 18:37	1
Perfluorobutanesulfonic acid (PFBS)	ND		1.9	0.19	ng/L		02/04/22 13:22	02/05/22 18:37	1
Perfluoropentanesulfonic acid (PFPeS)	ND		1.9	0.28	ng/L		02/04/22 13:22	02/05/22 18:37	1
Perfluorohexanesulfonic acid (PFHxS)	ND		1.9	0.53	ng/L		02/04/22 13:22	02/05/22 18:37	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		1.9	0.18	ng/L		02/04/22 13:22	02/05/22 18:37	1
Perfluorooctanesulfonic acid (PFOS)	ND		1.9	0.50	ng/L		02/04/22 13:22	02/05/22 18:37	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.9	0.30	ng/L		02/04/22 13:22	02/05/22 18:37	1
Perfluorooctanesulfonamide (FOSA)	ND		1.9	0.91	ng/L		02/04/22 13:22	02/05/22 18:37	1
NEtFOSA	ND		1.9	0.81	ng/L		02/04/22 13:22	02/05/22 18:37	1
NEtFOSAA	ND		4.6	1.2	ng/L		02/04/22 13:22	02/05/22 18:37	1
NEtFOSE	ND		1.9	0.79	ng/L		02/04/22 13:22	02/05/22 18:37	1
NMeFOSA	ND		1.9	0.40	ng/L		02/04/22 13:22	02/05/22 18:37	1
NMeFOSAA	ND		4.6	1.1	ng/L		02/04/22 13:22	02/05/22 18:37	1
NMeFOSE	ND		3.7	1.3	ng/L		02/04/22 13:22	02/05/22 18:37	1
4:2 FTS	ND		1.9	0.22	ng/L		02/04/22 13:22	02/05/22 18:37	1
6:2 FTS	ND		4.6	2.3	ng/L		02/04/22 13:22	02/05/22 18:37	1
8:2 FTS	ND		1.9	0.43	ng/L		02/04/22 13:22	02/05/22 18:37	1
11Cl-PF3OUdS	ND		1.9	0.30	ng/L		02/04/22 13:22	02/05/22 18:37	1
9Cl-PF3ONS	ND		1.9	0.22	ng/L		02/04/22 13:22	02/05/22 18:37	1
HFPO-DA (GenX)	ND		3.7	1.4	ng/L		02/04/22 13:22	02/05/22 18:37	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.9	0.37	ng/L		02/04/22 13:22	02/05/22 18:37	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*107*		*50 - 150*	*02/04/22 13:22*	*02/05/22 18:37*	*1*
13C5 PFPeA	*113*		*50 - 150*	*02/04/22 13:22*	*02/05/22 18:37*	*1*
13C2 PFHxA	*111*		*50 - 150*	*02/04/22 13:22*	*02/05/22 18:37*	*1*
13C4 PFHpA	*101*		*50 - 150*	*02/04/22 13:22*	*02/05/22 18:37*	*1*
13C4 PFOA	*105*		*50 - 150*	*02/04/22 13:22*	*02/05/22 18:37*	*1*
13C5 PFNA	*103*		*50 - 150*	*02/04/22 13:22*	*02/05/22 18:37*	*1*
13C2 PFDA	*105*		*50 - 150*	*02/04/22 13:22*	*02/05/22 18:37*	*1*
13C2 PFUnA	*110*		*50 - 150*	*02/04/22 13:22*	*02/05/22 18:37*	*1*
13C2 PFDoA	*108*		*50 - 150*	*02/04/22 13:22*	*02/05/22 18:37*	*1*
13C2 PFTeDA	*103*		*50 - 150*	*02/04/22 13:22*	*02/05/22 18:37*	*1*
13C3 PFBS	*110*		*50 - 150*	*02/04/22 13:22*	*02/05/22 18:37*	*1*
18O2 PFHxS	*103*		*50 - 150*	*02/04/22 13:22*	*02/05/22 18:37*	*1*
13C4 PFOS	*111*		*50 - 150*	*02/04/22 13:22*	*02/05/22 18:37*	*1*
13C8 FOSA	*95*		*50 - 150*	*02/04/22 13:22*	*02/05/22 18:37*	*1*
M2-4:2 FTS	*87*		*50 - 150*	*02/04/22 13:22*	*02/05/22 18:37*	*1*

Client Sample ID: EB-1-020222
Date Collected: 02/02/22 10:20
Date Received: 02/02/22 14:50

Lab Sample ID: 320-84437-3
Matrix: Water

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15 (Continued)

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
M2-6:2 FTS	*88*		*50 - 150*	*02/04/22 13:22*	*02/05/22 18:37*	*1*
M2-8:2 FTS	*94*		*50 - 150*	*02/04/22 13:22*	*02/05/22 18:37*	*1*
d5-NEtFOSAA	*93*		*50 - 150*	*02/04/22 13:22*	*02/05/22 18:37*	*1*
d3-NMeFOSAA	*86*		*50 - 150*	*02/04/22 13:22*	*02/05/22 18:37*	*1*
d-N-EtFOSA-M	*82*		*50 - 150*	*02/04/22 13:22*	*02/05/22 18:37*	*1*
d9-N-EtFOSE-M	*96*		*50 - 150*	*02/04/22 13:22*	*02/05/22 18:37*	*1*
d7-N-MeFOSE-M	*91*		*50 - 150*	*02/04/22 13:22*	*02/05/22 18:37*	*1*
d-N-MeFOSA-M	*84*		*50 - 150*	*02/04/22 13:22*	*02/05/22 18:37*	*1*
13C3 HFPO-DA	*105*		*50 - 150*	*02/04/22 13:22*	*02/05/22 18:37*	*1*

Client Sample Results

Client Sample ID: L7-6-GW

Lab Sample ID: 320-84437-4

Date Collected: 02/02/22 10:55

Matrix: Water

Date Received: 02/02/22 14:50

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**56**		5.0	1.9	mg/L			02/03/22 13:47	5
Nitrate as N	**2.3**		1.3	0.50	mg/L			02/03/22 13:47	5
Sulfate	**310**		10	3.6	mg/L			02/07/22 20:42	10

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**67**		4.9	2.3	ng/L		02/04/22 13:22	02/05/22 18:47	1
Perfluoropentanoic acid (PFPeA)	**55**		1.9	0.48	ng/L		02/04/22 13:22	02/05/22 18:47	1
Perfluorohexanoic acid (PFHxA)	**19**		1.9	0.56	ng/L		02/04/22 13:22	02/05/22 18:47	1
Perfluoroheptanoic acid (PFHpA)	**5.4**		1.9	0.24	ng/L		02/04/22 13:22	02/05/22 18:47	1
Perfluorooctanoic acid (PFOA)	**11**		1.9	0.82	ng/L		02/04/22 13:22	02/05/22 18:47	1
Perfluorononanoic acid (PFNA)	**2.0**		1.9	0.26	ng/L		02/04/22 13:22	02/05/22 18:47	1
Perfluorodecanoic acid (PFDA)	ND		1.9	0.30	ng/L		02/04/22 13:22	02/05/22 18:47	1
Perfluoroundecanoic acid (PFUnA)	ND		1.9	1.1	ng/L		02/04/22 13:22	02/05/22 18:47	1
Perfluorododecanoic acid (PFDoA)	ND		1.9	0.53	ng/L		02/04/22 13:22	02/05/22 18:47	1
Perfluorotridecanoic acid (PFTrDA)	ND		1.9	1.3	ng/L		02/04/22 13:22	02/05/22 18:47	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.9	0.71	ng/L		02/04/22 13:22	02/05/22 18:47	1
Perfluorobutanesulfonic acid (PFBS)	**24**		1.9	0.19	ng/L		02/04/22 13:22	02/05/22 18:47	1
Perfluoropentanesulfonic acid (PFPeS)	**20**		1.9	0.29	ng/L		02/04/22 13:22	02/05/22 18:47	1
Perfluorohexanesulfonic acid (PFHxS)	**100**		1.9	0.55	ng/L		02/04/22 13:22	02/05/22 18:47	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		1.9	0.18	ng/L		02/04/22 13:22	02/05/22 18:47	1
Perfluorooctanesulfonic acid (PFOS)	**7.8**	**I**	1.9	0.52	ng/L		02/04/22 13:22	02/05/22 18:47	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.9	0.31	ng/L		02/04/22 13:22	02/05/22 18:47	1
Perfluorooctanesulfonamide (FOSA)	ND		1.9	0.95	ng/L		02/04/22 13:22	02/05/22 18:47	1
NEtFOSA	ND		1.9	0.84	ng/L		02/04/22 13:22	02/05/22 18:47	1
NEtFOSAA	ND		4.9	1.3	ng/L		02/04/22 13:22	02/05/22 18:47	1
NEtFOSE	ND		1.9	0.82	ng/L		02/04/22 13:22	02/05/22 18:47	1
NMeFOSA	ND		1.9	0.42	ng/L		02/04/22 13:22	02/05/22 18:47	1
NMeFOSAA	ND		4.9	1.2	ng/L		02/04/22 13:22	02/05/22 18:47	1
NMeFOSE	ND		3.9	1.4	ng/L		02/04/22 13:22	02/05/22 18:47	1
4:2 FTS	ND		1.9	0.23	ng/L		02/04/22 13:22	02/05/22 18:47	1
6:2 FTS	**33**		4.9	2.4	ng/L		02/04/22 13:22	02/05/22 18:47	1
8:2 FTS	**14**		1.9	0.45	ng/L		02/04/22 13:22	02/05/22 18:47	1
11Cl-PF3OUdS	ND		1.9	0.31	ng/L		02/04/22 13:22	02/05/22 18:47	1
9Cl-PF3ONS	ND		1.9	0.23	ng/L		02/04/22 13:22	02/05/22 18:47	1
HFPO-DA (GenX)	ND		3.9	1.5	ng/L		02/04/22 13:22	02/05/22 18:47	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.9	0.39	ng/L		02/04/22 13:22	02/05/22 18:47	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*93*		*50 - 150*	*02/04/22 13:22*	*02/05/22 18:47*	*1*
13C5 PFPeA	*114*		*50 - 150*	*02/04/22 13:22*	*02/05/22 18:47*	*1*
13C2 PFHxA	*110*		*50 - 150*	*02/04/22 13:22*	*02/05/22 18:47*	*1*
13C4 PFHpA	*108*		*50 - 150*	*02/04/22 13:22*	*02/05/22 18:47*	*1*
13C4 PFOA	*107*		*50 - 150*	*02/04/22 13:22*	*02/05/22 18:47*	*1*
13C5 PFNA	*104*		*50 - 150*	*02/04/22 13:22*	*02/05/22 18:47*	*1*
13C2 PFDA	*107*		*50 - 150*	*02/04/22 13:22*	*02/05/22 18:47*	*1*

Client Sample Results

Client: Woodard & Curran, Inc.
Project/Site: PFAS, San Jose Fuel

Job ID: 320-84437-1

Client Sample ID: L7-6-GW

Date Collected: 02/02/22 10:55
Date Received: 02/02/22 14:50

Lab Sample ID: 320-84437-4

Matrix: Water

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15 (Continued)

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFUnA	*105*		*50 - 150*	*02/04/22 13:22*	*02/05/22 18:47*	*1*
13C2 PFDoA	*107*		*50 - 150*	*02/04/22 13:22*	*02/05/22 18:47*	*1*
13C2 PFTeDA	*98*		*50 - 150*	*02/04/22 13:22*	*02/05/22 18:47*	*1*
13C3 PFBS	*112*		*50 - 150*	*02/04/22 13:22*	*02/05/22 18:47*	*1*
18O2 PFHxS	*103*		*50 - 150*	*02/04/22 13:22*	*02/05/22 18:47*	*1*
13C4 PFOS	*106*		*50 - 150*	*02/04/22 13:22*	*02/05/22 18:47*	*1*
13C8 FOSA	*99*		*50 - 150*	*02/04/22 13:22*	*02/05/22 18:47*	*1*
M2-4:2 FTS	*103*		*50 - 150*	*02/04/22 13:22*	*02/05/22 18:47*	*1*
M2-6:2 FTS	*87*		*50 - 150*	*02/04/22 13:22*	*02/05/22 18:47*	*1*
M2-8:2 FTS	*90*		*50 - 150*	*02/04/22 13:22*	*02/05/22 18:47*	*1*
d5-NEtFOSAA	*93*		*50 - 150*	*02/04/22 13:22*	*02/05/22 18:47*	*1*
d3-NMeFOSAA	*84*		*50 - 150*	*02/04/22 13:22*	*02/05/22 18:47*	*1*
d-N-EtFOSA-M	*80*		*50 - 150*	*02/04/22 13:22*	*02/05/22 18:47*	*1*
d9-N-EtFOSE-M	*94*		*50 - 150*	*02/04/22 13:22*	*02/05/22 18:47*	*1*
d7-N-MeFOSE-M	*93*		*50 - 150*	*02/04/22 13:22*	*02/05/22 18:47*	*1*
d-N-MeFOSA-M	*84*		*50 - 150*	*02/04/22 13:22*	*02/05/22 18:47*	*1*
13C3 HFPO-DA	*105*		*50 - 150*	*02/04/22 13:22*	*02/05/22 18:47*	*1*

Method: 6010B - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	**130**		0.50	0.050	mg/L		02/25/22 06:00	02/25/22 12:13	1
Magnesium	**180**		0.50	0.040	mg/L		02/25/22 06:00	02/25/22 12:13	1
Potassium	**0.39**	**J**	1.0	0.093	mg/L		02/25/22 06:00	02/25/22 12:13	1
Sodium	**95**		1.0	0.25	mg/L		02/25/22 06:00	02/25/22 12:13	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bicarbonate Alkalinity	**770**		5.0	5.0	mg/L			02/04/22 17:48	1
Carbonate Alkalinity	ND		5.0	5.0	mg/L			02/04/22 17:48	1
Total Dissolved Solids	**1300**		10	5.4	mg/L			02/08/22 12:27	1

Client Sample Results

Client: Woodard & Curran, Inc.
Project/Site: PFAS, San Jose Fuel

Job ID: 320-84437-1

Client Sample ID: L7-6D-GW

Date Collected: 02/02/22 10:55
Date Received: 02/02/22 14:50

Lab Sample ID: 320-84437-5

Matrix: Water

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**68**		4.7	2.3	ng/L		02/04/22 13:22	02/05/22 19:19	1
Perfluoropentanoic acid (PFPeA)	**54**		1.9	0.46	ng/L		02/04/22 13:22	02/05/22 19:19	1
Perfluorohexanoic acid (PFHxA)	**18**		1.9	0.54	ng/L		02/04/22 13:22	02/05/22 19:19	1
Perfluoroheptanoic acid (PFHpA)	**5.4**		1.9	0.23	ng/L		02/04/22 13:22	02/05/22 19:19	1
Perfluorooctanoic acid (PFOA)	**12**		1.9	0.80	ng/L		02/04/22 13:22	02/05/22 19:19	1
Perfluorononanoic acid (PFNA)	**1.9**		1.9	0.25	ng/L		02/04/22 13:22	02/05/22 19:19	1
Perfluorodecanoic acid (PFDA)	ND		1.9	0.29	ng/L		02/04/22 13:22	02/05/22 19:19	1
Perfluoroundecanoic acid (PFUnA)	ND		1.9	1.0	ng/L		02/04/22 13:22	02/05/22 19:19	1
Perfluorododecanoic acid (PFDoA)	ND		1.9	0.52	ng/L		02/04/22 13:22	02/05/22 19:19	1
Perfluorotridecanoic acid (PFTrDA)	ND		1.9	1.2	ng/L		02/04/22 13:22	02/05/22 19:19	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.9	0.69	ng/L		02/04/22 13:22	02/05/22 19:19	1
Perfluorobutanesulfonic acid (PFBS)	**24**		1.9	0.19	ng/L		02/04/22 13:22	02/05/22 19:19	1
Perfluoropentanesulfonic acid (PFPeS)	**19**		1.9	0.28	ng/L		02/04/22 13:22	02/05/22 19:19	1
Perfluorohexanesulfonic acid (PFHxS)	**96**		1.9	0.53	ng/L		02/04/22 13:22	02/05/22 19:19	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		1.9	0.18	ng/L		02/04/22 13:22	02/05/22 19:19	1
Perfluorooctanesulfonic acid (PFOS)	**7.4**	**I**	1.9	0.51	ng/L		02/04/22 13:22	02/05/22 19:19	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.9	0.30	ng/L		02/04/22 13:22	02/05/22 19:19	1
Perfluorooctanesulfonamide (FOSA)	ND		1.9	0.92	ng/L		02/04/22 13:22	02/05/22 19:19	1
NEtFOSA	ND		1.9	0.82	ng/L		02/04/22 13:22	02/05/22 19:19	1
NEtFOSAA	ND		4.7	1.2	ng/L		02/04/22 13:22	02/05/22 19:19	1
NEtFOSE	ND		1.9	0.80	ng/L		02/04/22 13:22	02/05/22 19:19	1
NMeFOSA	ND		1.9	0.40	ng/L		02/04/22 13:22	02/05/22 19:19	1
NMeFOSAA	ND		4.7	1.1	ng/L		02/04/22 13:22	02/05/22 19:19	1
NMeFOSE	ND		3.8	1.3	ng/L		02/04/22 13:22	02/05/22 19:19	1
4:2 FTS	ND		1.9	0.23	ng/L		02/04/22 13:22	02/05/22 19:19	1
6:2 FTS	**12**		4.7	2.3	ng/L		02/04/22 13:22	02/05/22 19:19	1
8:2 FTS	**13**		1.9	0.43	ng/L		02/04/22 13:22	02/05/22 19:19	1
11Cl-PF3OUdS	ND		1.9	0.30	ng/L		02/04/22 13:22	02/05/22 19:19	1
9Cl-PF3ONS	ND		1.9	0.23	ng/L		02/04/22 13:22	02/05/22 19:19	1
HFPO-DA (GenX)	ND		3.8	1.4	ng/L		02/04/22 13:22	02/05/22 19:19	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.9	0.38	ng/L		02/04/22 13:22	02/05/22 19:19	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*93*		*50 - 150*	*02/04/22 13:22*	*02/05/22 19:19*	*1*
13C5 PFPeA	*115*		*50 - 150*	*02/04/22 13:22*	*02/05/22 19:19*	*1*
13C2 PFHxA	*112*		*50 - 150*	*02/04/22 13:22*	*02/05/22 19:19*	*1*
13C4 PFHpA	*111*		*50 - 150*	*02/04/22 13:22*	*02/05/22 19:19*	*1*
13C4 PFOA	*107*		*50 - 150*	*02/04/22 13:22*	*02/05/22 19:19*	*1*
13C5 PFNA	*105*		*50 - 150*	*02/04/22 13:22*	*02/05/22 19:19*	*1*
13C2 PFDA	*99*		*50 - 150*	*02/04/22 13:22*	*02/05/22 19:19*	*1*
13C2 PFUnA	*105*		*50 - 150*	*02/04/22 13:22*	*02/05/22 19:19*	*1*
13C2 PFDoA	*104*		*50 - 150*	*02/04/22 13:22*	*02/05/22 19:19*	*1*
13C2 PFTeDA	*101*		*50 - 150*	*02/04/22 13:22*	*02/05/22 19:19*	*1*
13C3 PFBS	*117*		*50 - 150*	*02/04/22 13:22*	*02/05/22 19:19*	*1*
18O2 PFHxS	*108*		*50 - 150*	*02/04/22 13:22*	*02/05/22 19:19*	*1*
13C4 PFOS	*107*		*50 - 150*	*02/04/22 13:22*	*02/05/22 19:19*	*1*

Client Sample ID: L7-6D-GW

Date Collected: 02/02/22 10:55
Date Received: 02/02/22 14:50

Lab Sample ID: 320-84437-5

Matrix: Water

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15 (Continued)

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C8 FOSA	*97*		*50 - 150*	*02/04/22 13:22*	*02/05/22 19:19*	*1*
M2-4:2 FTS	*95*		*50 - 150*	*02/04/22 13:22*	*02/05/22 19:19*	*1*
M2-6:2 FTS	*87*		*50 - 150*	*02/04/22 13:22*	*02/05/22 19:19*	*1*
M2-8:2 FTS	*87*		*50 - 150*	*02/04/22 13:22*	*02/05/22 19:19*	*1*
d5-NEtFOSAA	*90*		*50 - 150*	*02/04/22 13:22*	*02/05/22 19:19*	*1*
d3-NMeFOSAA	*84*		*50 - 150*	*02/04/22 13:22*	*02/05/22 19:19*	*1*
d-N-EtFOSA-M	*85*		*50 - 150*	*02/04/22 13:22*	*02/05/22 19:19*	*1*
d9-N-EtFOSE-M	*91*		*50 - 150*	*02/04/22 13:22*	*02/05/22 19:19*	*1*
d7-N-MeFOSE-M	*92*		*50 - 150*	*02/04/22 13:22*	*02/05/22 19:19*	*1*
d-N-MeFOSA-M	*84*		*50 - 150*	*02/04/22 13:22*	*02/05/22 19:19*	*1*
13C3 HFPO-DA	*108*		*50 - 150*	*02/04/22 13:22*	*02/05/22 19:19*	*1*

Client Sample Results

Client Sample ID: L7-5-GW

Lab Sample ID: 320-84437-6
Date Collected: 02/02/22 13:03
Matrix: Water
Date Received: 02/02/22 14:50

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**77**		5.0	1.9	mg/L			02/03/22 14:05	5
Nitrate as N	ND		1.3	0.50	mg/L			02/03/22 14:05	5
Sulfate	**150**		5.0	1.8	mg/L			02/03/22 14:05	5

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**63**		4.7	2.3	ng/L		02/04/22 13:22	02/05/22 19:29	1
Perfluoropentanoic acid (PFPeA)	**220**		1.9	0.47	ng/L		02/04/22 13:22	02/05/22 19:29	1
Perfluorohexanoic acid (PFHxA)	**99**		1.9	0.55	ng/L		02/04/22 13:22	02/05/22 19:29	1
Perfluoroheptanoic acid (PFHpA)	**30**		1.9	0.24	ng/L		02/04/22 13:22	02/05/22 19:29	1
Perfluorooctanoic acid (PFOA)	**35**		1.9	0.81	ng/L		02/04/22 13:22	02/05/22 19:29	1
Perfluorononanoic acid (PFNA)	**1.4**	**J**	1.9	0.26	ng/L		02/04/22 13:22	02/05/22 19:29	1
Perfluorodecanoic acid (PFDA)	ND		1.9	0.29	ng/L		02/04/22 13:22	02/05/22 19:29	1
Perfluoroundecanoic acid (PFUnA)	ND		1.9	1.0	ng/L		02/04/22 13:22	02/05/22 19:29	1
Perfluorododecanoic acid (PFDoA)	ND		1.9	0.52	ng/L		02/04/22 13:22	02/05/22 19:29	1
Perfluorotridecanoic acid (PFTrDA)	ND		1.9	1.2	ng/L		02/04/22 13:22	02/05/22 19:29	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.9	0.69	ng/L		02/04/22 13:22	02/05/22 19:29	1
Perfluorobutanesulfonic acid (PFBS)	**9.5**		1.9	0.19	ng/L		02/04/22 13:22	02/05/22 19:29	1
Perfluoropentanesulfonic acid (PFPeS)	**3.8**		1.9	0.28	ng/L		02/04/22 13:22	02/05/22 19:29	1
Perfluorohexanesulfonic acid (PFHxS)	**27**		1.9	0.54	ng/L		02/04/22 13:22	02/05/22 19:29	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		1.9	0.18	ng/L		02/04/22 13:22	02/05/22 19:29	1
Perfluorooctanesulfonic acid (PFOS)	**6.3**		1.9	0.51	ng/L		02/04/22 13:22	02/05/22 19:29	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.9	0.30	ng/L		02/04/22 13:22	02/05/22 19:29	1
Perfluorooctanesulfonamide (FOSA)	ND		1.9	0.93	ng/L		02/04/22 13:22	02/05/22 19:29	1
NEtFOSA	ND		1.9	0.83	ng/L		02/04/22 13:22	02/05/22 19:29	1
NEtFOSAA	ND		4.7	1.2	ng/L		02/04/22 13:22	02/05/22 19:29	1
NEtFOSE	ND		1.9	0.81	ng/L		02/04/22 13:22	02/05/22 19:29	1
NMeFOSA	ND		1.9	0.41	ng/L		02/04/22 13:22	02/05/22 19:29	1
NMeFOSAA	ND		4.7	1.1	ng/L		02/04/22 13:22	02/05/22 19:29	1
NMeFOSE	ND		3.8	1.3	ng/L		02/04/22 13:22	02/05/22 19:29	1
4:2 FTS	ND		1.9	0.23	ng/L		02/04/22 13:22	02/05/22 19:29	1
6:2 FTS	**66**		4.7	2.4	ng/L		02/04/22 13:22	02/05/22 19:29	1
8:2 FTS	ND		1.9	0.44	ng/L		02/04/22 13:22	02/05/22 19:29	1
11Cl-PF3OUdS	ND		1.9	0.30	ng/L		02/04/22 13:22	02/05/22 19:29	1
9Cl-PF3ONS	ND		1.9	0.23	ng/L		02/04/22 13:22	02/05/22 19:29	1
HFPO-DA (GenX)	ND		3.8	1.4	ng/L		02/04/22 13:22	02/05/22 19:29	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.9	0.38	ng/L		02/04/22 13:22	02/05/22 19:29	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*57*		*50 - 150*	*02/04/22 13:22*	*02/05/22 19:29*	*1*
13C5 PFPeA	*72*		*50 - 150*	*02/04/22 13:22*	*02/05/22 19:29*	*1*
13C2 PFHxA	*72*		*50 - 150*	*02/04/22 13:22*	*02/05/22 19:29*	*1*
13C4 PFHpA	*68*		*50 - 150*	*02/04/22 13:22*	*02/05/22 19:29*	*1*
13C4 PFOA	*70*		*50 - 150*	*02/04/22 13:22*	*02/05/22 19:29*	*1*
13C5 PFNA	*67*		*50 - 150*	*02/04/22 13:22*	*02/05/22 19:29*	*1*
13C2 PFDA	*61*		*50 - 150*	*02/04/22 13:22*	*02/05/22 19:29*	*1*

Client Sample ID: L7-5-GW
Lab Sample ID: 320-84437-6
Date Collected: 02/02/22 13:03
Matrix: Water
Date Received: 02/02/22 14:50

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15 (Continued)

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFUnA	*51*		*50 - 150*	*02/04/22 13:22*	*02/05/22 19:29*	*1*
13C2 PFDoA	*45*	**5-*	*50 - 150*	*02/04/22 13:22*	*02/05/22 19:29*	*1*
13C2 PFTeDA	*37*	**5-*	*50 - 150*	*02/04/22 13:22*	*02/05/22 19:29*	*1*
13C3 PFBS	*72*		*50 - 150*	*02/04/22 13:22*	*02/05/22 19:29*	*1*
18O2 PFHxS	*68*		*50 - 150*	*02/04/22 13:22*	*02/05/22 19:29*	*1*
13C4 PFOS	*67*		*50 - 150*	*02/04/22 13:22*	*02/05/22 19:29*	*1*
13C8 FOSA	*59*		*50 - 150*	*02/04/22 13:22*	*02/05/22 19:29*	*1*
M2-4:2 FTS	*66*		*50 - 150*	*02/04/22 13:22*	*02/05/22 19:29*	*1*
M2-6:2 FTS	*57*		*50 - 150*	*02/04/22 13:22*	*02/05/22 19:29*	*1*
M2-8:2 FTS	*50*		*50 - 150*	*02/04/22 13:22*	*02/05/22 19:29*	*1*
d5-NEtFOSAA	*44*	**5-*	*50 - 150*	*02/04/22 13:22*	*02/05/22 19:29*	*1*
d3-NMeFOSAA	*40*	**5-*	*50 - 150*	*02/04/22 13:22*	*02/05/22 19:29*	*1*
d-N-EtFOSA-M	*36*	**5-*	*50 - 150*	*02/04/22 13:22*	*02/05/22 19:29*	*1*
d9-N-EtFOSE-M	*36*	**5-*	*50 - 150*	*02/04/22 13:22*	*02/05/22 19:29*	*1*
d7-N-MeFOSE-M	*39*	**5-*	*50 - 150*	*02/04/22 13:22*	*02/05/22 19:29*	*1*
d-N-MeFOSA-M	*40*	**5-*	*50 - 150*	*02/04/22 13:22*	*02/05/22 19:29*	*1*
13C3 HFPO-DA	*69*		*50 - 150*	*02/04/22 13:22*	*02/05/22 19:29*	*1*

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bicarbonate Alkalinity	**960**		5.0	5.0	mg/L			02/04/22 18:15	1
Carbonate Alkalinity	ND		5.0	5.0	mg/L			02/04/22 18:15	1

Client Sample ID: L7-4-GW

Lab Sample ID: 320-84437-7

Date Collected: 02/02/22 13:36
Date Received: 02/02/22 14:50
Matrix: Water

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**42**		5.0	1.9	mg/L			02/03/22 14:40	5
Nitrate as N	ND		1.3	0.50	mg/L			02/03/22 14:40	5
Sulfate	**200**		5.0	1.8	mg/L			02/03/22 14:40	5

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**29**		4.8	2.3	ng/L		02/04/22 13:22	02/05/22 19:39	1
Perfluoropentanoic acid (PFPeA)	**5.6**		1.9	0.47	ng/L		02/04/22 13:22	02/05/22 19:39	1
Perfluorohexanoic acid (PFHxA)	**5.5**		1.9	0.55	ng/L		02/04/22 13:22	02/05/22 19:39	1
Perfluoroheptanoic acid (PFHpA)	**1.4**	**J**	1.9	0.24	ng/L		02/04/22 13:22	02/05/22 19:39	1
Perfluorooctanoic acid (PFOA)	**14**		1.9	0.81	ng/L		02/04/22 13:22	02/05/22 19:39	1
Perfluorononanoic acid (PFNA)	ND		1.9	0.26	ng/L		02/04/22 13:22	02/05/22 19:39	1
Perfluorodecanoic acid (PFDA)	ND		1.9	0.30	ng/L		02/04/22 13:22	02/05/22 19:39	1
Perfluoroundecanoic acid (PFUnA)	ND		1.9	1.0	ng/L		02/04/22 13:22	02/05/22 19:39	1
Perfluorododecanoic acid (PFDoA)	ND		1.9	0.52	ng/L		02/04/22 13:22	02/05/22 19:39	1
Perfluorotridecanoic acid (PFTrDA)	ND		1.9	1.2	ng/L		02/04/22 13:22	02/05/22 19:39	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.9	0.70	ng/L		02/04/22 13:22	02/05/22 19:39	1
Perfluorobutanesulfonic acid (PFBS)	**25**		1.9	0.19	ng/L		02/04/22 13:22	02/05/22 19:39	1
Perfluoropentanesulfonic acid (PFPeS)	**22**		1.9	0.29	ng/L		02/04/22 13:22	02/05/22 19:39	1
Perfluorohexanesulfonic acid (PFHxS)	**93**		1.9	0.54	ng/L		02/04/22 13:22	02/05/22 19:39	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		1.9	0.18	ng/L		02/04/22 13:22	02/05/22 19:39	1
Perfluorooctanesulfonic acid (PFOS)	ND		1.9	0.52	ng/L		02/04/22 13:22	02/05/22 19:39	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.9	0.31	ng/L		02/04/22 13:22	02/05/22 19:39	1
Perfluorooctanesulfonamide (FOSA)	ND		1.9	0.94	ng/L		02/04/22 13:22	02/05/22 19:39	1
NEtFOSA	ND		1.9	0.83	ng/L		02/04/22 13:22	02/05/22 19:39	1
NEtFOSAA	ND		4.8	1.2	ng/L		02/04/22 13:22	02/05/22 19:39	1
NEtFOSE	ND		1.9	0.81	ng/L		02/04/22 13:22	02/05/22 19:39	1
NMeFOSA	ND		1.9	0.41	ng/L		02/04/22 13:22	02/05/22 19:39	1
NMeFOSAA	ND		4.8	1.1	ng/L		02/04/22 13:22	02/05/22 19:39	1
NMeFOSE	ND		3.8	1.3	ng/L		02/04/22 13:22	02/05/22 19:39	1
4:2 FTS	ND		1.9	0.23	ng/L		02/04/22 13:22	02/05/22 19:39	1
6:2 FTS	ND		4.8	2.4	ng/L		02/04/22 13:22	02/05/22 19:39	1
8:2 FTS	ND		1.9	0.44	ng/L		02/04/22 13:22	02/05/22 19:39	1
11Cl-PF3OUdS	ND		1.9	0.31	ng/L		02/04/22 13:22	02/05/22 19:39	1
9Cl-PF3ONS	ND		1.9	0.23	ng/L		02/04/22 13:22	02/05/22 19:39	1
HFPO-DA (GenX)	ND		3.8	1.4	ng/L		02/04/22 13:22	02/05/22 19:39	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.9	0.38	ng/L		02/04/22 13:22	02/05/22 19:39	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*85*		*50 - 150*	*02/04/22 13:22*	*02/05/22 19:39*	*1*
13C5 PFPeA	*107*		*50 - 150*	*02/04/22 13:22*	*02/05/22 19:39*	*1*
13C2 PFHxA	*113*		*50 - 150*	*02/04/22 13:22*	*02/05/22 19:39*	*1*
13C4 PFHpA	*103*		*50 - 150*	*02/04/22 13:22*	*02/05/22 19:39*	*1*
13C4 PFOA	*104*		*50 - 150*	*02/04/22 13:22*	*02/05/22 19:39*	*1*
13C5 PFNA	*101*		*50 - 150*	*02/04/22 13:22*	*02/05/22 19:39*	*1*
13C2 PFDA	*101*		*50 - 150*	*02/04/22 13:22*	*02/05/22 19:39*	*1*
13C2 PFUnA	*102*		*50 - 150*	*02/04/22 13:22*	*02/05/22 19:39*	*1*

Client Sample Results

Client: Woodard & Curran, Inc.
Project/Site: PFAS, San Jose Fuel

Job ID: 320-84437-1

Client Sample ID: L7-4-GW

Date Collected: 02/02/22 13:36
Date Received: 02/02/22 14:50

Lab Sample ID: 320-84437-7
Matrix: Water

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15 (Continued)

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFDoA	*102*		*50 - 150*	*02/04/22 13:22*	*02/05/22 19:39*	*1*
13C2 PFTeDA	*98*		*50 - 150*	*02/04/22 13:22*	*02/05/22 19:39*	*1*
13C3 PFBS	*110*		*50 - 150*	*02/04/22 13:22*	*02/05/22 19:39*	*1*
18O2 PFHxS	*107*		*50 - 150*	*02/04/22 13:22*	*02/05/22 19:39*	*1*
13C4 PFOS	*108*		*50 - 150*	*02/04/22 13:22*	*02/05/22 19:39*	*1*
13C8 FOSA	*95*		*50 - 150*	*02/04/22 13:22*	*02/05/22 19:39*	*1*
M2-4:2 FTS	*107*		*50 - 150*	*02/04/22 13:22*	*02/05/22 19:39*	*1*
M2-6:2 FTS	*81*		*50 - 150*	*02/04/22 13:22*	*02/05/22 19:39*	*1*
M2-8:2 FTS	*83*		*50 - 150*	*02/04/22 13:22*	*02/05/22 19:39*	*1*
d5-NEtFOSAA	*91*		*50 - 150*	*02/04/22 13:22*	*02/05/22 19:39*	*1*
d3-NMeFOSAA	*79*		*50 - 150*	*02/04/22 13:22*	*02/05/22 19:39*	*1*
d-N-EtFOSA-M	*79*		*50 - 150*	*02/04/22 13:22*	*02/05/22 19:39*	*1*
d9-N-EtFOSE-M	*88*		*50 - 150*	*02/04/22 13:22*	*02/05/22 19:39*	*1*
d7-N-MeFOSE-M	*88*		*50 - 150*	*02/04/22 13:22*	*02/05/22 19:39*	*1*
d-N-MeFOSA-M	*85*		*50 - 150*	*02/04/22 13:22*	*02/05/22 19:39*	*1*
13C3 HFPO-DA	*108*		*50 - 150*	*02/04/22 13:22*	*02/05/22 19:39*	*1*

Method: 6010B - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	**140**		0.50	0.050	mg/L		02/25/22 06:00	02/25/22 12:32	1
Magnesium	**130**		0.50	0.040	mg/L		02/25/22 06:00	02/25/22 12:32	1
Potassium	**1.1**		1.0	0.093	mg/L		02/25/22 06:00	02/25/22 12:32	1
Sodium	**82**		1.0	0.25	mg/L		02/25/22 06:00	02/25/22 12:32	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bicarbonate Alkalinity	**730**		5.0	5.0	mg/L			02/04/22 18:01	1
Carbonate Alkalinity	ND		5.0	5.0	mg/L			02/04/22 18:01	1
Total Dissolved Solids	**1100**		10	5.4	mg/L			02/08/22 12:27	1

Isotope Dilution Summary

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

Matrix: Solid

Prep Type: Total/NA

		Percent Isotope Dilution Recovery (Acceptance Limits)							
		PFBA	PFPeA	PFHxA	C4PFHA	PFOA	PFNA	PFDA	PFUnA
Lab Sample ID	**Client Sample ID**	(50-150)	(50-150)	(50-150)	(50-150)	(50-150)	(50-150)	(50-150)	(50-150)
320-84437-1	L7-4-10	60	93	92	100	99	99	99	98
LCS 320-563419/2-A	Lab Control Sample	68	97	97	102	105	101	99	103
MB 320-563419/1-A	Method Blank	70	96	95	102	103	101	96	107

		Percent Isotope Dilution Recovery (Acceptance Limits)							
		PFDoA	PFTDA	C3PFBS	PFHxS	PFOS	PFOSA	M242FTS	M262FTS
Lab Sample ID	**Client Sample ID**	(50-150)	(50-150)	(50-150)	(50-150)	(50-150)	(50-150)	(50-150)	(50-150)
320-84437-1	L7-4-10	98	103	90	89	92	93	70	65
LCS 320-563419/2-A	Lab Control Sample	109	99	99	97	97	94	79	80
MB 320-563419/1-A	Method Blank	110	115	94	95	95	95	79	77

		Percent Isotope Dilution Recovery (Acceptance Limits)							
		M282FTS	d5NEFOS	d3NMFOS	dEtFOSA	NEFM	NMFM	dMeFOSA	HFPODA
Lab Sample ID	**Client Sample ID**	(50-150)	(50-150)	(50-150)	(50-150)	(50-150)	(50-150)	(50-150)	(50-150)
320-84437-1	L7-4-10	64	100	86	95	101	93	95	92
LCS 320-563419/2-A	Lab Control Sample	75	104	94	98	82	86	102	96
MB 320-563419/1-A	Method Blank	68	105	97	97	103	100	99	95

Surrogate Legend

PFBA = 13C4 PFBA
PFPeA = 13C5 PFPeA
PFHxA = 13C2 PFHxA
C4PFHA = 13C4 PFHpA
PFOA = 13C4 PFOA
PFNA = 13C5 PFNA
PFDA = 13C2 PFDA
PFUnA = 13C2 PFUnA
PFDoA = 13C2 PFDoA
PFTDA = 13C2 PFTeDA
C3PFBS = 13C3 PFBS
PFHxS = 18O2 PFHxS
PFOS = 13C4 PFOS
PFOSA = 13C8 FOSA
M242FTS = M2-4:2 FTS
M262FTS = M2-6:2 FTS
M282FTS = M2-8:2 FTS
d5NEFOS = d5-NEtFOSAA
d3NMFOS = d3-NMeFOSAA
dEtFOSA = d-N-EtFOSA-M
NEFM = d9-N-EtFOSE-M
NMFM = d7-N-MeFOSE-M
dMeFOSA = d-N-MeFOSA-M
HFPODA = 13C3 HFPO-DA

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

Matrix: Water

Prep Type: Total/NA

		Percent Isotope Dilution Recovery (Acceptance Limits)							
		PFBA	PFPeA	PFHxA	C4PFHA	PFOA	PFNA	PFDA	PFUnA
Lab Sample ID	**Client Sample ID**	(50-150)	(50-150)	(50-150)	(50-150)	(50-150)	(50-150)	(50-150)	(50-150)
320-84437-2	FB-2-020222	96	102	95	95	94	90	93	90
320-84437-3	EB-1-020222	107	113	111	101	105	103	105	110

Isotope Dilution Summary

Client: Woodard & Curran, Inc. Job ID: 320-84437-1
Project/Site: PFAS, San Jose Fuel

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15 (Continued)

Matrix: Water **Prep Type: Total/NA**

		Percent Isotope Dilution Recovery (Acceptance Limits)							
		PFBA	PFPeA	PFHxA	C4PFHA	PFOA	PFNA	PFDA	PFUnA
Lab Sample ID	**Client Sample ID**	(50-150)	(50-150)	(50-150)	(50-150)	(50-150)	(50-150)	(50-150)	(50-150)
320-84437-4	L7-6-GW	93	114	110	108	107	104	107	105
320-84437-5	L7-6D-GW	93	115	112	111	107	105	99	105
320-84437-6	L7-5-GW	57	72	72	68	70	67	61	51
320-84437-7	L7-4-GW	85	107	113	103	104	101	101	102
LCS 320-563436/2-A	Lab Control Sample	113	119	112	109	114	112	112	111
LCSD 320-563436/3-A	Lab Control Sample Dup	109	115	111	106	109	109	103	110
MB 320-563436/1-A	Method Blank	119	127	122	117	118	120	112	111

		Percent Isotope Dilution Recovery (Acceptance Limits)							
		PFDoA	PFTDA	C3PFBS	PFHxS	PFOS	PFOSA	M242FTS	M262FTS
Lab Sample ID	**Client Sample ID**	(50-150)	(50-150)	(50-150)	(50-150)	(50-150)	(50-150)	(50-150)	(50-150)
320-84437-2	FB-2-020222	88	84	103	93	95	83	77	68
320-84437-3	EB-1-020222	108	103	110	103	111	95	87	88
320-84437-4	L7-6-GW	107	98	112	103	106	99	103	87
320-84437-5	L7-6D-GW	104	101	117	108	107	97	95	87
320-84437-6	L7-5-GW	45 *5-	37 *5-	72	68	67	59	66	57
320-84437-7	L7-4-GW	102	98	110	107	108	95	107	81
LCS 320-563436/2-A	Lab Control Sample	104	111	120	114	117	105	84	85
LCSD 320-563436/3-A	Lab Control Sample Dup	105	109	119	108	113	99	87	86
MB 320-563436/1-A	Method Blank	115	115	125	116	123	106	93	83

		Percent Isotope Dilution Recovery (Acceptance Limits)							
		M282FTS	d5NEFOS	d3NMFOS	dEtFOSA	NEFM	NMFM	dMeFOSA	HFPODA
Lab Sample ID	**Client Sample ID**	(50-150)	(50-150)	(50-150)	(50-150)	(50-150)	(50-150)	(50-150)	(50-150)
320-84437-2	FB-2-020222	71	77	71	77	84	86	77	95
320-84437-3	EB-1-020222	94	93	86	82	96	91	84	105
320-84437-4	L7-6-GW	90	93	84	80	94	93	84	105
320-84437-5	L7-6D-GW	87	90	84	85	91	92	84	108
320-84437-6	L7-5-GW	50	44 *5-	40 *5-	36 *5-	36 *5-	39 *5-	40 *5-	69
320-84437-7	L7-4-GW	83	91	79	79	88	88	85	108
LCS 320-563436/2-A	Lab Control Sample	85	89	82	91	106	103	90	114
LCSD 320-563436/3-A	Lab Control Sample Dup	85	92	83	87	97	98	86	109
MB 320-563436/1-A	Method Blank	84	94	85	95	107	105	96	118

Surrogate Legend

PFBA = 13C4 PFBA
PFPeA = 13C5 PFPeA
PFHxA = 13C2 PFHxA
C4PFHA = 13C4 PFHpA
PFOA = 13C4 PFOA
PFNA = 13C5 PFNA
PFDA = 13C2 PFDA
PFUnA = 13C2 PFUnA
PFDoA = 13C2 PFDoA
PFTDA = 13C2 PFTeDA
C3PFBS = 13C3 PFBS
PFHxS = 18O2 PFHxS
PFOS = 13C4 PFOS
PFOSA = 13C8 FOSA
M242FTS = M2-4:2 FTS
M262FTS = M2-6:2 FTS
M282FTS = M2-8:2 FTS

d5NEFOS = d5-NEtFOSAA

d3NMFOS = d3-NMeFOSAA

dEtFOSA = d-N-EtFOSA-M

NEFM = d9-N-EtFOSE-M

NMFM = d7-N-MeFOSE-M

dMeFOSA = d-N-MeFOSA-M

HFPODA = 13C3 HFPO-DA

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 320-563032/3
Matrix: Water
Analysis Batch: 563032

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		1.0	0.37	mg/L			02/03/22 12:20	1
Sulfate	ND		1.0	0.36	mg/L			02/03/22 12:20	1

Lab Sample ID: LCS 320-563032/4
Matrix: Water
Analysis Batch: 563032

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Chloride			7.50	8.15		mg/L		109	90 - 110		
Sulfate			7.50	7.61		mg/L		101	90 - 110		

Lab Sample ID: MB 320-563033/3
Matrix: Water
Analysis Batch: 563033

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	ND		0.25	0.10	mg/L			02/03/22 12:20	1

Lab Sample ID: LCS 320-563033/10
Matrix: Water
Analysis Batch: 563033

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Nitrate as N			1.50	1.50		mg/L		100	90 - 110		

Lab Sample ID: MB 320-563881/3
Matrix: Water
Analysis Batch: 563881

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		1.0	0.37	mg/L			02/07/22 14:34	1
Sulfate	ND		1.0	0.36	mg/L			02/07/22 14:34	1

Lab Sample ID: LCS 320-563881/4
Matrix: Water
Analysis Batch: 563881

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Chloride			7.50	7.59		mg/L		101	90 - 110		
Sulfate			7.50	7.65		mg/L		102	90 - 110		

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

Lab Sample ID: MB 320-563419/1-A
Matrix: Solid
Analysis Batch: 563749

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 563419

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		0.20	0.046	ug/Kg		02/04/22 11:48	02/06/22 20:38	1
Perfluoropentanoic acid (PFPeA)	ND		0.20	0.041	ug/Kg		02/04/22 11:48	02/06/22 20:38	1

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15 (Continued)

Lab Sample ID: MB 320-563419/1-A
Matrix: Solid
Analysis Batch: 563749

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 563419

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	ND		0.20	0.031	ug/Kg		02/04/22 11:48	02/06/22 20:38	1
Perfluoroheptanoic acid (PFHpA)	ND		0.20	0.038	ug/Kg		02/04/22 11:48	02/06/22 20:38	1
Perfluorooctanoic acid (PFOA)	ND		0.20	0.053	ug/Kg		02/04/22 11:48	02/06/22 20:38	1
Perfluorononanoic acid (PFNA)	ND		0.20	0.022	ug/Kg		02/04/22 11:48	02/06/22 20:38	1
Perfluorodecanoic acid (PFDA)	ND		0.20	0.048	ug/Kg		02/04/22 11:48	02/06/22 20:38	1
Perfluoroundecanoic acid (PFUnA)	ND		0.20	0.042	ug/Kg		02/04/22 11:48	02/06/22 20:38	1
Perfluorododecanoic acid (PFDoA)	ND		0.20	0.030	ug/Kg		02/04/22 11:48	02/06/22 20:38	1
Perfluorotridecanoic acid (PFTrDA)	ND		0.20	0.021	ug/Kg		02/04/22 11:48	02/06/22 20:38	1
Perfluorotetradecanoic acid (PFTeA)	ND		0.20	0.037	ug/Kg		02/04/22 11:48	02/06/22 20:38	1
Perfluorobutanesulfonic acid (PFBS)	ND		0.20	0.038	ug/Kg		02/04/22 11:48	02/06/22 20:38	1
Perfluoropentanesulfonic acid (PFPeS)	ND		0.20	0.037	ug/Kg		02/04/22 11:48	02/06/22 20:38	1
Perfluorohexanesulfonic acid (PFHxS)	ND		0.20	0.029	ug/Kg		02/04/22 11:48	02/06/22 20:38	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		0.20	0.049	ug/Kg		02/04/22 11:48	02/06/22 20:38	1
Perfluorooctanesulfonic acid (PFOS)	ND		0.20	0.043	ug/Kg		02/04/22 11:48	02/06/22 20:38	1
Perfluorodecanesulfonic acid (PFDS)	ND		0.20	0.052	ug/Kg		02/04/22 11:48	02/06/22 20:38	1
Perfluorooctanesulfonamide (FOSA)	ND		0.20	0.033	ug/Kg		02/04/22 11:48	02/06/22 20:38	1
NEtFOSA	ND		0.20	0.047	ug/Kg		02/04/22 11:48	02/06/22 20:38	1
NEtFOSAA	ND		0.20	0.048	ug/Kg		02/04/22 11:48	02/06/22 20:38	1
NEtFOSE	ND		0.20	0.028	ug/Kg		02/04/22 11:48	02/06/22 20:38	1
NMeFOSA	ND		0.20	0.049	ug/Kg		02/04/22 11:48	02/06/22 20:38	1
NMeFOSAA	ND		0.20	0.023	ug/Kg		02/04/22 11:48	02/06/22 20:38	1
NMeFOSE	ND		0.20	0.047	ug/Kg		02/04/22 11:48	02/06/22 20:38	1
4:2 FTS	ND		0.20	0.051	ug/Kg		02/04/22 11:48	02/06/22 20:38	1
6:2 FTS	ND		0.20	0.027	ug/Kg		02/04/22 11:48	02/06/22 20:38	1
8:2 FTS	ND		0.20	0.035	ug/Kg		02/04/22 11:48	02/06/22 20:38	1
11Cl-PF3OUdS	ND		0.20	0.031	ug/Kg		02/04/22 11:48	02/06/22 20:38	1
9Cl-PF3ONS	ND		0.20	0.035	ug/Kg		02/04/22 11:48	02/06/22 20:38	1
HFPO-DA (GenX)	ND		0.20	0.041	ug/Kg		02/04/22 11:48	02/06/22 20:38	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		0.20	0.039	ug/Kg		02/04/22 11:48	02/06/22 20:38	1

Isotope Dilution	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*70*		*50 - 150*	*02/04/22 11:48*	*02/06/22 20:38*	*1*
13C5 PFPeA	*96*		*50 - 150*	*02/04/22 11:48*	*02/06/22 20:38*	*1*
13C2 PFHxA	*95*		*50 - 150*	*02/04/22 11:48*	*02/06/22 20:38*	*1*
13C4 PFHpA	*102*		*50 - 150*	*02/04/22 11:48*	*02/06/22 20:38*	*1*
13C4 PFOA	*103*		*50 - 150*	*02/04/22 11:48*	*02/06/22 20:38*	*1*
13C5 PFNA	*101*		*50 - 150*	*02/04/22 11:48*	*02/06/22 20:38*	*1*
13C2 PFDA	*96*		*50 - 150*	*02/04/22 11:48*	*02/06/22 20:38*	*1*
13C2 PFUnA	*107*		*50 - 150*	*02/04/22 11:48*	*02/06/22 20:38*	*1*
13C2 PFDoA	*110*		*50 - 150*	*02/04/22 11:48*	*02/06/22 20:38*	*1*
13C2 PFTeDA	*115*		*50 - 150*	*02/04/22 11:48*	*02/06/22 20:38*	*1*
13C3 PFBS	*94*		*50 - 150*	*02/04/22 11:48*	*02/06/22 20:38*	*1*
18O2 PFHxS	*95*		*50 - 150*	*02/04/22 11:48*	*02/06/22 20:38*	*1*
13C4 PFOS	*95*		*50 - 150*	*02/04/22 11:48*	*02/06/22 20:38*	*1*
13C8 FOSA	*95*		*50 - 150*	*02/04/22 11:48*	*02/06/22 20:38*	*1*
M2-4:2 FTS	*79*		*50 - 150*	*02/04/22 11:48*	*02/06/22 20:38*	*1*

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15 (Continued)

Lab Sample ID: MB 320-563419/1-A
Matrix: Solid
Analysis Batch: 563749

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 563419

Isotope Dilution	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
M2-6:2 FTS	*77*		*50 - 150*	*02/04/22 11:48*	*02/06/22 20:38*	*1*
M2-8:2 FTS	*68*		*50 - 150*	*02/04/22 11:48*	*02/06/22 20:38*	*1*
d5-NEtFOSAA	*105*		*50 - 150*	*02/04/22 11:48*	*02/06/22 20:38*	*1*
d3-NMeFOSAA	*97*		*50 - 150*	*02/04/22 11:48*	*02/06/22 20:38*	*1*
d-N-EtFOSA-M	*97*		*50 - 150*	*02/04/22 11:48*	*02/06/22 20:38*	*1*
d9-N-EtFOSE-M	*103*		*50 - 150*	*02/04/22 11:48*	*02/06/22 20:38*	*1*
d7-N-MeFOSE-M	*100*		*50 - 150*	*02/04/22 11:48*	*02/06/22 20:38*	*1*
d-N-MeFOSA-M	*99*		*50 - 150*	*02/04/22 11:48*	*02/06/22 20:38*	*1*
13C3 HFPO-DA	*95*		*50 - 150*	*02/04/22 11:48*	*02/06/22 20:38*	*1*

Lab Sample ID: LCS 320-563419/2-A
Matrix: Solid
Analysis Batch: 563749

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 563419

Analyte	**Spike Added**	**LCS Result**	**LCS Qualifier**	**Unit**	**D**	**%Rec**	**%Rec. Limits**
Perfluorobutanoic acid (PFBA)	2.00	2.00		ug/Kg		100	71 - 135
Perfluoropentanoic acid (PFPeA)	2.00	1.77		ug/Kg		88	69 - 132
Perfluorohexanoic acid (PFHxA)	2.00	1.90		ug/Kg		95	70 - 132
Perfluoroheptanoic acid (PFHpA)	2.00	2.09		ug/Kg		105	71 - 131
Perfluorooctanoic acid (PFOA)	2.00	1.79		ug/Kg		90	69 - 133
Perfluorononanoic acid (PFNA)	2.00	1.95		ug/Kg		98	72 - 129
Perfluorodecanoic acid (PFDA)	2.00	1.79		ug/Kg		90	69 - 133
Perfluoroundecanoic acid (PFUnA)	2.00	1.82		ug/Kg		91	64 - 136
Perfluorododecanoic acid (PFDoA)	2.00	1.87		ug/Kg		94	69 - 135
Perfluorotridecanoic acid (PFTrDA)	2.00	1.65		ug/Kg		82	66 - 139
Perfluorotetradecanoic acid (PFTeA)	2.00	1.83		ug/Kg		92	69 - 133
Perfluorobutanesulfonic acid (PFBS)	1.77	1.65		ug/Kg		94	72 - 128
Perfluoropentanesulfonic acid (PFPeS)	1.88	1.81		ug/Kg		97	73 - 123
Perfluorohexanesulfonic acid (PFHxS)	1.82	1.72		ug/Kg		94	67 - 130
Perfluoroheptanesulfonic Acid (PFHpS)	1.90	1.92		ug/Kg		101	70 - 132
Perfluorooctanesulfonic acid (PFOS)	1.86	1.64		ug/Kg		88	68 - 136
Perfluorodecanesulfonic acid (PFDS)	1.93	1.73		ug/Kg		90	59 - 134
Perfluorooctanesulfonamide (FOSA)	2.00	2.08		ug/Kg		104	67 - 137
NEtFOSA	2.00	1.99		ug/Kg		99	68 - 128
NEtFOSAA	2.00	1.78		ug/Kg		89	61 - 139
NEtFOSE	2.00	1.82		ug/Kg		91	71 - 131
NMeFOSA	2.00	1.92		ug/Kg		96	67 - 127
NMeFOSAA	2.00	1.99		ug/Kg		99	63 - 144
NMeFOSE	2.00	1.88		ug/Kg		94	72 - 132
4:2 FTS	1.87	1.84		ug/Kg		98	62 - 145
6:2 FTS	1.90	1.79		ug/Kg		95	64 - 140

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15 (Continued)

Lab Sample ID: LCS 320-563419/2-A
Matrix: Solid
Analysis Batch: 563749

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 563419

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
8:2 FTS	1.92	1.74		ug/Kg		91	65 - 137
11Cl-PF3OUdS	1.88	1.72		ug/Kg		91	76 - 136
9Cl-PF3ONS	1.86	1.69		ug/Kg		91	75 - 135
HFPO-DA (GenX)	2.00	2.04		ug/Kg		102	77 - 137
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	1.88	1.97		ug/Kg		105	79 - 139

Isotope Dilution	*LCS %Recovery*	*LCS Qualifier*	*Limits*
13C4 PFBA	*68*		*50 - 150*
13C5 PFPeA	*97*		*50 - 150*
13C2 PFHxA	*97*		*50 - 150*
13C4 PFHpA	*102*		*50 - 150*
13C4 PFOA	*105*		*50 - 150*
13C5 PFNA	*101*		*50 - 150*
13C2 PFDA	*99*		*50 - 150*
13C2 PFUnA	*103*		*50 - 150*
13C2 PFDoA	*109*		*50 - 150*
13C2 PFTeDA	*99*		*50 - 150*
13C3 PFBS	*99*		*50 - 150*
18O2 PFHxS	*97*		*50 - 150*
13C4 PFOS	*97*		*50 - 150*
13C8 FOSA	*94*		*50 - 150*
M2-4:2 FTS	*79*		*50 - 150*
M2-6:2 FTS	*80*		*50 - 150*
M2-8:2 FTS	*75*		*50 - 150*
d5-NEtFOSAA	*104*		*50 - 150*
d3-NMeFOSAA	*94*		*50 - 150*
d-N-EtFOSA-M	*98*		*50 - 150*
d9-N-EtFOSE-M	*82*		*50 - 150*
d7-N-MeFOSE-M	*86*		*50 - 150*
d-N-MeFOSA-M	*102*		*50 - 150*
13C3 HFPO-DA	*96*		*50 - 150*

Lab Sample ID: MB 320-563436/1-A
Matrix: Water
Analysis Batch: 563620

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 563436

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		5.0	2.4	ng/L		02/04/22 13:22	02/05/22 17:14	1
Perfluoropentanoic acid (PFPeA)	ND		2.0	0.49	ng/L		02/04/22 13:22	02/05/22 17:14	1
Perfluorohexanoic acid (PFHxA)	ND		2.0	0.58	ng/L		02/04/22 13:22	02/05/22 17:14	1
Perfluoroheptanoic acid (PFHpA)	ND		2.0	0.25	ng/L		02/04/22 13:22	02/05/22 17:14	1
Perfluorooctanoic acid (PFOA)	ND		2.0	0.85	ng/L		02/04/22 13:22	02/05/22 17:14	1
Perfluorononanoic acid (PFNA)	ND		2.0	0.27	ng/L		02/04/22 13:22	02/05/22 17:14	1
Perfluorodecanoic acid (PFDA)	ND		2.0	0.31	ng/L		02/04/22 13:22	02/05/22 17:14	1
Perfluoroundecanoic acid (PFUnA)	ND		2.0	1.1	ng/L		02/04/22 13:22	02/05/22 17:14	1
Perfluorododecanoic acid (PFDoA)	ND		2.0	0.55	ng/L		02/04/22 13:22	02/05/22 17:14	1
Perfluorotridecanoic acid (PFTrDA)	ND		2.0	1.3	ng/L		02/04/22 13:22	02/05/22 17:14	1
Perfluorotetradecanoic acid (PFTeA)	ND		2.0	0.73	ng/L		02/04/22 13:22	02/05/22 17:14	1

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15 (Continued)

Lab Sample ID: MB 320-563436/1-A
Matrix: Water
Analysis Batch: 563620

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 563436

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanesulfonic acid (PFBS)	ND		2.0	0.20	ng/L		02/04/22 13:22	02/05/22 17:14	1
Perfluoropentanesulfonic acid (PFPeS)	ND		2.0	0.30	ng/L		02/04/22 13:22	02/05/22 17:14	1
Perfluorohexanesulfonic acid (PFHxS)	ND		2.0	0.57	ng/L		02/04/22 13:22	02/05/22 17:14	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		2.0	0.19	ng/L		02/04/22 13:22	02/05/22 17:14	1
Perfluorooctanesulfonic acid (PFOS)	ND		2.0	0.54	ng/L		02/04/22 13:22	02/05/22 17:14	1
Perfluorodecanesulfonic acid (PFDS)	ND		2.0	0.32	ng/L		02/04/22 13:22	02/05/22 17:14	1
Perfluorooctanesulfonamide (FOSA)	ND		2.0	0.98	ng/L		02/04/22 13:22	02/05/22 17:14	1
NEtFOSA	ND		2.0	0.87	ng/L		02/04/22 13:22	02/05/22 17:14	1
NEtFOSAA	ND		5.0	1.3	ng/L		02/04/22 13:22	02/05/22 17:14	1
NEtFOSE	ND		2.0	0.85	ng/L		02/04/22 13:22	02/05/22 17:14	1
NMeFOSA	ND		2.0	0.43	ng/L		02/04/22 13:22	02/05/22 17:14	1
NMeFOSAA	ND		5.0	1.2	ng/L		02/04/22 13:22	02/05/22 17:14	1
NMeFOSE	ND		4.0	1.4	ng/L		02/04/22 13:22	02/05/22 17:14	1
4:2 FTS	ND		2.0	0.24	ng/L		02/04/22 13:22	02/05/22 17:14	1
6:2 FTS	ND		5.0	2.5	ng/L		02/04/22 13:22	02/05/22 17:14	1
8:2 FTS	ND		2.0	0.46	ng/L		02/04/22 13:22	02/05/22 17:14	1
11Cl-PF3OUdS	ND		2.0	0.32	ng/L		02/04/22 13:22	02/05/22 17:14	1
9Cl-PF3ONS	ND		2.0	0.24	ng/L		02/04/22 13:22	02/05/22 17:14	1
HFPO-DA (GenX)	ND		4.0	1.5	ng/L		02/04/22 13:22	02/05/22 17:14	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		2.0	0.40	ng/L		02/04/22 13:22	02/05/22 17:14	1

Isotope Dilution	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*119*		*50 - 150*	*02/04/22 13:22*	*02/05/22 17:14*	*1*
13C5 PFPeA	*127*		*50 - 150*	*02/04/22 13:22*	*02/05/22 17:14*	*1*
13C2 PFHxA	*122*		*50 - 150*	*02/04/22 13:22*	*02/05/22 17:14*	*1*
13C4 PFHpA	*117*		*50 - 150*	*02/04/22 13:22*	*02/05/22 17:14*	*1*
13C4 PFOA	*118*		*50 - 150*	*02/04/22 13:22*	*02/05/22 17:14*	*1*
13C5 PFNA	*120*		*50 - 150*	*02/04/22 13:22*	*02/05/22 17:14*	*1*
13C2 PFDA	*112*		*50 - 150*	*02/04/22 13:22*	*02/05/22 17:14*	*1*
13C2 PFUnA	*111*		*50 - 150*	*02/04/22 13:22*	*02/05/22 17:14*	*1*
13C2 PFDoA	*115*		*50 - 150*	*02/04/22 13:22*	*02/05/22 17:14*	*1*
13C2 PFTeDA	*115*		*50 - 150*	*02/04/22 13:22*	*02/05/22 17:14*	*1*
13C3 PFBS	*125*		*50 - 150*	*02/04/22 13:22*	*02/05/22 17:14*	*1*
18O2 PFHxS	*116*		*50 - 150*	*02/04/22 13:22*	*02/05/22 17:14*	*1*
13C4 PFOS	*123*		*50 - 150*	*02/04/22 13:22*	*02/05/22 17:14*	*1*
13C8 FOSA	*106*		*50 - 150*	*02/04/22 13:22*	*02/05/22 17:14*	*1*
M2-4:2 FTS	*93*		*50 - 150*	*02/04/22 13:22*	*02/05/22 17:14*	*1*
M2-6:2 FTS	*83*		*50 - 150*	*02/04/22 13:22*	*02/05/22 17:14*	*1*
M2-8:2 FTS	*84*		*50 - 150*	*02/04/22 13:22*	*02/05/22 17:14*	*1*
d5-NEtFOSAA	*94*		*50 - 150*	*02/04/22 13:22*	*02/05/22 17:14*	*1*
d3-NMeFOSAA	*85*		*50 - 150*	*02/04/22 13:22*	*02/05/22 17:14*	*1*
d-N-EtFOSA-M	*95*		*50 - 150*	*02/04/22 13:22*	*02/05/22 17:14*	*1*
d9-N-EtFOSE-M	*107*		*50 - 150*	*02/04/22 13:22*	*02/05/22 17:14*	*1*
d7-N-MeFOSE-M	*105*		*50 - 150*	*02/04/22 13:22*	*02/05/22 17:14*	*1*
d-N-MeFOSA-M	*96*		*50 - 150*	*02/04/22 13:22*	*02/05/22 17:14*	*1*
13C3 HFPO-DA	*118*		*50 - 150*	*02/04/22 13:22*	*02/05/22 17:14*	*1*

QC Sample Results

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15 (Continued)

Lab Sample ID: LCS 320-563436/2-A
Matrix: Water
Analysis Batch: 563620

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 563436

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Perfluorobutanoic acid (PFBA)	40.0	40.6		ng/L		102	73 - 129
Perfluoropentanoic acid (PFPeA)	40.0	39.4		ng/L		99	72 - 129
Perfluorohexanoic acid (PFHxA)	40.0	40.2		ng/L		100	72 - 129
Perfluoroheptanoic acid (PFHpA)	40.0	40.0		ng/L		100	72 - 130
Perfluorooctanoic acid (PFOA)	40.0	37.2		ng/L		93	71 - 133
Perfluorononanoic acid (PFNA)	40.0	37.8		ng/L		95	69 - 130
Perfluorodecanoic acid (PFDA)	40.0	34.7		ng/L		87	71 - 129
Perfluoroundecanoic acid (PFUnA)	40.0	37.4		ng/L		93	69 - 133
Perfluorododecanoic acid (PFDoA)	40.0	41.1		ng/L		103	72 - 134
Perfluorotridecanoic acid (PFTrDA)	40.0	41.3		ng/L		103	65 - 144
Perfluorotetradecanoic acid (PFTeA)	40.0	37.0		ng/L		92	71 - 132
Perfluorobutanesulfonic acid (PFBS)	35.4	33.1		ng/L		93	72 - 130
Perfluoropentanesulfonic acid (PFPeS)	37.5	35.7		ng/L		95	71 - 127
Perfluorohexanesulfonic acid (PFHxS)	36.4	34.2		ng/L		94	68 - 131
Perfluoroheptanesulfonic Acid (PFHpS)	38.1	36.9		ng/L		97	69 - 134
Perfluorooctanesulfonic acid (PFOS)	37.1	34.2		ng/L		92	65 - 140
Perfluorodecanesulfonic acid (PFDS)	38.6	36.6		ng/L		95	53 - 142
Perfluorooctanesulfonamide (FOSA)	40.0	41.1		ng/L		103	67 - 137
NEtFOSA	40.0	41.4		ng/L		104	67 - 127
NEtFOSAA	40.0	36.8		ng/L		92	61 - 135
NEtFOSE	40.0	35.9		ng/L		90	70 - 130
NMeFOSA	40.0	40.6		ng/L		101	68 - 141
NMeFOSAA	40.0	39.9		ng/L		100	65 - 136
NMeFOSE	40.0	40.5		ng/L		101	60 - 137
4:2 FTS	37.4	37.3		ng/L		100	63 - 143
6:2 FTS	37.9	38.6		ng/L		102	64 - 140
8:2 FTS	38.3	38.8		ng/L		101	67 - 138
11Cl-PF3OUdS	37.7	36.0		ng/L		95	76 - 136
9Cl-PF3ONS	37.3	34.9		ng/L		94	77 - 137
HFPO-DA (GenX)	40.0	40.1		ng/L		100	72 - 132
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	37.7	36.1		ng/L		96	81 - 141

Isotope Dilution	*LCS %Recovery*	*LCS Qualifier*	*Limits*
13C4 PFBA	*113*		*50 - 150*
13C5 PFPeA	*119*		*50 - 150*
13C2 PFHxA	*112*		*50 - 150*
13C4 PFHpA	*109*		*50 - 150*
13C4 PFOA	*114*		*50 - 150*
13C5 PFNA	*112*		*50 - 150*

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15 (Continued)

Lab Sample ID: LCS 320-563436/2-A
Matrix: Water
Analysis Batch: 563620

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 563436

Isotope Dilution	*LCS %Recovery*	*LCS Qualifier*	*Limits*
13C2 PFDA	*112*		*50 - 150*
13C2 PFUnA	*111*		*50 - 150*
13C2 PFDoA	*104*		*50 - 150*
13C2 PFTeDA	*111*		*50 - 150*
13C3 PFBS	*120*		*50 - 150*
18O2 PFHxS	*114*		*50 - 150*
13C4 PFOS	*117*		*50 - 150*
13C8 FOSA	*105*		*50 - 150*
M2-4:2 FTS	*84*		*50 - 150*
M2-6:2 FTS	*85*		*50 - 150*
M2-8:2 FTS	*85*		*50 - 150*
d5-NEtFOSAA	*89*		*50 - 150*
d3-NMeFOSAA	*82*		*50 - 150*
d-N-EtFOSA-M	*91*		*50 - 150*
d9-N-EtFOSE-M	*106*		*50 - 150*
d7-N-MeFOSE-M	*103*		*50 - 150*
d-N-MeFOSA-M	*90*		*50 - 150*
13C3 HFPO-DA	*114*		*50 - 150*

Lab Sample ID: LCSD 320-563436/3-A
Matrix: Water
Analysis Batch: 563620

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 563436

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Perfluorobutanoic acid (PFBA)	40.0	38.7		ng/L		97	73 - 129	5	30
Perfluoropentanoic acid (PFPeA)	40.0	37.9		ng/L		95	72 - 129	4	30
Perfluorohexanoic acid (PFHxA)	40.0	38.4		ng/L		96	72 - 129	5	30
Perfluoroheptanoic acid (PFHpA)	40.0	38.4		ng/L		96	72 - 130	4	30
Perfluorooctanoic acid (PFOA)	40.0	37.7		ng/L		94	71 - 133	1	30
Perfluorononanoic acid (PFNA)	40.0	36.8		ng/L		92	69 - 130	3	30
Perfluorodecanoic acid (PFDA)	40.0	35.1		ng/L		88	71 - 129	1	30
Perfluoroundecanoic acid (PFUnA)	40.0	36.2		ng/L		91	69 - 133	3	30
Perfluorododecanoic acid (PFDoA)	40.0	38.4		ng/L		96	72 - 134	7	30
Perfluorotridecanoic acid (PFTrDA)	40.0	40.8		ng/L		102	65 - 144	1	30
Perfluorotetradecanoic acid (PFTeA)	40.0	37.3		ng/L		93	71 - 132	1	30
Perfluorobutanesulfonic acid (PFBS)	35.4	31.6		ng/L		89	72 - 130	4	30
Perfluoropentanesulfonic acid (PFPeS)	37.5	33.9		ng/L		90	71 - 127	5	30
Perfluorohexanesulfonic acid (PFHxS)	36.4	33.2		ng/L		91	68 - 131	3	30
Perfluoroheptanesulfonic Acid (PFHpS)	38.1	39.1		ng/L		103	69 - 134	6	30
Perfluorooctanesulfonic acid (PFOS)	37.1	33.2		ng/L		89	65 - 140	3	30
Perfluorodecanesulfonic acid (PFDS)	38.6	36.9		ng/L		96	53 - 142	1	30

QC Sample Results

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15 (Continued)

Lab Sample ID: LCSD 320-563436/3-A
Matrix: Water
Analysis Batch: 563620

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 563436

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Perfluorooctanesulfonamide (FOSA)			40.0	40.6		ng/L		101	67 - 137	1	30
NEtFOSA			40.0	41.2		ng/L		103	67 - 127	1	30
NEtFOSAA			40.0	34.1		ng/L		85	61 - 135	8	30
NEtFOSE			40.0	37.7		ng/L		94	70 - 130	5	30
NMeFOSA			40.0	39.6		ng/L		99	68 - 141	3	30
NMeFOSAA			40.0	37.2		ng/L		93	65 - 136	7	30
NMeFOSE			40.0	39.2		ng/L		98	60 - 137	3	30
4:2 FTS			37.4	38.2		ng/L		102	63 - 143	2	30
6:2 FTS			37.9	35.3		ng/L		93	64 - 140	9	30
8:2 FTS			38.3	33.7		ng/L		88	67 - 138	14	30
11Cl-PF3OUdS			37.7	35.2		ng/L		93	76 - 136	2	30
9Cl-PF3ONS			37.3	35.2		ng/L		94	77 - 137	1	30
HFPO-DA (GenX)			40.0	39.5		ng/L		99	72 - 132	2	30
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)			37.7	35.4		ng/L		94	81 - 141	2	30

Isotope Dilution	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
13C4 PFBA	*109*		*50 - 150*
13C5 PFPeA	*115*		*50 - 150*
13C2 PFHxA	*111*		*50 - 150*
13C4 PFHpA	*106*		*50 - 150*
13C4 PFOA	*109*		*50 - 150*
13C5 PFNA	*109*		*50 - 150*
13C2 PFDA	*103*		*50 - 150*
13C2 PFUnA	*110*		*50 - 150*
13C2 PFDoA	*105*		*50 - 150*
13C2 PFTeDA	*109*		*50 - 150*
13C3 PFBS	*119*		*50 - 150*
18O2 PFHxS	*108*		*50 - 150*
13C4 PFOS	*113*		*50 - 150*
13C8 FOSA	*99*		*50 - 150*
M2-4:2 FTS	*87*		*50 - 150*
M2-6:2 FTS	*86*		*50 - 150*
M2-8:2 FTS	*85*		*50 - 150*
d5-NEtFOSAA	*92*		*50 - 150*
d3-NMeFOSAA	*83*		*50 - 150*
d-N-EtFOSA-M	*87*		*50 - 150*
d9-N-EtFOSE-M	*97*		*50 - 150*
d7-N-MeFOSE-M	*98*		*50 - 150*
d-N-MeFOSA-M	*86*		*50 - 150*
13C3 HFPO-DA	*109*		*50 - 150*

Method: 6010B - Metals (ICP)

Lab Sample ID: MB 320-568338/1-A
Matrix: Water
Analysis Batch: 568581

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 568338

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	ND		0.50	0.050	mg/L		02/25/22 06:00	02/25/22 12:06	1
Magnesium	ND		0.50	0.040	mg/L		02/25/22 06:00	02/25/22 12:06	1
Potassium	ND		1.0	0.093	mg/L		02/25/22 06:00	02/25/22 12:06	1
Sodium	ND		1.0	0.25	mg/L		02/25/22 06:00	02/25/22 12:06	1

Lab Sample ID: LCS 320-568338/2-A
Matrix: Water
Analysis Batch: 568581

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 568338

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Calcium	25.0	25.7		mg/L		103	80 - 120
Magnesium	25.0	25.7		mg/L		103	80 - 120
Potassium	25.0	23.6		mg/L		94	80 - 120
Sodium	25.0	24.3		mg/L		97	80 - 120

Lab Sample ID: 320-84437-4 MS
Matrix: Water
Analysis Batch: 568581

Client Sample ID: L7-6-GW
Prep Type: Dissolved
Prep Batch: 568338

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Calcium	130		25.0	158	4	mg/L		105	80 - 120
Magnesium	180		25.0	202	4	mg/L		100	80 - 120
Potassium	0.39	J	25.0	25.7		mg/L		101	80 - 120
Sodium	95		25.0	121		mg/L		101	80 - 120

Lab Sample ID: 320-84437-4 MSD
Matrix: Water
Analysis Batch: 568581

Client Sample ID: L7-6-GW
Prep Type: Dissolved
Prep Batch: 568338

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Calcium	130		25.0	156	4	mg/L		94	80 - 120	2	20
Magnesium	180		25.0	200	4	mg/L		91	80 - 120	1	20
Potassium	0.39	J	25.0	26.0		mg/L		102	80 - 120	1	20
Sodium	95		25.0	121		mg/L		101	80 - 120	0	20

Method: SM 2320B - Alkalinity

Lab Sample ID: MB 320-563802/7
Matrix: Water
Analysis Batch: 563802

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bicarbonate Alkalinity	ND		5.0	5.0	mg/L			02/04/22 14:02	1
Carbonate Alkalinity	ND		5.0	5.0	mg/L			02/04/22 14:02	1

Method: SM 2320B - Alkalinity (Continued)

Lab Sample ID: LCS 320-563802/8
Client Sample ID: Lab Control Sample
Matrix: Water
Prep Type: Total/NA
Analysis Batch: 563802

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Total Alkalinity			1000	972		mg/L		97	90 - 110		

Method: SM 2540C - Solids, Total Dissolved (TDS)

Lab Sample ID: MB 320-564201/1
Client Sample ID: Method Blank
Matrix: Water
Prep Type: Total/NA
Analysis Batch: 564201

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	ND		10	5.4	mg/L			02/08/22 12:27	1

Lab Sample ID: LCS 320-564201/2
Client Sample ID: Lab Control Sample
Matrix: Water
Prep Type: Total/NA
Analysis Batch: 564201

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Total Dissolved Solids			375	366		mg/L		98	80 - 120		

Lab Sample ID: 320-84437-4 MS
Client Sample ID: L7-6-GW
Matrix: Water
Prep Type: Total/NA
Analysis Batch: 564201

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Total Dissolved Solids	1300		500	1820		mg/L		105	85 - 115		

Lab Sample ID: 320-84437-4 MSD
Client Sample ID: L7-6-GW
Matrix: Water
Prep Type: Total/NA
Analysis Batch: 564201

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Total Dissolved Solids	1300		500	1790		mg/L		99	85 - 115	1	20

HPLC/IC

Analysis Batch: 563032

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-84437-4	L7-6-GW	Total/NA	Water	300.0	
320-84437-6	L7-5-GW	Total/NA	Water	300.0	
320-84437-7	L7-4-GW	Total/NA	Water	300.0	
MB 320-563032/3	Method Blank	Total/NA	Water	300.0	
LCS 320-563032/4	Lab Control Sample	Total/NA	Water	300.0	

Analysis Batch: 563033

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-84437-4	L7-6-GW	Total/NA	Water	300.0	
320-84437-6	L7-5-GW	Total/NA	Water	300.0	
320-84437-7	L7-4-GW	Total/NA	Water	300.0	
MB 320-563033/3	Method Blank	Total/NA	Water	300.0	
LCS 320-563033/10	Lab Control Sample	Total/NA	Water	300.0	

Analysis Batch: 563881

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-84437-4	L7-6-GW	Total/NA	Water	300.0	
MB 320-563881/3	Method Blank	Total/NA	Water	300.0	
LCS 320-563881/4	Lab Control Sample	Total/NA	Water	300.0	

LCMS

Prep Batch: 563419

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-84437-1	L7-4-10	Total/NA	Solid	SHAKE	
MB 320-563419/1-A	Method Blank	Total/NA	Solid	SHAKE	
LCS 320-563419/2-A	Lab Control Sample	Total/NA	Solid	SHAKE	

Prep Batch: 563436

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-84437-2	FB-2-020222	Total/NA	Water	3535	
320-84437-3	EB-1-020222	Total/NA	Water	3535	
320-84437-4	L7-6-GW	Total/NA	Water	3535	
320-84437-5	L7-6D-GW	Total/NA	Water	3535	
320-84437-6	L7-5-GW	Total/NA	Water	3535	
320-84437-7	L7-4-GW	Total/NA	Water	3535	
MB 320-563436/1-A	Method Blank	Total/NA	Water	3535	
LCS 320-563436/2-A	Lab Control Sample	Total/NA	Water	3535	
LCSD 320-563436/3-A	Lab Control Sample Dup	Total/NA	Water	3535	

Analysis Batch: 563620

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-84437-2	FB-2-020222	Total/NA	Water	EPA 537(Mod)	563436
320-84437-3	EB-1-020222	Total/NA	Water	EPA 537(Mod)	563436
320-84437-4	L7-6-GW	Total/NA	Water	EPA 537(Mod)	563436
320-84437-5	L7-6D-GW	Total/NA	Water	EPA 537(Mod)	563436
320-84437-6	L7-5-GW	Total/NA	Water	EPA 537(Mod)	563436
320-84437-7	L7-4-GW	Total/NA	Water	EPA 537(Mod)	563436
MB 320-563436/1-A	Method Blank	Total/NA	Water	EPA 537(Mod)	563436
LCS 320-563436/2-A	Lab Control Sample	Total/NA	Water	EPA 537(Mod)	563436
LCSD 320-563436/3-A	Lab Control Sample Dup	Total/NA	Water	EPA 537(Mod)	563436

QC Association Summary

LCMS

Analysis Batch: 563749

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-84437-1	L7-4-10	Total/NA	Solid	EPA 537(Mod)	563419
MB 320-563419/1-A	Method Blank	Total/NA	Solid	EPA 537(Mod)	563419
LCS 320-563419/2-A	Lab Control Sample	Total/NA	Solid	EPA 537(Mod)	563419

Metals

Prep Batch: 568338

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-84437-4	L7-6-GW	Dissolved	Water	3010A	
320-84437-7	L7-4-GW	Dissolved	Water	3010A	
MB 320-568338/1-A	Method Blank	Total/NA	Water	3010A	
LCS 320-568338/2-A	Lab Control Sample	Total/NA	Water	3010A	
320-84437-4 MS	L7-6-GW	Dissolved	Water	3010A	
320-84437-4 MSD	L7-6-GW	Dissolved	Water	3010A	

Analysis Batch: 568581

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-84437-4	L7-6-GW	Dissolved	Water	6010B	568338
320-84437-7	L7-4-GW	Dissolved	Water	6010B	568338
MB 320-568338/1-A	Method Blank	Total/NA	Water	6010B	568338
LCS 320-568338/2-A	Lab Control Sample	Total/NA	Water	6010B	568338
320-84437-4 MS	L7-6-GW	Dissolved	Water	6010B	568338
320-84437-4 MSD	L7-6-GW	Dissolved	Water	6010B	568338

General Chemistry

Analysis Batch: 563802

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-84437-4	L7-6-GW	Total/NA	Water	SM 2320B	
320-84437-6	L7-5-GW	Total/NA	Water	SM 2320B	
320-84437-7	L7-4-GW	Total/NA	Water	SM 2320B	
MB 320-563802/7	Method Blank	Total/NA	Water	SM 2320B	
LCS 320-563802/8	Lab Control Sample	Total/NA	Water	SM 2320B	

Analysis Batch: 564047

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-84437-1	L7-4-10	Total/NA	Solid	D 2216	

Analysis Batch: 564201

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-84437-4	L7-6-GW	Total/NA	Water	SM 2540C	
320-84437-7	L7-4-GW	Total/NA	Water	SM 2540C	
MB 320-564201/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 320-564201/2	Lab Control Sample	Total/NA	Water	SM 2540C	
320-84437-4 MS	L7-6-GW	Total/NA	Water	SM 2540C	
320-84437-4 MSD	L7-6-GW	Total/NA	Water	SM 2540C	

Lab Chronicle

Client: Woodard & Curran, Inc.
Project/Site: PFAS, San Jose Fuel

Job ID: 320-84437-1

Client Sample ID: L7-4-10

Lab Sample ID: 320-84437-1
Date Collected: 02/02/22 09:05
Matrix: Solid
Date Received: 02/02/22 14:50

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1			564047	02/07/22 21:16	JP	TAL SAC

Client Sample ID: L7-4-10

Lab Sample ID: 320-84437-1
Date Collected: 02/02/22 09:05
Matrix: Solid
Date Received: 02/02/22 14:50
Percent Solids: 86.5

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			5.01 g	10.0 mL	563419	02/04/22 11:48	OP	TAL SAC
Total/NA	Analysis	EPA 537(Mod)		1			563749	02/06/22 22:40	K1S	TAL SAC

Client Sample ID: FB-2-020222

Lab Sample ID: 320-84437-2
Date Collected: 02/02/22 10:10
Matrix: Water
Date Received: 02/02/22 14:50

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			269.7 mL	10.0 mL	563436	02/04/22 13:22	DVC	TAL SAC
Total/NA	Analysis	EPA 537(Mod)		1			563620	02/05/22 18:27	K1S	TAL SAC

Client Sample ID: EB-1-020222

Lab Sample ID: 320-84437-3
Date Collected: 02/02/22 10:20
Matrix: Water
Date Received: 02/02/22 14:50

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			269.8 mL	10.0 mL	563436	02/04/22 13:22	DVC	TAL SAC
Total/NA	Analysis	EPA 537(Mod)		1			563620	02/05/22 18:37	K1S	TAL SAC

Client Sample ID: L7-6-GW

Lab Sample ID: 320-84437-4
Date Collected: 02/02/22 10:55
Matrix: Water
Date Received: 02/02/22 14:50

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		5	10 mL	10 mL	563032	02/03/22 13:47	Y1S	TAL SAC
Total/NA	Analysis	300.0		5	10 mL	10 mL	563033	02/03/22 13:47	Y1S	TAL SAC
Total/NA	Analysis	300.0		10	10 mL	10 mL	563881	02/07/22 20:42	Y1S	TAL SAC
Total/NA	Prep	3535			257.7 mL	10.0 mL	563436	02/04/22 13:22	DVC	TAL SAC
Total/NA	Analysis	EPA 537(Mod)		1			563620	02/05/22 18:47	K1S	TAL SAC
Dissolved	Prep	3010A			50 mL	50 mL	568338	02/25/22 06:00	NIM	TAL SAC
Dissolved	Analysis	6010B		1			568581	02/25/22 12:13	SP	TAL SAC
Total/NA	Analysis	SM 2320B		1			563802	02/04/22 17:48	TCS	TAL SAC
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	564201	02/08/22 12:27	TCS	TAL SAC

Client Sample ID: L7-6D-GW

Date Collected: 02/02/22 10:55
Date Received: 02/02/22 14:50

Lab Sample ID: 320-84437-5
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			266.4 mL	10.0 mL	563436	02/04/22 13:22	DVC	TAL SAC
Total/NA	Analysis	EPA 537(Mod)		1			563620	02/05/22 19:19	K1S	TAL SAC

Client Sample ID: L7-5-GW

Date Collected: 02/02/22 13:03
Date Received: 02/02/22 14:50

Lab Sample ID: 320-84437-6
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		5	10 mL	10 mL	563032	02/03/22 14:05	Y1S	TAL SAC
Total/NA	Analysis	300.0		5	10 mL	10 mL	563033	02/03/22 14:05	Y1S	TAL SAC
Total/NA	Prep	3535			263.4 mL	10.0 mL	563436	02/04/22 13:22	DVC	TAL SAC
Total/NA	Analysis	EPA 537(Mod)		1			563620	02/05/22 19:29	K1S	TAL SAC
Total/NA	Analysis	SM 2320B		1			563802	02/04/22 18:15	TCS	TAL SAC

Client Sample ID: L7-4-GW

Date Collected: 02/02/22 13:36
Date Received: 02/02/22 14:50

Lab Sample ID: 320-84437-7
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		5	10 mL	10 mL	563032	02/03/22 14:40	Y1S	TAL SAC
Total/NA	Analysis	300.0		5	10 mL	10 mL	563033	02/03/22 14:40	Y1S	TAL SAC
Total/NA	Prep	3535			262 mL	10.0 mL	563436	02/04/22 13:22	DVC	TAL SAC
Total/NA	Analysis	EPA 537(Mod)		1			563620	02/05/22 19:39	K1S	TAL SAC
Dissolved	Prep	3010A			50 mL	50 mL	568338	02/25/22 06:00	NIM	TAL SAC
Dissolved	Analysis	6010B		1			568581	02/25/22 12:32	SP	TAL SAC
Total/NA	Analysis	SM 2320B		1			563802	02/04/22 18:01	TCS	TAL SAC
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	564201	02/08/22 12:27	TCS	TAL SAC

Laboratory References:

TAL SAC = Eurofins Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600

Accreditation/Certification Summary

Client: Woodard & Curran, Inc.
Project/Site: PFAS, San Jose Fuel

Job ID: 320-84437-1

Laboratory: Eurofins Sacramento

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
California	State	2897	01-31-23

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
6010B	3010A	Water	Potassium
D 2216		Solid	Percent Moisture
D 2216		Solid	Percent Solids

Method Summary

Client: Woodard & Curran, Inc.
Project/Site: PFAS, San Jose Fuel

Job ID: 320-84437-1

Method	Method Description	Protocol	Laboratory
300.0	Anions, Ion Chromatography	MCAWW	TAL SAC
EPA 537(Mod)	PFAS for QSM 5.3, Table B-15	EPA	TAL SAC
6010B	Metals (ICP)	SW846	TAL SAC
D 2216	Percent Moisture	ASTM	TAL SAC
SM 2320B	Alkalinity	SM	TAL SAC
SM 2540C	Solids, Total Dissolved (TDS)	SM	TAL SAC
3010A	Preparation, Total Metals	SW846	TAL SAC
3535	Solid-Phase Extraction (SPE)	SW846	TAL SAC
SHAKE	Shake Extraction with Ultrasonic Bath Extraction	SW846	TAL SAC

Protocol References:

ASTM = ASTM International
EPA = US Environmental Protection Agency
MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.
SM = "Standard Methods For The Examination Of Water And Wastewater"
SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL SAC = Eurofins Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600

Sample Summary

Client: Woodard & Curran, Inc.
Project/Site: PFAS, San Jose Fuel

Job ID: 320-84437-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
320-84437-1	L7-4-10	Solid	02/02/22 09:05	02/02/22 14:50
320-84437-2	FB-2-020222	Water	02/02/22 10:10	02/02/22 14:50
320-84437-3	EB-1-020222	Water	02/02/22 10:20	02/02/22 14:50
320-84437-4	L7-6-GW	Water	02/02/22 10:55	02/02/22 14:50
320-84437-5	L7-6D-GW	Water	02/02/22 10:55	02/02/22 14:50
320-84437-6	L7-5-GW	Water	02/02/22 13:03	02/02/22 14:50
320-84437-7	L7-4-GW	Water	02/02/22 13:36	02/02/22 14:50

Address: Eurofins TestAmerica West Sacramento
4880 Riverside Pkwy
West Sacramento, CA

Chain of Custody Record

589983 eurofins | Environment Testing TestAmerica

201961

320-84437

Regulatory Program ☐ DW ☐ NPDES ☐ RCRA ☐ Other:

TAL-8210

Client Contact	
Company Name:	Woodard & Curran, Inc
Address:	2175 N California Blvd, Ste 315
City/State/Zip:	Walnut Creek, CA 94596
Phone:	(925)-627-4100
Fax:	(925)-627-4101
Project Name:	SJC Fuel PFAS
Site:	San Jose Airport
P O #	

Project Manager: Jim Strandberg
Tel/Email: jstrandberg@woodardcurran.com
Site Contact: Kevin Ahuesta
Lab Contact: Linda Laver
Date: 2/2/2022
Carrier:

Analysis Turnaround Time
☐ CALENDAR DAYS ☒ WORKING DAYS
TAT if different from Below
☒ 2 weeks
☐ 1 week
☐ 2 days
☐ 1 day

COC No: 1 of 1 COCs
Sampler:
For Lab Use Only:
Walk-in Client:
Lab Sampling:
Job / SDG No

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y / N)	Perform MS / MSD (Y / N)	PFAS (31)	~~[illegible]~~	TDS	Nitrate-N frozen	sulfate	chloride	carbonate/bicarbonate	Ca, Mg, K, Na		Field filtered	Sample Specific Notes:
L7-4-10	2/2/22	0905	G	S	1			X										
FB-2-020222	↓	1010	↓	W	2			X										
EB-1-020222		1020		↓	2			X										
L7-6-GW		1055			5			X		X	X	X	X	X	X		X	
L7-60-GW		1055			2			X										
L7-5-GW		1303			~~5~~ 3 VA			X		VA	X	X	X	X	VA			
L7-4-GW	↓	1336	↓	↓	5			X		X	X	X	X	X	X		X	

320-84437 Chain of Custody

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH 6= Other

Possible Hazard Identification
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☒ Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return to Client ☒ Disposal by Lab ☐ Archive for ____ Months

2.5°c

Special Instructions/QC Requirements & Comments Standard TAT well went dry, no TDS & metals sample collected at L7-5-GW

Custody Seals Intact: ☐ Yes ☐ No
Custody Seal No
Cooler Temp. (°C): Obs'd.____ Corr'd:____ Therm ID No.____

Relinquished by:	Company: Woodard&Curran	Date/Time: 2/2/22 1450	Received by:	Company: ETA-SJ	Date/Time: 2-2-22 1450
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company:	Date/Time:

Eurofins Sacramento
880 Riverside Parkway
West Sacramento, CA 95605
Phone: 916-373-5600 Fax: 916-372-1059

Chain of Custody Record

eurofins Environment Testing America

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Laver, Linda C.	Carrier Tracking No(s):	COC No: 320-258003.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: Linda.Laver@Eurofinset.com	State of Origin: California	Page: Page 1 of 1
Company: Eurofins Environment Testing Northern Ca		Accreditations Required (See note): State - California		Job #: 320-84437-1
Address: 880 Riverside Parkway, ,	**Due Date Requested:** 2/15/2022			
City: West Sacramento	**TAT Requested (days):**			
State, Zip: CA, 95605				
Phone: 916-373-5600(Tel) 916-372-1059(Fax)	PO #:			
Email:	WO #:			
Project Name: PFAS, San Jose Fuel	Project #: 32019161			
Site:	SSOW#:			

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2O3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - pH 4-5
L - EDA	Z - other (specify)

Other:

Analysis Requested

Sample Identification - Client ID (Lab ID)	**Sample Date**	**Sample Time**	**Sample Type (C=comp, G=grab)**	**Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)**	**Field Filtered Sample (Yes or No)**	**Perform MS/MSD (Yes or No)**	**PFC_IDA_B15/Shake_Bath_14D CA-DWQ 31 Required**	**Moisture**	**PFC_IDA_B15/3535_PFC CA-DWQ 31 Required**	**300_ORGFM_28D/ (MOD) Chloride, Sulfate**	**300_ORGFMS/ Nitrate as N**	**2320B/ Carbonate/Bicarbonate**	**2540C_Calcd/ Total Dissolved Solids**	**6010B/FIELD_FLTRD (MOD) Ca, K, Mg, Na_field filtered**	**Total Number of containers**	**Special Instructions/Note:**
			Preservation Code:													
L7-4-10 (320-84437-1)	2/2/22	09:05 Pacific		Solid			X	X							1	
FB-2-020222 (320-84437-2)	2/2/22	10:10 Pacific		Water					X						2	
EB-1-020222 (320-84437-3)	2/2/22	10:20 Pacific		Water					X						2	
L7-6-GW (320-84437-4)	2/2/22	10:55 Pacific		Water					X	X	X	X	X	X	5	
L7-6D-GW (320-84437-5)	2/2/22	10:55 Pacific		Water					X						2	
L7-5-GW (320-84437-6)	2/2/22	13:03 Pacific		Water					X	X	X	X			3	
L7-4-GW (320-84437-7)	2/2/22	13:36 Pacific		Water					X	X	X	X	X	X	5	

Note: Since laboratory accreditations are subject to change, Eurofins Environment Testing Northern California, LLC places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins Environment Testing Northern California, LLC laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Environment Testing Northern California, LLC attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said complicance to Eurofins Environment Testing Northern California, LLC.

Possible Hazard Identification *Unconfirmed*		***Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)*** ☐ *Return To Client* ☐ *Disposal By Lab* ☐ *Archive For* ______ *Months*	
Deliverable Requested: I, II, III, IV, Other (specify)	Primary Deliverable Rank: 2	Special Instructions/QC Requirements:	
Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time: 2-2-22 1630	Company SJ	Received by:	Date/Time: 2-2-22 1630	Company DIS
Relinquished by:	Date/Time: 2-2-22 1940	Company ECS	Received by:	Date/Time: 2-2-22 19:40	Company EETSAC
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:		Cooler Temperature(s) °C and Other Remarks: 2,4,0,7		

Ver: 06/08/2021

Login Sample Receipt Checklist

Client: Woodard & Curran, Inc.

Job Number: 320-84437-1

Login Number: 84437

List Number: 1

Creator: Mullen, Joan

List Source: Eurofins Sacramento

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	N/A	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: Woodard & Curran, Inc.

Job Number: 320-84437-1

Login Number: 84437
List Number: 2
Creator: Cahill, Nicholas P

List Source: Eurofins Sacramento

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	N/A	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	2.4c, 0.7c
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	False	Received project as a subcontract.
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Woodard
& Curran

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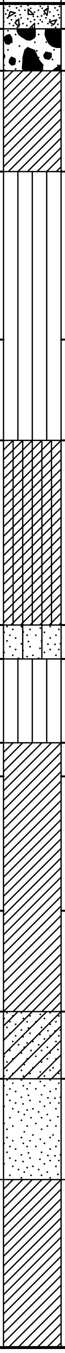
APPENDIX B: SOIL BORING LITHOLOGIC LOGS

Woodard & Curran

BORING NUMBER L1/2-1

PAGE 1 OF 1

CLIENT Kimley-Horn and Associates	**PROJECT NAME** Norman Y. Mineta San Jose Int'l Airport Phase 2 Investigation
PROJECT NUMBER 0231401.07	**PROJECT LOCATION** 1701 Airport Blvd, San Jose, CA
DATE STARTED 12/06/2021 **COMPLETED** 12/06/2021	**GROUND ELEVATION** **HOLE SIZE** 2.25
DRILLING CONTRACTOR Penecore Drilling	**GROUND WATER LEVELS:**
DRILLING METHOD GeoProbe	**AT TIME OF DRILLING** ---
LOGGED BY Jim Strandberg **CHECKED BY** Amber Ritchie	**AT END OF DRILLING** ---
NOTES	**AFTER DRILLING** ---



DEPTH (ft)	U.S.C.S.	GRAPHIC LOG	Feet BGS	MATERIAL DESCRIPTION
0			0.8	Concrete.
2			2.0	Aggregate road base.
4	CL		5.0	SILTY CLAY, very dark gray (7.5 YR 3/1) to dark brown (7.5 YR 3/3), dry, low plasticity.
6 8 10	ML		10.0	CLAYEY SILT, dark yellowish brown (10 YR 3/6), dry, low plasticity, iron-oxide staining.
12	ML		13.0	SILTY CLAY, black (10 YR 2/1), dry, medium plasticity.
14 16 18	CL-ML		18.5	CLAY and SILT, gray (10 YR 6/1), dry, low plasticity, iron-oxide staining.
	SM		19.5	SILTY FINE SAND, brown (10 YR 5/3), moist, well sorted.
20 22	ML		22.0	CLAYEY SILT, gray (10 YR 6/1), dry, high plasticity.
	CL		23.0	CLAY, black (10 YR 2/1), moist, high plasticity.
24 26	CL		27.0	CLAY, black (10 YR 2/1), slightly moist, medium plasticity.
28 30	CL		30.0	CLAY, dark greenish gray (GLEY 4/10GY), moist, soft, high plasticity.
32	SC		32.0	CLAYEY VERY FINE SAND, dark greenish gray (GLEY 4/10GY), wet.
34	SP		35.0	VERY FINE SAND, dark olive (5Y 3/4), wet.
36 38 40	CL		40.0	SILTY CLAY, dark olive (5Y 3/4), moist, low plasticity.

Bottom of borehole at 40.0 feet.

BORING NUMBER L1/2-2

Woodard & Curran

CLIENT	Kimley-Horn and Associates	**PROJECT NAME**	Norman Y. Mineta San Jose Int'l Airport Phase 2 Investigation
PROJECT NUMBER	0231401.07	**PROJECT LOCATION**	1701 Airport Blvd, San Jose, CA
DATE STARTED	12/06/2021 **COMPLETED** 12/06/2021	**GROUND ELEVATION**	**HOLE SIZE** 2.25
DRILLING CONTRACTOR	Penecore Drilling	**GROUND WATER LEVELS:**	
DRILLING METHOD	GeoProbe	**AT TIME OF DRILLING**	---
LOGGED BY	Jim Strandberg **CHECKED BY** Amber Ritchie	**AT END OF DRILLING**	---
NOTES		**AFTER DRILLING**	---

DEPTH (ft)	U.S.C.S.	GRAPHIC LOG	Feet BGS	MATERIAL DESCRIPTION
0				
			1.5	Concrete.
2		●	2.0	Aggregate road base.
4	CL	▨	5.0	SILTY CLAY, very dark gray (7.5 YR 3/1) to dark brown (7.5 YR 3/3), dry.
6 8 10	ML	▥	10.0	CLAYEY SILT, dark yellowish brown (10 YR 3/6), dry, low plasticity, iron-oxide staining.

Bottom of borehole at 10.0 feet.

Woodard & Curran

BORING NUMBER L1/2-3

PAGE 1 OF 1

CLIENT Kimley-Horn and Associates
PROJECT NAME Norman Y. Mineta San Jose Int'l Airport Phase 2 Investigation
PROJECT NUMBER 0231401.07
PROJECT LOCATION 1701 Airport Blvd, San Jose, CA
DATE STARTED 12/06/2021 **COMPLETED** 12/06/2021
GROUND ELEVATION **HOLE SIZE** 2.25
DRILLING CONTRACTOR Penecore Drilling
GROUND WATER LEVELS:
DRILLING METHOD GeoProbe
AT TIME OF DRILLING ---
LOGGED BY Jim Strandberg **CHECKED BY** Amber Ritchie
AT END OF DRILLING ---
NOTES
AFTER DRILLING ---

Feet BGS	U.S.C.S.	MATERIAL DESCRIPTION
0.3		Concrete.
1.0		Aggregate road base.
2.0	CL	CLAY, dry, dark gray (10 YR 4/1), soft, medium plasticity.
11.0	ML	CLAYEY SILT, dry, very dark brown (10 YR 2/2), moderately stiff, low plasticity.
12.0	CL-ML	SILT and CLAY, very dark gray (2.5 Y 3/1), moist, very soft, non-plastic.
15.0	CL	SILTY CLAY, black (2.5 Y 2.5/1), moist, moderately stiff, medium plasticity.
16.0	ML	SILT, minor clay, very dark gray (2.5 Y 3/1), moist, very soft, non-plastic.
19.0	CL	SILTY CLAY, olive brown (2.5 Y 4/3), moist, moderately stiff.
20.0	ML	SILT, minor clay, olive brown (2.5 Y 4/3), moist, very soft, low plasticity.
23.0	CL	CLAY, very dark gray (2.5 Y 3/1), dry, soft, medium plasticity, light brown streaking.
27.0	CL	CLAY, very dark gray (2.5 Y 3/1), dry, moderately stiff, medium plasticity.
29.0	CL	CLAY, black (GLEY 1 2.5/N), dry, moderately stiff, medium plasticity.
31.0	CL	SILTY CLAY, greenish gray (GLEY 1 5/10GY), dry, very soft, medium plasticity.
32.0	ML	SILT, olive gray (5Y 4/2), dry, very soft, medium plasticity.
33.0	SP	VERY FINE SAND, olive gray (5Y 4/2), dry.
34.0	CL	SILTY CLAY, olive gray (5Y 4/2), dry, soft, medium plasticity.
36.0	ML	SILT, olive gray (5Y 4/2), moist, iron-oxide staining.
40.0	CL	CLAY, dark greenish gray (GLEY 1 3/10GY), moist, soft, medium plasticity.

Bottom of borehole at 40.0 feet.

Woodard & Curran

WELL NUMBER L10-4

PAGE 1 OF 1

CLIENT Kimley-Horn and Associates

PROJECT NAME Norman Y. Mineta San Jose Int'l Airport Phase 2 Investigation

PROJECT NUMBER 0231401.07

PROJECT LOCATION 1701 Airport Blvd, San Jose, CA

DATE STARTED 01/31/2022 **COMPLETED** 01/31/2022

GROUND ELEVATION ___ **HOLE SIZE** 2.25

DRILLING CONTRACTOR Penecore Drilling

GROUND WATER LEVELS:

DRILLING METHOD GeoProbe

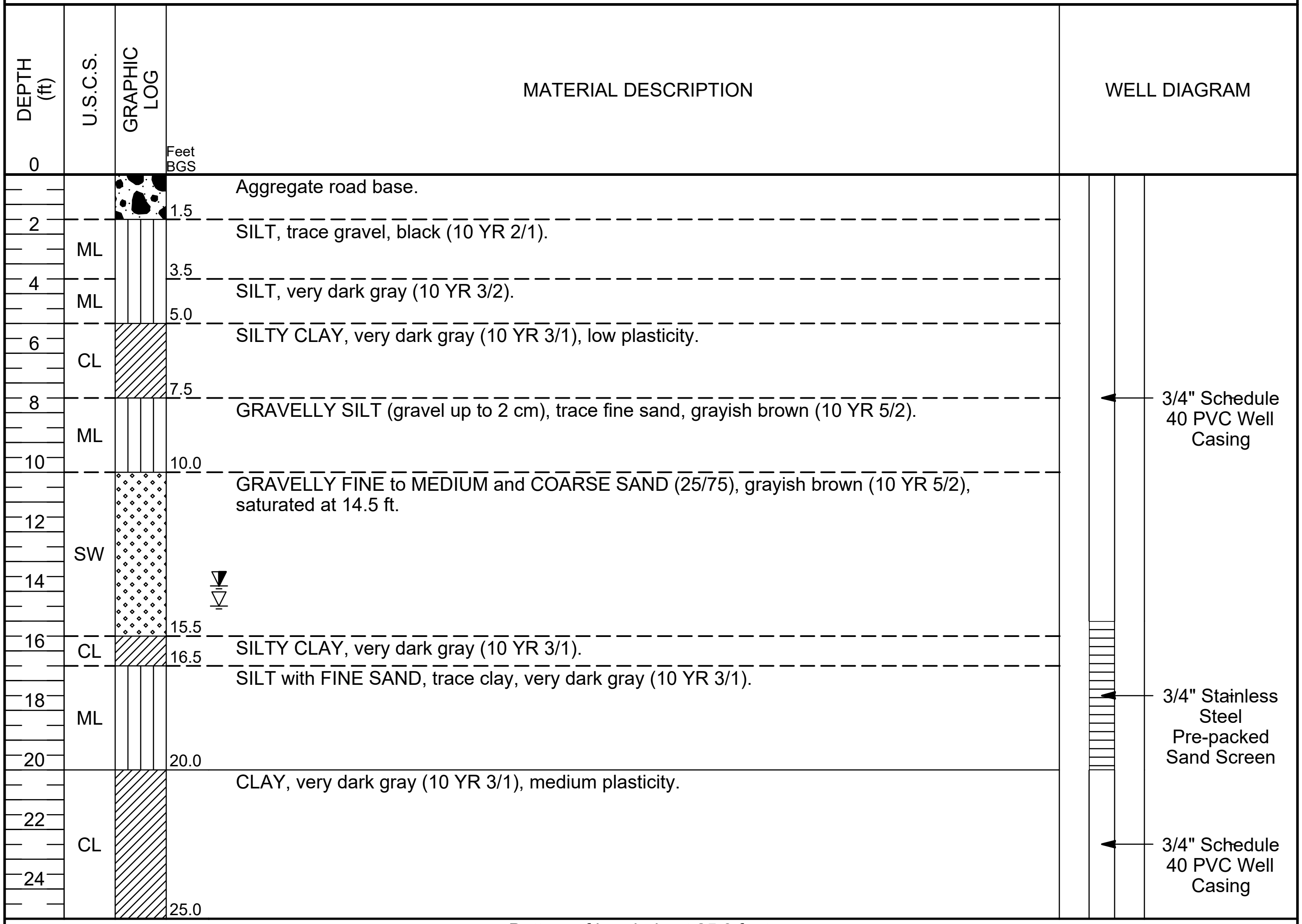
▽ **AT TIME OF DRILLING** 14.50 ft BGS

LOGGED BY Amber Ritchie **CHECKED BY** Jim Strandberg

AT END OF DRILLING ---

NOTES ___

▼ **AFTER DRILLING** 13.82 ft below TOC



U.S.C.S.	Feet BGS	MATERIAL DESCRIPTION
	1.5	Aggregate road base.
ML	3.5	SILT, trace gravel, black (10 YR 2/1).
ML	5.0	SILT, very dark gray (10 YR 3/2).
CL	7.5	SILTY CLAY, very dark gray (10 YR 3/1), low plasticity.
ML	10.0	GRAVELLY SILT (gravel up to 2 cm), trace fine sand, grayish brown (10 YR 5/2).
SW	15.5	GRAVELLY FINE to MEDIUM and COARSE SAND (25/75), grayish brown (10 YR 5/2), saturated at 14.5 ft.
CL	16.5	SILTY CLAY, very dark gray (10 YR 3/1).
ML	20.0	SILT with FINE SAND, trace clay, very dark gray (10 YR 3/1).
CL	25.0	CLAY, very dark gray (10 YR 3/1), medium plasticity.

Bottom of borehole at 25.0 feet.

WELL NUMBER L10-5

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Woodard & Curran

CLIENT Kimley-Horn and Associates

PROJECT NAME Norman Y. Mineta San Jose Int'l Airport Phase 2 Investigation

PROJECT NUMBER 0231401.07

PROJECT LOCATION 1701 Airport Blvd, San Jose, CA

DATE STARTED 01/31/2022 **COMPLETED** 01/31/2022

GROUND ELEVATION **HOLE SIZE** 2.25

DRILLING CONTRACTOR Penecore Drilling

GROUND WATER LEVELS:

DRILLING METHOD GeoProbe

AT TIME OF DRILLING ---

LOGGED BY Amber Ritchie **CHECKED BY** Jim Strandberg

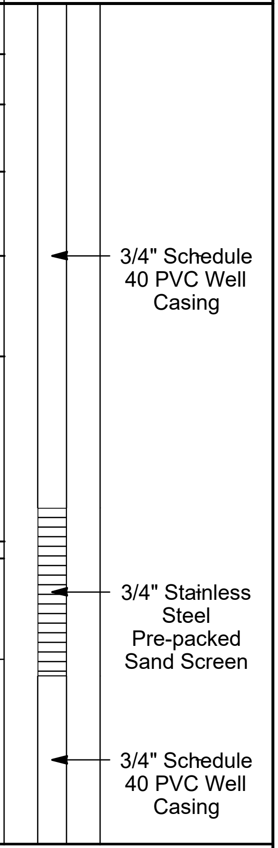
AT END OF DRILLING ---

NOTES

▽ **AFTER DRILLING** 13.46 ft below TOC

DEPTH (ft)	U.S.C.S.	Feet BGS	MATERIAL DESCRIPTION
0			Aggregate road base.
	ML	1.5	SILT, trace gravel, black (10 YR 2/1).
	ML	3.0	SILT, very dark gray (10 YR 3/2).
	CL	5.0	SILTY CLAY, very dark gray (10 YR 3/1).
	ML	7.5	GRAVELLY SILT, grayish brown (10 YR 5/2).
	SW	10.5	GRAVELLY FINE to MEDIUM SAND (20/80), grayish brown (10 YR 5/2). ▽
	CL	16.0	SILTY CLAY, very dark gray (10 YR 3/1).
	ML	16.5	SILT with VERY FINE SAND, trace clay, very dark gray (10 YR 3/1).
	CL	19.5	CLAY, black (10 YR 2/1), low to medium plasticity.
		25.0	

WELL DIAGRAM



Bottom of borehole at 25.0 feet.

WOODARD & CURRAN STANDARD - WC STD.GDT - 6/9/22 16:04 - \\WOODARDCURRAN.NET\SHARED\PROJECTS\0232401.07 KHA PFAS INVESTIGATION PHASE II\WIP\BORING LOGS\BORING LOGS.GPJ

Woodard & Curran

WELL NUMBER L10-6

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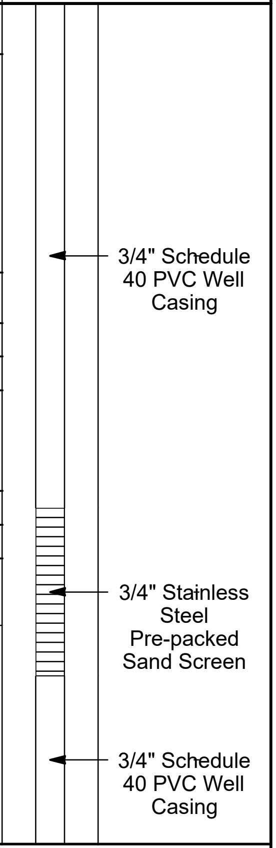
CLIENT	Kimley-Horn and Associates	**PROJECT NAME**	Norman Y. Mineta San Jose Int'l Airport Phase 2 Investigation
PROJECT NUMBER	0231401.07	**PROJECT LOCATION**	1701 Airport Blvd, San Jose, CA
DATE STARTED	01/31/2022	**COMPLETED**	01/31/2022
GROUND ELEVATION		**HOLE SIZE**	2.25
DRILLING CONTRACTOR	Penecore Drilling	**GROUND WATER LEVELS:**	
DRILLING METHOD	GeoProbe	▽ **AT TIME OF DRILLING**	15.00 ft BGS
LOGGED BY	Amber Ritchie	**CHECKED BY**	Jim Strandberg
		AT END OF DRILLING	---
NOTES		▼ **AFTER DRILLING**	12.80 ft below TOC

DEPTH (ft)	U.S.C.S.	Feet BGS	MATERIAL DESCRIPTION
0		1.5	Aggregate road base.
2	CL	8.0	SILTY CLAY, trace gravel (up to 3 cm), very dark gray (10 YR 3/1), very low plasticity.
8	ML	9.5	SILT, grayish brown (10 YR 5/2).
10	ML	10.5	SILT, trace gravel and fine sand, grayish brown (10 YR 5/2).
	SP	11.5	FINE SAND, trace gravel, dark gray (10 YR 4/1).
12	SW	14.5	GRAVELLY FINE to MEDIUM SAND (gravels 2 to 3 cm) (20/80), dark gray (10 YR 4/1). ▼
	SM	15.5	▽ SILTY FINE SAND, very dark gray (10 YR 3/1), saturated at 15'.
16	CL	16.5	SILTY CLAY, very dark gray (10 YR 3/1).
18	SP	18.5	VERY FINE SAND, very dark gray (10 YR 3/1).
20	CL	25.0	CLAY, black (2.5 Y 2.5/1).

WELL DIAGRAM



Bottom of borehole at 25.0 feet.

Woodard & Curran

WELL NUMBER L10-7

PAGE 1 OF 1

CLIENT Kimley-Horn and Associates

PROJECT NAME Norman Y. Mineta San Jose Int'l Airport Phase 2 Investigation

PROJECT NUMBER 0231401.07

PROJECT LOCATION 1701 Airport Blvd, San Jose, CA

DATE STARTED 12/08/2021 **COMPLETED** 12/08/2021

GROUND ELEVATION **HOLE SIZE** 2.25

DRILLING CONTRACTOR Penecore Drilling

GROUND WATER LEVELS:

DRILLING METHOD GeoProbe

AT TIME OF DRILLING ---

LOGGED BY Kevin Almestad **CHECKED BY** Amber Ritchie

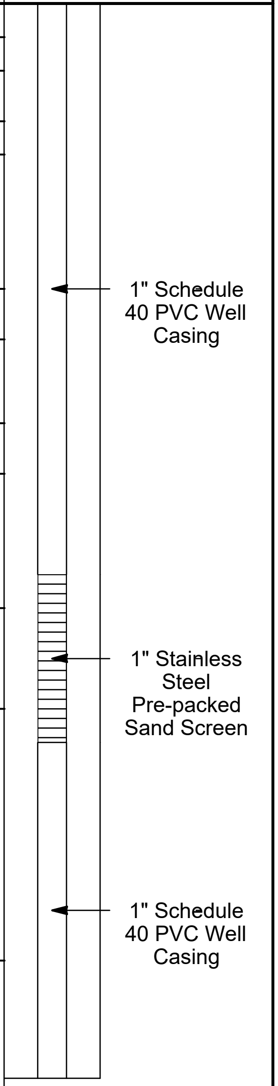
AT END OF DRILLING ---

NOTES Collapse 3' during temporary well construction.

▽ **AFTER DRILLING** 17.26 ft below TOC

U.S.C.S.	Feet BGS	MATERIAL DESCRIPTION
	1.0	Aggregate road base.
GW	2.0	Well-graded FINE SAND with GRAVEL (up to 2 in), trace silt and clay, very dark gray (10 YR 3/1), dry.
ML	3.5	CLAYEY SILT, trace gravel (up to 0.5"), very dark gray (10 YR 3/1), dry.
CL	4.5	CLAY, trace gravel (up to 0.5"), very dark gray (10 YR 3/1), dry, medium plasticity.
ML	8.5	CLAYEY SILT, very dark gray (10 YR 3/1), dry, medium plasticity.
ML	10.0	CLAYEY SILT, trace fine gravel, very dark gray (10 YR 3/1), dry, medium plasticity.
ML	12.5	SILT, trace clay, gray (10 YR 5/1), dry.
SP	14.0	VERY FINE SAND, gray (10 YR 5/1).
SP	▽ 18.0	VERY FINE SAND, trace gravel, brown (10 YR 4/3).
SM	21.0	VERY FINE SILTY SAND, gray (10 YR 5/1), wet.
CL	28.5	SILTY CLAY, very dark gray (10 YR 3/1), medium plasticity.
ML	32.5	CLAYEY SILT, dark greenish gray (GLEY 1 4/1), soft, low plasticity.
SM	35.0	SILTY SAND, trace clay, dark greenish gray (GLEY 1 3/1).

WELL DIAGRAM



Bottom of borehole at 35.0 feet.

Woodard & Curran

WELL NUMBER L10-8

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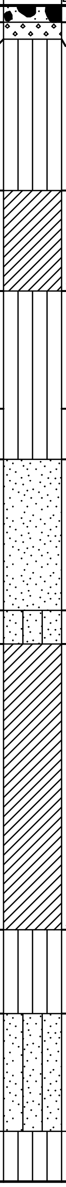
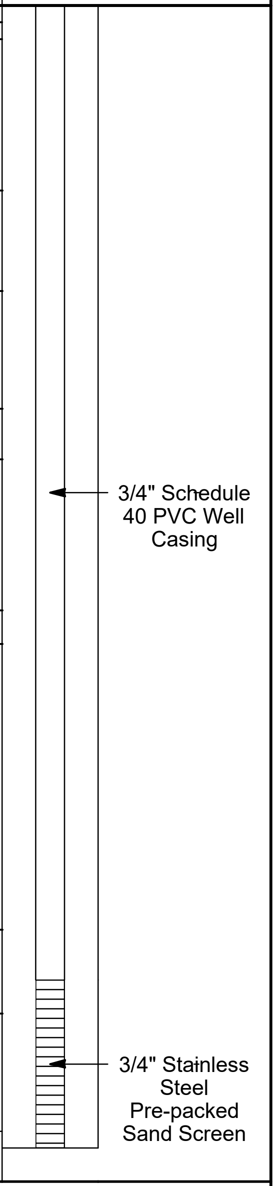
CLIENT Kimley-Horn and Associates
PROJECT NAME Norman Y. Mineta San Jose Int'l Airport Phase 2 Investigation
PROJECT NUMBER 0231401.07
PROJECT LOCATION 1701 Airport Blvd, San Jose, CA
DATE STARTED 12/08/2021 **COMPLETED** 12/08/2021
GROUND ELEVATION **HOLE SIZE** 2.25
DRILLING CONTRACTOR Penecore Drilling
GROUND WATER LEVELS:
DRILLING METHOD GeoProbe
▽ **AT TIME OF DRILLING** 18.00 ft BGS
LOGGED BY Amber Ritchie **CHECKED BY** Jim Strandberg
AT END OF DRILLING ---
NOTES Collapse 1' during temporary well construction.
▼ **AFTER DRILLING** 12.06 ft below TOC



U.S.C.S.	Feet BGS	MATERIAL DESCRIPTION
	0.5	Aggregate road base.
SW	1.0	Well-graded SAND with GRAVEL (up to 2 cm), brown (10 YR 4/3).
ML	5.5	CLAYEY SILT, trace gravel (up to 1 cm) very dark gray (10 YR 3/1).
CL	8.5	SILTY CLAY (20/80), very dark brown (10 YR 3/3), low plasticity.
ML	12.0 ▼	CLAYEY SILT (30/70), trace gravel (<1 cm), brown (10 YR 5/3).
ML	13.5	CLAYEY SILT (20/80), trace gravel , brown (10 YR 5/3).
SP	18.0 ▽	VERY FINE to FINE SAND, brown (10 YR 5/3).
SM	19.0	SILTY FINE SAND (30/70), dark grayish brown (10 YR 4/2), saturated at 18 ft.
CL	27.5	SILTY CLAY (30/70), dark brown (10 YR 3/3), medium plasticity.
ML	30.0	CLAYEY SILT (30/70), dark greenish gray (GLEY 1 4/1).
SM	33.5	SILTY VERY FINE SAND (40/60), dark greenish gray (GLEY 1 4/1).
ML	35.0	CLAYEY SILT (30/70), dark greenish gray (GLEY 1 4/1).



Bottom of borehole at 35.0 feet.

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Woodard & Curran

WELL NUMBER L3-4

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CLIENT Kimley-Horn and Associates

PROJECT NAME Norman Y. Mineta San Jose Int'l Airport Phase 2 Investigation

PROJECT NUMBER 0231401.07

PROJECT LOCATION 1701 Airport Blvd, San Jose, CA

DATE STARTED 12/09/2021 **COMPLETED** 12/09/2021

GROUND ELEVATION **HOLE SIZE** 2.25

DRILLING CONTRACTOR Penecore Drilling

GROUND WATER LEVELS:

DRILLING METHOD GeoProbe

▽ **AT TIME OF DRILLING** 20.00 ft BGS

LOGGED BY Amber Ritchie **CHECKED BY** Jim Strandberg

AT END OF DRILLING ---

NOTES

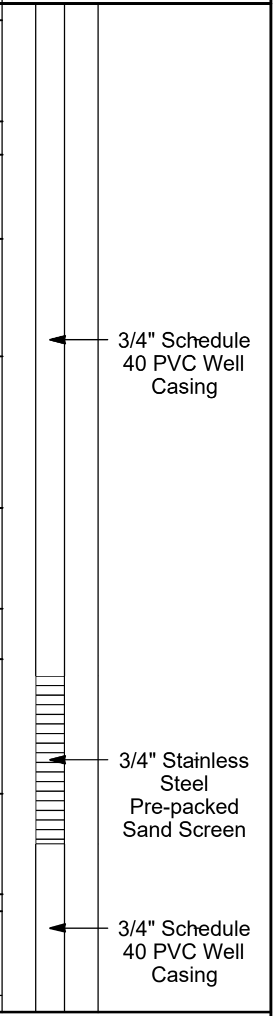
▼ **AFTER DRILLING** 11.72 ft below TOC

DEPTH (ft) | U.S.C.S. | GRAPHIC LOG | MATERIAL DESCRIPTION | WELL DIAGRAM

U.S.C.S.	Feet BGS	MATERIAL DESCRIPTION
	0.5	Asphalt.
ML	3.5	CLAYEY SILT with FINE SAND (10/20/30), very dark grayish brown (10 YR 3/2).
ML	4.5	SILT, brown (10 YR 4/3), trace gavel (< 1 cm).
ML	7.0	CLAYEY SILT (20/80), very dark grayish brown (10 YR 3/2).
CL	10.5	SILTY CLAY (20/80), very dark grayish brown (10 YR 3/2), medium plasticity.
ML	15.0	CLAYEY SILT (30/70), trace sand, dark grayish brown (10 YR 4/2). ▼
SM	18.0	SILTY VERY FINE to FINE SAND, dark grayish brown (10 YR 4/2).
SP	19.5	VERY FINE TO FINE SAND, brown (10 YR 4/3).
SP	23.5	▽ FINE SAND, brown (10 YR 4/3), saturated at 20 ft.
SW	26.5	Well-graded FINE, MEDIUM, COARSE SAND and GRAVEL (up to 1cm) (60/40), brown (10 YR 4/3).
CL	27.0	CLAY, very dark gray (10 YR 3/1), low plasticity.
SM	29.5	SILTY VERY FINE to FINE SAND (20/80), very dark gray (10 YR 3/1).
CL	30.0	SILTY CLAY, very dark gray (10 YR 3/1), low plasticity.

Bottom of borehole at 30.0 feet.

Casing Top Elev: 35.94 (ft)



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Woodard & Curran

WELL NUMBER L3-5

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CLIENT Kimley-Horn and Associates

PROJECT NAME Norman Y. Mineta San Jose Int'l Airport Phase 2 Investigation

PROJECT NUMBER 0231401.07

PROJECT LOCATION 1701 Airport Blvd, San Jose, CA

DATE STARTED 12/09/2021 **COMPLETED** 12/09/2021

GROUND ELEVATION **HOLE SIZE** 2.25

DRILLING CONTRACTOR Penecore Drilling

GROUND WATER LEVELS:

DRILLING METHOD GeoProbe

▽ **AT TIME OF DRILLING** 26.00 ft BGS

LOGGED BY Amber Ritchie **CHECKED BY** Jim Strandberg

AT END OF DRILLING ---

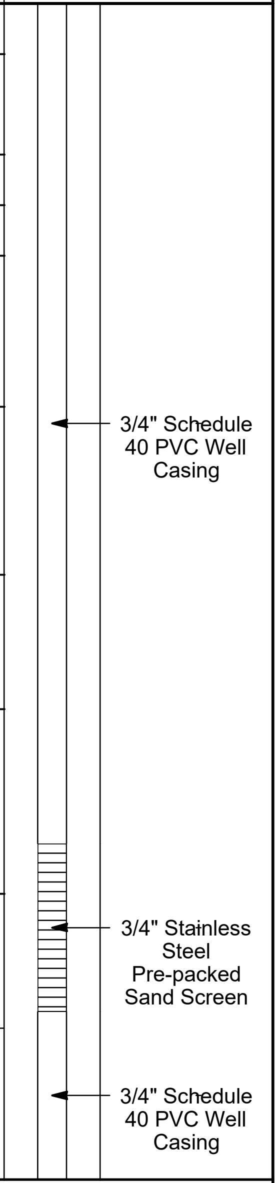
NOTES

▼ **AFTER DRILLING** 14.51 ft below TOC

DEPTH (ft)	U.S.C.S.	GRAPHIC LOG	Feet BGS	MATERIAL DESCRIPTION
0			1.5	Road base, vegetation.
	SM		4.5	SILTY FINE SAND (30/70), brown (10 YR 5/3), concretions at 4 ft.
	ML		6.0	FINE SANDY SILT (30/70), dark grayish brown (10 YR 4/2).
	SP		7.5	VERY FINE to FINE SAND, dark grayish brown (10 YR 4/2).
	CL		12.0	SILTY CLAY (30/70), dark gray (10 YR 3/1), low plasticity.
	CL		▼ 17.0	CLAY, very dark gray (10 YR 3/1), medium plasticity.
	ML		21.0	CLAYEY SILT (35/65), brown (10 YR 5/3).
	SM		▽ 26.5	SILTY VERY FINE SAND, trace clay, gray (10 YR 5/1), saturated at 26 ft.
	SP		30.5	FINE SAND, gray (10 YR 5/1).
	CL		35.0	SILTY CLAY (30/70), gray (10 YR 5/1), low plasticity.

WELL DIAGRAM

Casing Top Elev: 38.79 (ft)



Bottom of borehole at 35.0 feet.

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Woodard & Curran

WELL NUMBER L3-6

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CLIENT Kimley-Horn and Associates

PROJECT NAME Norman Y. Mineta San Jose Int'l Airport Phase 2 Investigation

PROJECT NUMBER 0231401.07

PROJECT LOCATION 1701 Airport Blvd, San Jose, CA

DATE STARTED 12/09/2021 **COMPLETED** 12/09/2021

GROUND ELEVATION

HOLE SIZE 2.25

DRILLING CONTRACTOR Penecore Drilling

GROUND WATER LEVELS:

DRILLING METHOD GeoProbe

▽ **AT TIME OF DRILLING** 19.00 ft BGS

LOGGED BY Amber Ritchie **CHECKED BY** Jim Strandberg

AT END OF DRILLING ---

NOTES

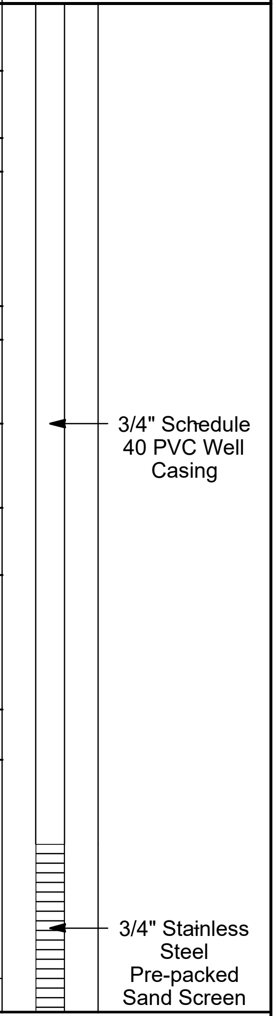
▼ **AFTER DRILLING** 13.35 ft below TOC

DEPTH (ft)	U.S.C.S.	Feet BGS	MATERIAL DESCRIPTION
0		2.0	Road base, vegetation.
2	SM	4.0	SILTY FINE SAND (30/70), brown (10 YR 5/3).
4	ML	5.0	SILT with FINE SAND (80/20), dark grayish brown (10 YR 4/2).
6		9.0	No recovery.
8			
10	ML	10.0	SANDY, CLAYEY SILT (10/20/70), dark brown (10 YR 3/3).
	CL	12.5	CLAY, dark brown (10 YR 3/3), low to medium plasticity.
12			
14	CL	15.0	▼ SILTY CLAY, trace gravel (<1 cm) (30/70), grayish brown (10 YR 5/2).
16	ML	17.0	FINE SANDY SILT (30/70), brown (10 YR 5/3), fine sand.
18	SP	21.0	FINE SAND, trace gravel (1-2 cm) brown (10 YT 5/3), saturated at 19 ft. ▽
20			
22	SW	22.5	Well-graded SAND with GRAVEL (80/20), gray (10 YR 5/1).
24	SP	29.0	FINE to MEDIUM SAND, gray (10 YR 5/1).
26			
28			
30	SW	30.0	Well-graded SAND and GRAVEL (1cm) (70/30).

Bottom of borehole at 30.0 feet.

WELL DIAGRAM

Casing Top Elev: 37.8 (ft)



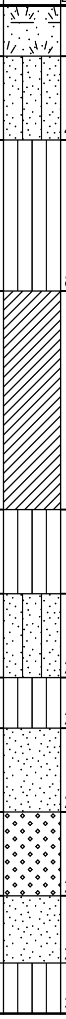
WELL NUMBER L3-7

Woodard & Curran

CLIENT Kimley-Horn and Associates
PROJECT NAME Norman Y. Mineta San Jose Int'l Airport Phase 2 Investigation
PROJECT NUMBER 0231401.07
PROJECT LOCATION 1701 Airport Blvd, San Jose, CA
DATE STARTED 12/09/2021 **COMPLETED** 12/09/2021
GROUND ELEVATION **HOLE SIZE** 2.25
DRILLING CONTRACTOR Penecore Drilling
GROUND WATER LEVELS:
DRILLING METHOD GeoProbe
▽ **AT TIME OF DRILLING** 22.00 ft BGS
LOGGED BY Amber Ritchie **CHECKED BY** Jim Strandberg
AT END OF DRILLING ---
NOTES
▼ **AFTER DRILLING** 12.71 ft below TOC

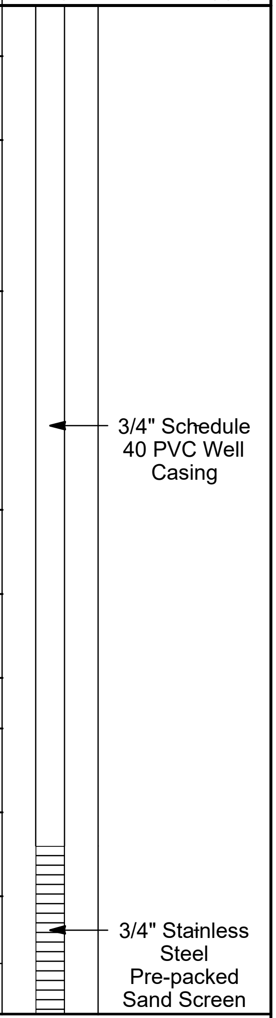
DEPTH (ft)	U.S.C.S.	Feet BGS	MATERIAL DESCRIPTION
0		1.5	Road base, vegetation.
	SM	4.0	SILTY FINE SAND (30/70), brown (10 YR 5/3), fine sand.
	ML	8.5	SANDY, CLAYEY SILT (10/10/80), brown (10 YR 5/3).
	CL	15.0	SILTY CLAY (20/80), very dark grayish brown (10 YR 3/2). ▼
	ML	17.5	CLAYEY SILT (30/70), brown (10 YR 5/3).
	SM	20.0	SILTY VERY FINE to FINE SAND (40/60), trace clay, brown (10 YR 5/3).
	ML	21.5	CLAYEY SILT (30/70), brown (10 YR 5/3).
	SP	24.0	▽ Poorly graded, FINE SAND, brown (10 YR 5/3), saturated at 22 ft.
	SW	26.5	Well-graded, MEDIUM to COARSE SAND with GRAVEL (70/30), brown (10 YR 5/3).
	SP	28.5	FINE to MEDIUM SAND, trace gravel, brown (10 YR 5/3).
30	ML	30.0	CLAYEY, FINE SANDY SILT (30/10/60), dark gray (10 YR 4/1).

GRAPHIC LOG



WELL DIAGRAM

Casing Top Elev: 37.51 (ft)



Bottom of borehole at 30.0 feet.

Woodard & Curran

WELL NUMBER L8/9-6

PAGE 1 OF 1

CLIENT Kimley-Horn and Associates

PROJECT NAME Norman Y. Mineta San Jose Int'l Airport Phase 2 Investigation

PROJECT NUMBER 0231401.07

PROJECT LOCATION 1701 Airport Blvd, San Jose, CA

DATE STARTED 12/07/2021 **COMPLETED** 12/07/2021

GROUND ELEVATION **HOLE SIZE** 2.25

DRILLING CONTRACTOR Penecore Drilling

GROUND WATER LEVELS:

DRILLING METHOD GeoProbe

▽ **AT TIME OF DRILLING** 30.00 ft BGS

LOGGED BY Amber Ritchie **CHECKED BY** Jim Strandberg

AT END OF DRILLING ---

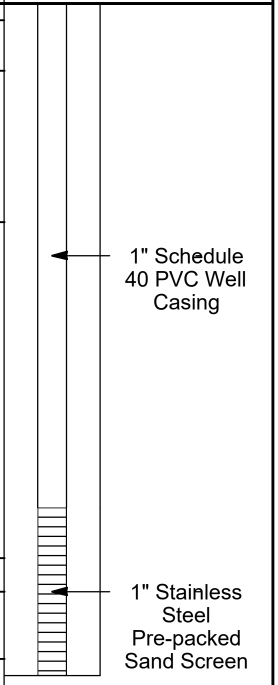
NOTES Collapsed 15' during temporary well construction.

▼ **AFTER DRILLING** 17.03 ft below TOC

DEPTH (ft)	U.S.C.S.	GRAPHIC LOG	Feet BGS	MATERIAL DESCRIPTION
0		●	0.5	Aggregate road base.
2	SM	░	2.0	SILTY FINE SAND, trace gravel (1 - 2 cm), very dark grayish brown (10 YR 3/2).
4, 6	CL	▨	6.5	SILTY CLAY (30/70), trace gravel (<2 cm), very dark grayish brown (10 YR 3/2), low plasticity.
8, 10, 12, 14, 16	SM	░	16.5	SILTY FINE SAND with GRAVEL (<1-5 cm) (20/60/20), (10 YR 4/3).
	CL	▨	17.5 ▼	SILTY CLAY (20/80), dark yellowish brown (10 YR 4/4), medium plasticity.
18	SP	░	19.5	VERY FINE to FINE SAND, dark gray (10 YR 4/1).
20, 22, 24, 26	CL	▨	28.0	CLAY, trace silt and fine sand, dark grayish brown (10 YR 3/2), medium plasticity.
28	SM	░	30.0 ▽	SILTY VERY FINE to FINE SAND (30/70), gray (10 YR 5/1).
30, 32	SM	░	33.0	SILTY VERY FINE to FINE SAND (20/80), brown (10 YR 4/4), saturated.
34	ML	▥	34.0	SILT with FINE SAND (70/30), brown (10 YR 4/4), fine sand.
	SP	░	35.0	VERY FINE to FINE SAND, brown (10 YR 4/4),.

Bottom of borehole at 35.0 feet.

WELL DIAGRAM

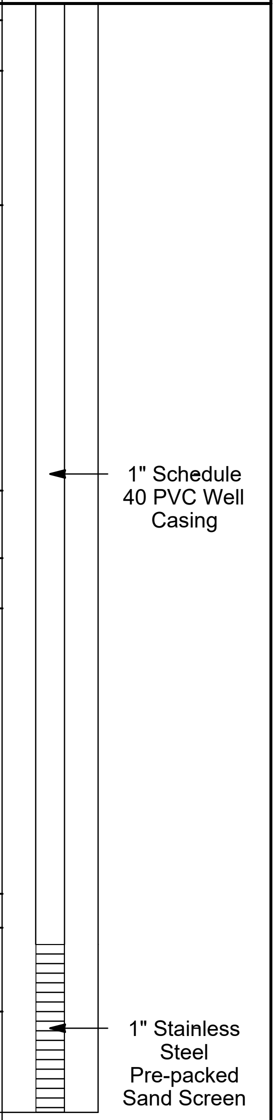


WELL NUMBER L8/9-7

CLIENT	Kimley-Horn and Associates	**PROJECT NAME**	Norman Y. Mineta San Jose Int'l Airport Phase 2 Investigation
PROJECT NUMBER	0231401.07	**PROJECT LOCATION**	1701 Airport Blvd, San Jose, CA
DATE STARTED	12/07/2021	**COMPLETED**	12/07/2021
GROUND ELEVATION		**HOLE SIZE**	2.25
DRILLING CONTRACTOR	Penecore Drilling	**GROUND WATER LEVELS:**	
DRILLING METHOD	GeoProbe	**AT TIME OF DRILLING**	---
LOGGED BY	Amber Ritchie	**CHECKED BY**	Jim Strandberg
AT END OF DRILLING	---		
NOTES	Collapsed 2' during temporary well construction.	⊻ **AFTER DRILLING**	20.92 ft below TOC

DEPTH (ft) / Feet BGS	U.S.C.S.	MATERIAL DESCRIPTION
0.5		Aggregate road base.
2.0	SM	SILTY FINE SAND with GRAVEL (1-3 cm) (70/10/20), very dark grayish brown (10 YR 3/2).
6.0	ML	SILT with CLAY and GRAVEL(70/10/20), very dark grayish brown (10 YR 3/2).
14.5	SW	VERY FINE to FINE SAND with GRAVEL (65/35), dark grayish brown (10 YR 4/2).
16.5	ML	FINE SANDY SILT (30/70), dark gray (10 YR 4/1).
18.0	SP	VERY FINE to FINE SAND, dark gray (10 YR 4/1).
26.5	CL	CLAY, very dark gray (10 YR 3/1), medium plasticity. ⊻
27.5	SM	SILTY FINE SAND with GRAVEL (1 cm), brown (10 YR 4/3).
30.0	SW	FINE to MEDIUM SAND with GRAVEL (1-2 cm) (80/20), brown (10 YR 4/3).
33.0	SP	FINE to MEDIUM SAND, trace gravel (up to 3 cm), brown (10 YR 4/3).
35.0		No recovery.

WELL DIAGRAM



Bottom of borehole at 35.0 feet.

Woodard & Curran

WELL NUMBER L8/9-8

PAGE 1 OF 1

CLIENT Kimley-Horn and Associates

PROJECT NAME Norman Y. Mineta San Jose Int'l Airport Phase 2 Investigation

PROJECT NUMBER 0231401.07

PROJECT LOCATION 1701 Airport Blvd, San Jose, CA

DATE STARTED 12/07/2021 **COMPLETED** 12/07/2021

GROUND ELEVATION

HOLE SIZE 2.25

DRILLING CONTRACTOR Penecore Drilling

GROUND WATER LEVELS:

DRILLING METHOD GeoProbe

∇ **AT TIME OF DRILLING** 30.00 ft BGS

LOGGED BY Amber Ritchie **CHECKED BY** Jim Strandberg

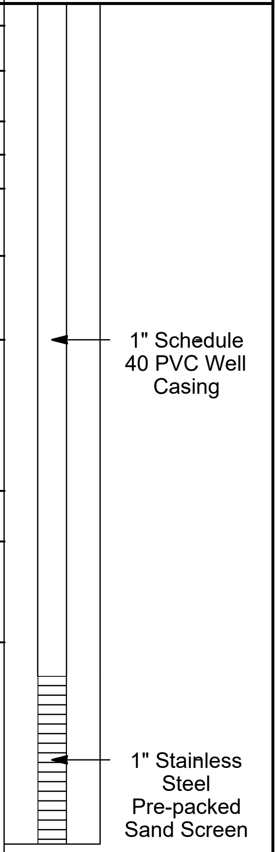
AT END OF DRILLING ---

NOTES Collapsed 10' during temporary well construction.

▼ **AFTER DRILLING** 19.32 ft below TOC

Feet BGS	U.S.C.S.	MATERIAL DESCRIPTION
0.7		Aggregate road base.
2.0	SW	Well-graded FINE SAND with GRAVEL (up to 3cm) (50/20), brown (10 YR 4/3).
3.5	ML	SILT with CLAY (80/20), trace gravel (up to 2 cm) very dark gray (10 YR 3/1).
4.5	CL	SILTY CLAY, very dark gray (10 YR 3/1), medium plasticity.
5.5	ML	SILT with FINE SAND and GRAVEL (<1 cm) (90/10/10), very dark gray (10 YR 3/1).
7.5	SM	SILTY FINE SAND with GRAVEL, (20/80/10), brown (10 YR 4/3).
10.0	SM	FINE SAND with SILT and GRAVEL (up to 3 cm), (70/10/20), brown (10 YR 5/3).
14.5	SW	FINE SAND with GRAVEL (75/25), brown (10 YR 5/3).
16.0	CL	CLAY, dark brown (10 YR 3/3), moist, medium plasticity.
19.0	SM	SILTY VERY FINE SAND (30/70), dark brown (10 YR 3/3), moist.
26.5	CL	▼ CLAY, black (10 YR 2/1), medium plasticity.
28.0	CL	SILTY CLAY (20/80), dark gray (5 YR 4/1).
28.5	ML	SILT with FINE SAND (70/30), dark yellowish brown (10 YR 4/4).
30.0	SM	SILTY FINE SAND with GRAVEL (up to 2 cm) (15/60/15), brown (10 YR 4/3).
32.0	SM	∇ SILTY FINE SAND (15/85), dark gray (10 YR 4/1), saturated.
35.0	SW	MEDIUM to COARSE SAND with GRAVEL (up to 3 cm) (60/40), dark gray (10 YR 4/1).

WELL DIAGRAM



Bottom of borehole at 35.0 feet.

Woodard & Curran

WELL NUMBER L8/9-9

PAGE 1 OF 1

CLIENT Kimley-Horn and Associates

PROJECT NAME Norman Y. Mineta San Jose Int'l Airport Phase 2 Investigation

PROJECT NUMBER 0231401.07

PROJECT LOCATION 1701 Airport Blvd, San Jose, CA

DATE STARTED 12/07/2021 **COMPLETED** 12/07/2021

GROUND ELEVATION **HOLE SIZE** 2.25

DRILLING CONTRACTOR Penecore Drilling

GROUND WATER LEVELS:

DRILLING METHOD GeoProbe

▽ **AT TIME OF DRILLING** 27.00 ft BGS

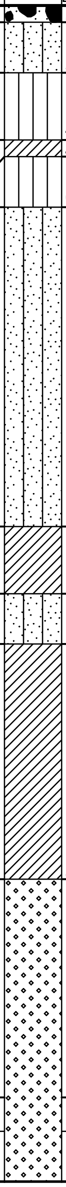
LOGGED BY Kevin Almestad **CHECKED BY** Amber Ritchie

AT END OF DRILLING ---

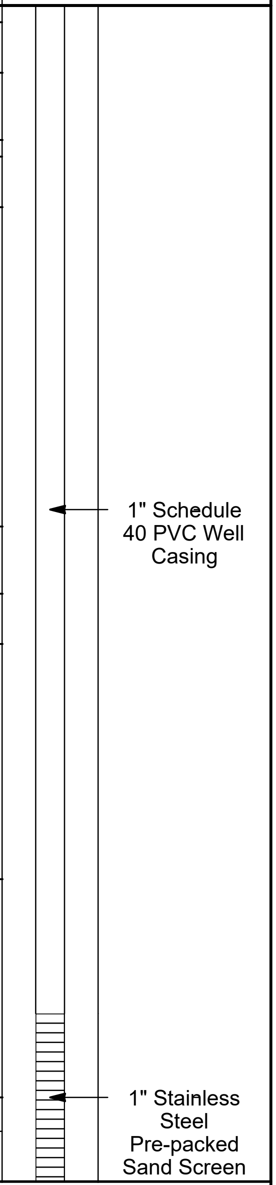
NOTES

▼ **AFTER DRILLING** 17.35 ft below TOC

DEPTH (ft)	U.S.C.S.	Feet BGS	MATERIAL DESCRIPTION
0 – 0.5		0.5	Aggregate road base.
0.5 – 2.0	SM	2.0	CLAYEY SILT (30/70), dark yellowish brown (10 YR 4/3).
2.0 – 4.0	ML	4.0	SILTY CLAY (30/70), dark yellowish brown (10 YR 3/4), dry, soft, low plasticity.
4.0 – 4.5	CL	4.5	SILTY, GRAVELLY CLAY (30/20/50), dark yellowish brown (10 YR 3/4).
4.5 – 6.0	ML	6.0	CLAYEY, GRAVELLY SILT (gravel up to 2-3 cm) (20/20/60), dark yellowish brown (10 YR 3/4).
6.0 – 15.5	SM	15.5	SILTY FINE SAND with GRAVEL (1-3 cm), trace coarse sand, brown (10 YR 5/3), dry.
15.5 – 17.5	CL	17.5 ▼	CLAY, very dark grayish brown (10 YR 3/2), medium plasticity.
17.5 – 19.0	SM	19.0	SILTY FINE to VERY FINE SAND (20/80), black (10 YR 2/1), moist.
19.0 – 26.0	CL	26.0	CLAY, black (10 YR 2/1), soft, medium plasticity.
26.0 – 32.5	SW	32.5	▽ Well-graded VERY FINE TO FINE SAND with GRAVEL (1-2.5 cm), brown (10 YR 4/3), saturated at 27 ft.
32.5 – 33.5	SW	33.5	FINE to MEDIUM SAND with GRAVEL (1-3 cm) (50/50), brown (10 YR 4/3), saturated.
33.5 – 35.0	SW	35.0	SANDY GRAVEL (<1 cm), brown (10 YR 4/3), saturated.



GRAPHIC LOG



WELL DIAGRAM

Bottom of borehole at 35.0 feet.

Woodard & Curran

WELL NUMBER UG-1

CLIENT Kimley-Horn and Associates

PROJECT NAME Norman Y. Mineta San Jose Int'l Airport Phase 2 Investigation

PROJECT NUMBER 0231401.07

PROJECT LOCATION 1701 Airport Blvd, San Jose, CA

DATE STARTED 12/10/2021 **COMPLETED** 12/10/2021

GROUND ELEVATION **HOLE SIZE** 2.25

DRILLING CONTRACTOR Penecore Drilling

GROUND WATER LEVELS:

DRILLING METHOD GeoProbe

AT TIME OF DRILLING ---

LOGGED BY Jim Strandberg **CHECKED BY** Amber Ritchie

AT END OF DRILLING ---

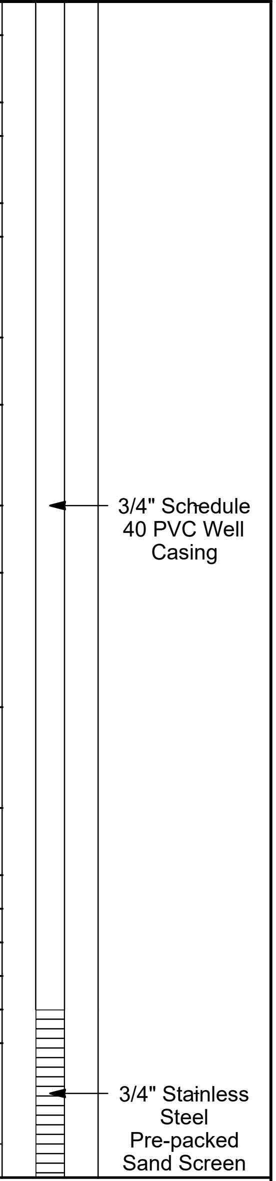
NOTES

▽ **AFTER DRILLING** 9.19 ft Feet below TOC

DEPTH (ft)	U.S.C.S.	Feet BGS	MATERIAL DESCRIPTION
0		1.0	Concrete.
2		3.0	Aggregate road base.
4	ML	4.0	CLAYEY SILT, black (5 Y 2.5/1).
6	CL	6.0	SILTY CLAY, very dark grayish brown (2.5 Y 3/2), dry, non-plastic, iron-oxide staining.
	CL	7.0	SILTY CLAY, very dark grayish brown (2.5 Y 3/2), dry, non-plastic.
8	CL	10.0	SILTY CLAY, very dark grayish brown (2.5 Y 3/2), dry, non-plastic, iron-oxide staining. ▽
10	CL	12.0	SILTY CLAY, very dark grayish brown (2.5 Y 3/2), low plasticity.
12	CL	15.0	CLAY, very dark grayish brown (2.5 Y 3/2), moist, medium plasticity, iron-oxide staining.
16	CL	17.0	SILTY CLAY, very dark grayish brown (2.5 Y 3/2), low plasticity, iron-oxide staining.
18	CL	21.0	CLAY, light olive brown (2.5 Y 5/4), low plasticity.
22	CL	24.0	CLAY, trace gravel (up to 1.5cm), light olive brown (2.5 Y 5/4), soft.
24	CL	26.0	SILTY CLAY, light olive brown (2.5 Y 5/4), low plasticity.
26	ML	27.0	SANDY SILT, trace gravel, light olive brown (2.5 Y 5/4).
28	SM	28.0	FINE TO MEDIUM SAND with SILT, trace gravel (<2.5 cm) light olive brown (2.5 Y 5/4), wet.
	ML	29.0	SILT with CLAY, moist, iron-oxide staining.
30	GW	30.0	SANDY GRAVEL (up to 2 cm), light olive brown (2.5 Y 5/4).
	GW	31.0	SANDY GRAVEL (up to 3.5 cm), very dark gray (10 YR 3/1).
32	CL	34.0	SILTY CLAY, dark brown (10 YR 3/3), low plasticity.
34	CL	35.0	SILTY CLAY, dark greenish gray (GLEY 1 4/10GY).

Bottom of borehole at 35.0 feet.

WELL DIAGRAM



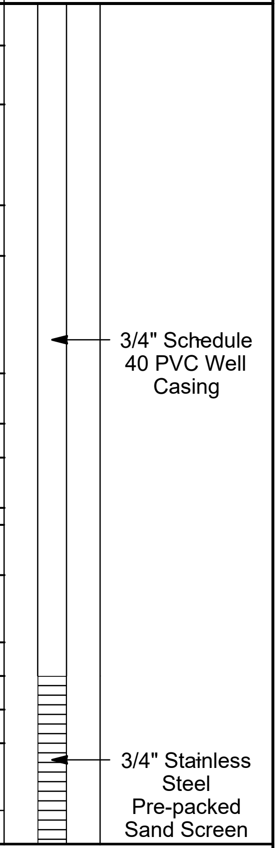
Woodard & Curran

WELL NUMBER UG-2

PAGE 1 OF 1

CLIENT Kimley-Horn and Associates
PROJECT NAME Norman Y. Mineta San Jose Int'l Airport Phase 2 Investigation
PROJECT NUMBER 0231401.07
PROJECT LOCATION 1701 Airport Blvd, San Jose, CA
DATE STARTED 12/10/2021 **COMPLETED** 12/10/2021
GROUND ELEVATION **HOLE SIZE** 2.25
DRILLING CONTRACTOR Penecore Drilling
GROUND WATER LEVELS:
DRILLING METHOD GeoProbe
▽ **AT TIME OF DRILLING** 25.00 ft BGS
LOGGED BY Kevin Almestad **CHECKED BY** Amber Ritchie
AT END OF DRILLING ---
NOTES
▼ **AFTER DRILLING** 10.60 ft below TOC

DEPTH (ft) / Feet BGS	U.S.C.S.	MATERIAL DESCRIPTION
1.3		Concrete.
3.0		Aggregate Road Base.
6.0	ML	SILT, trace clay, black (10 YR 2/1), dry.
7.5	ML	SILT, trace clay, gray (7.5 YR 6/1), iron-oxide staining.
11.0 ▼	CL	SILTY CLAY, very dark gray (10 YR 3/1), dry, low plasticity.
12.5	CL	CLAY, very dark grayish brown (10 YR 3/2), soft, medium plasticity.
13.5	ML	CLAYEY SILT, very dark grayish brown (10 YR 3/2), very soft, low plasticity.
15.0	SM	SILTY FINE SAND, very dark grayish brown (10 YR 3/2), moist.
15.5	GW	SANDY GRAVEL (up to 3 cm), olive gray (5 Y 4/2), wet.
17.0	GM	SANDY GRAVEL (up to 3 cm), trace silt and clay, olive gray (5 Y 4/2), wet.
19.0	ML	CLAYEY SILT, olive gray (5 Y 4/2), wet, iron-oxide staining.
20.0	ML	SILT, trace clay, fine sand, and gravel, olive gray (5 Y 4/2).
21.0	GW	Well-graded, GRAVELLY SAND with SILT (gravel up to 1 cm), olive gray (5 Y 4/2).
22.0	GW	Well-graded, GRAVELLY SAND with SILT (gravel up to 3 cm), olive gray (5 Y 4/2).
24.0	ML	CLAYEY SILT, trave gravel (up to 1 cm), olive gray (5 Y 4/2).
25.0 ▽	ML	CLAYEY SILT, trave gravel (up to 1 cm), olive gray (5 Y 4/2), saturated.



Bottom of borehole at 25.0 feet.

Woodard & Curran

BORING NUMBER UG-3

CLIENT Kimley-Horn and Associates

PROJECT NAME Norman Y. Mineta San Jose Int'l Airport Phase 2 Investigation

PROJECT NUMBER 0231401.07

PROJECT LOCATION 1701 Airport Blvd, San Jose, CA

DATE STARTED 12/10/2021 **COMPLETED** 12/10/2021

GROUND ELEVATION **HOLE SIZE** 2.25

DRILLING CONTRACTOR Penecore Drilling

GROUND WATER LEVELS:

DRILLING METHOD GeoProbe

AT TIME OF DRILLING ---

LOGGED BY Jim Strandberg **CHECKED BY** Amber Ritchie

AT END OF DRILLING ---

NOTES

AFTER DRILLING ---

DEPTH (ft)	U.S.C.S.	GRAPHIC LOG	Feet BGS	MATERIAL DESCRIPTION
0			0.8	Concrete.
			1.5	Aggregate road base.
2	CL	▨	4.0	SILTY CLAY, very dark grayish brown (10 YR 3/2), non-plastic.
4	CL	▨	6.0	SILTY CLAY, very dark grayish brown (10 YR 3/2), low plasticity, iron-oxide staining.
6	CL	▨	10.0	SILTY CLAY, olive black (7.5 Y 3/1), dry, stiff, non-plastic.
10	CL	▨	14.0	SILTY CLAY, dark gray (2.5 Y 4/1), low plasticity.
14	CL	▨	16.0	SILTY CLAY, olive (5 Y 4/3), medium plasticity.
16	CL-ML	▥	20.0	SILT AND CLAY, olive (5 Y 4/3), medium plasticity.
20	CL	▨	27.0	CLAY, olive (5 Y 4/3), moist.
28	ML	▥	30.0	SILT with CLAY, very dark grayish brown (10 YR 3/2), moist, non-plastic.
30	CL	▨	37.5	SILTY CLAY, very dark grayish brown (10 YR 3/2), moist, low plasticity.
38	CL-ML	▥	39.0	SILT with CLAY, trace fine sand and gravel (up to 1 cm), very dark grayish brown (10 YR 3/2), moist, non-plastic.
40	CL	▨	45.0	SILTY CLAY, very dark grayish brown (10 YR 3/2), moist, low plasticity.

Bottom of borehole at 45.0 feet.

APPENDIX C: FIELD WATER QUALITY SAMPLING FORMS

LOW FLOW GROUNDWATER MONITORING WELL SAMPLING FORM

Well ID: UG-1
Depth to Water: 9.19 (ft)
Total Depth: 35' (ft)
Well Diameter: 3/4 (inches)
Length of Water Column: (ft)
Well Volume: (gals)

Date: 12/10/2021
Project #: 232401.07
Measuring Point: TOC
Personnel:
Weather:
Additional Notes: TOC is 0.375 ft below TOC

Well Volume Factors (gallons/foot of water in well): 0.75-inch (0.023), 1-inch (0.041), 1.5-inch (0.092), 2-inch (0.163), 4-inch (0.653)

Start 12:28

Parameter Monitoring Results

Time	Vol. Purged (units:)	D.T.W. (feet)	Temp. (oF / oC)	Sp. Cond (us/cm)	D.O. (mg/l)	pH	Orp (mV)	Turb. (NTUs)
1233	0.5	~~20.4~~	20.2	1,924	0.95	6.55	-339.2	789.7
1236	1	/	20.1	1,931	0.70	6.55	-388.4	684.1
1239	1.5	/	20.1	1,933	0.61	6.56	-422.9	330.1
1241	2	/	20.0	1,930	0.53	6.56	-429.4	233.7
			~~19.9~~ KA		~~0.62~~ KA			
1244	2.5	/	19.9	1,936	0.51	6.56	-414.1	245.4
1247	3	/	19.9	1,929	0.50	6.56	-403.1	180.7
1250	3.5	/	19.9	1,929	0.49	6.56	-404.4	186.7
1253	4	/	19.8	1,924	0.47	6.56	-375.6	54.6
1256	4.5	/	19.7	1,924	0.46	6.56	-370.0	57.5
~~1259~~	~~5~~	~~/~~	~~19.7~~	~~1,927~~	~~0.46~~	~~6.56~~	~~-338.2~~	KA
1259	5	/	19.7		0.46	6.56	-357.6	85.4

Comments:
Sharpie from vest may have fallen down borehole annulus, Turbid to clear

Note: Sampling Method, Sample Interval, Recharge Conditions, Color, Odor, Sediment Content, etc.

Sample Parameters:

Time:	Parameters	Dup. (y/n)	Container Type	Quantity	Preservative
1335	PFAS	N	poly	2	/

Note sample time, parameters, duplicates, field blanks, etc.

**WOODARD
&CURRAN**

**2175 N California Blvd,
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Walnut Creek, CA 94596
Ph: 925.627.4100
F 925.627.4101**

LOW FLOW GROUNDWATER MONITORING WELL SAMPLING FORM

Well ID: UG-2
Depth to Water: 10.60 (ft)
Total Depth: 25' (ft)
Well Diameter: 3/4 (inches)
Length of Water Column: (ft)
Well Volume: (gals)

Date: 12/10/2021
Project #: 232401.07
Measuring Point: TOC
Personnel: KA/JS
Weather: clear, 55°
Additional Notes: TOC 0.17 ft below GS (N)

Well Volume Factors (gallons/foot of water in well): 0.75-inch (0.023), 1-inch (0.041), 1.5-inch (0.092), 2-inch (0.163), 4-inch (0.653)

start 1057

Parameter Monitoring Results

Time	Vol. Purged (units: Liter)	D.T.W. (feet)	Temp. (oF / oC)	Sp. Cond (us/cm)	D.O. (mg/l)	pH	Orp (mV)	Turb. (NTUs)
1103	1	/	20.0	1,724	1.07	6.60	-458.2	780.3
1106	1.5	/	20.2	1,749	0.64	6.57	-473.2	552.3
1109	2	/	20.4	1,753	0.60	6.57	-470.8	464.4
1112	2.5	/	20.3	1,752	0.57	6.57	-473.1	408.0
1115	3	/	20.4	1,751	0.55	6.58	-463.1	392.9
1118	3.5		20.3	1,749	0.49	6.58	-462.1	311.9
1121	4							

Comments:
Turbid start, clear @ 1109. turbidity rising, collecting sample. Duplicate collected (UG-20-GW).

Note: Sampling Method, Sample Interval, Recharge Conditions, Color, Odor, Sediment Content, etc.

Sample Parameters:

Time:	Parameters	Dup. (y/n)	Container Type	Quantity	Preservative
1130	PFAS	Y	poly	2	/

Note sample time, parameters, duplicates, field blanks, etc.

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LOW FLOW GROUNDWATER MONITORING WELL SAMPLING FORM

Well ID: L3-4
Depth to Water: 11.72 (ft)
Total Depth: 30' (screen ~~(ft)~~ 25-30')
Well Diameter: 3/4 (inches)
Length of Water Column: (ft)
Well Volume: (gals)

Date: 12/9/2021
Project #: 232401.07
Measuring Point: TOC
Personnel: WA/AR
Weather: overcast, 50°
Additional Notes:

Well Volume Factors (gallons/foot of water in well): 0.75-inch (0.023), 1-inch (0.041), 1.5-inch (0.092), 2-inch (0.163), 4-inch (0.653)

1542 start

Parameter Monitoring Results

Emptied flow cell

Time	Vol. Purged (units:)	D.T.W. (feet)	Temp. (oF / oC)	Sp. Cond (us/cm)	D.O. (mg/l)	pH	Orp (mV)	Turb. (NTUs)
1545	0.5	/	21.2	1,255	0.93	6.94	-425.9	1,330.1
1548	1	/	21.2	1,257	0.71	6.93	-433.1	1,302.1
1551	1.5	/	21.2	1,257	0.57	6.93	-381.5	950.5
1554	2	/	21.0	1,256	0.53	6.94	-419.5	913.8
1557	2.5	/	20.8	1,260	0.52	6.93	-405.6	982.1
1600	3	/	20.9	1,258	0.50	6.93	-425.3	948.1
1603	3.5	/	20.9	1,256	0.47	6.93	-429.7	855.4
1606	4	/	20.8	1,257	0.46	6.94	-426.3	883.5
1609	4.5	/	20.9	1,255	0.45	6.94	-428.1	905.2
1612	5	/	20.9	1,254	0.46	6.94	-421.8	923.3

Comments:
Emptied flow cell @ 1554. sample turbid.

Note: Sampling Method, Sample Interval, Recharge Conditions, Color, Odor, Sediment Content, etc.

Sample Parameters:

Time:	Parameters	Dup. (y/n)	Container Type	Quantity	Preservative
1615	PFAS	N	poly	2	/

Note sample time, parameters, duplicates, field blanks, etc.

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LOW FLOW GROUNDWATER MONITORING WELL SAMPLING FORM

Well ID: L3-5
Depth to Water: 14.51 (ft) 14.55 end
Total Depth: 35 (screen (ft) 25-30)
Well Diameter: 3/4 (inches)
Length of Water Column: (ft)
Well Volume: (gals)

Date: 12/9/2021
Project #: 232401.07
Measuring Point: TOC
Personnel: KA/AR
Weather: Sunny 55-60°
Additional Notes: TOC 0.1 ft below GS (north)

Well Volume Factors (gallons/foot of water in well): 0.75-inch (0.023), 1-inch (0.041), 1.5-inch (0.092), 2-inch (0.163), 4-inch (0.653)

Parameter Monitoring Results

Time	Vol. Purged (units: Liter)	D.T.W. (feet)	Temp. (oF / oC)	Sp. Cond (us/cm)	D.O. (mg/l)	pH	Orp (mV)	Turb. (NTUs)
1255	1	/	20.8	1,200	1.29	7.21	-388.9	84.4
1258	1.5	/	20.8	1,217	0.77	7.17	-428.2	42.8
1301	2	/	20.9	1,210	0.63	7.16	-436.9	36.1
1304	2.5	/	20.8	1,216	0.57	7.16	-447.9	50.8

Comments:
sample clear/low turbidity. Clear @ beginning of pumping.

Note: Sampling Method, Sample Interval, Recharge Conditions, Color, Odor, Sediment Content, etc.

Sample Parameters:

Time:	Parameters	Dup. (y/n)	Container Type	Quantity	Preservative
1310	PFAS	N	poly	2	/

Note sample time, parameters, duplicates, field blanks, etc.

WOODARD & CURRAN

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Suite 315
Walnut Creek, CA 94596
Ph: 925.627.4100
F 925.627.4101**

LOW FLOW GROUNDWATER MONITORING WELL SAMPLING FORM

Well ID: L3-6

Depth to Water: 13.35 (ft) 13.30 end

Total Depth: 30' (screen ~~(ft)~~ 25-30)

Well Diameter: 3/4 (inches)

Length of Water Column: (ft)

Well Volume: (gals)

Date: 12/9/2021

Project #: 232401.07

Measuring Point: TOC

Personnel: MA/AR

Weather: sunny, 65°

Additional Notes: TOC 0.77' ft above GS (N)

Well Volume Factors (gallons/foot of water in well): 0.75-inch (0.023), 1-inch (0.041), 1.5-inch (0.092), 2-inch (0.163), 4-inch (0.653)

start 1415

Parameter Monitoring Results

Time	Vol. Purged (units: Liter)	D.T.W. (feet)	Temp. (oF / oC)	Sp. Cond (us/cm)	D.O. (mg/l)	pH	Orp (mV)	Turb. (NTUs)
1421	1	/	21.6	1,308	0.72	7.09	-388.4	974.6
1424	1.5	/	21.5	1,305	0.57	7.07	-393.4	570.1
1427	2	/	21.7	1,304	0.55	7.07	-386.0	550.1
1430	2.5	/	21.6	1,303	0.52	7.07	-370.7	502.8
1433	3	/	21.6	1,304	0.50	7.07	-356.0	475.2
143~~6~~9	~~3.5~~ 4	/	21.1	1,302	0.49	7.07	-3563	330.5
1442	4.5	/	21.1	1,300	0.50	7.07	-348.1	240.9
1445	5	/	21.1	1,300	0.47	7.07	-346.8	184.1

Comments:

Turbity rising ~~a~~, started sample. Sample clear.

Note: Sampling Method, Sample Interval, Recharge Conditions, Color, Odor, Sediment Content, etc.

Sample Parameters:

Time:	Parameters	Dup. (y/n)	Container Type	Quantity	Preservative
1455	PFAS	N	poly	2	/

Note sample time, parameters, duplicates, field blanks, etc.

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Ph: 925.627.4100
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LOW FLOW GROUNDWATER MONITORING WELL SAMPLING FORM

Well ID: L3 - 7

Depth to Water: 12.71 (ft) End 13.02

Total Depth: 30' (screen 28-30') (ft)

Well Diameter: 3/4 (inches)

Length of Water Column: (ft)

Well Volume: (gals)

Date: 12/9/2021

Project #: 232401.07

Measuring Point: TOC

Personnel: KA/AR

Weather: Sunny, 50-55°

Additional Notes: TOC ~~[illegible]~~ ft above GS 0.1[illegible]

Well Volume Factors (gallons/foot of water in well): 0.75-inch (0.023), 1-inch (0.041), 1.5-inch (0.092), 2-inch (0.163), 4-inch (0.653)

Parameter Monitoring Results

Time	Vol. Purged (units: Liter)	D.T.W. (feet)	Temp. (oF / oC)	Sp. Cond (us/cm)	D.O. (mg/l)	pH	Orp (mV)	Turb. (NTUs)
1101	~~[illegible]~~ 1.5	/	19.4	1,335	0.76	7.08	-89.6	613.7
1104	2	/	19.7	1,340	0.60	7.08	-143.0	540.1
1107	2.5	/	19.8	1,341	0.52	7.08	-195.3	527.0
1110	3	/	20.0	1,344	0.49	7.07	-255.3	339.4
				~~[illegible]~~	~~[illegible]~~	~~[illegible]~~	-~~[illegible]~~1	

Comments: ~~Collected sample pre-purge.~~ Slightly turbid. Duplicate collected (L3-70-GW). Turbidity rising so collected sample

Note: Sampling Method, Sample Interval, Recharge Conditions, Color, Odor, Sediment Content, etc.

Sample Parameters:

Time:	Parameters	Dup. (y/n)	Container Type	Quantity	Preservative
~~1100~~ 1123	PFAS	Y	poly	2	/

Note sample time, parameters, duplicates, field blanks, etc.

EB-2-120921 @ 1030
FB-4-120921 @ 1125

WOODARD &CURRAN

2175 N California Blvd,
Suite 315
Walnut Creek, CA 94596
Ph: 925.627.4100
F 925.627.4101

LOW FLOW GROUNDWATER MONITORING WELL SAMPLING FORM

Well ID: L8/9-6
Depth to Water: 17.03 (ft)
Total Depth: 20' (ft)
Well Diameter: 1 (inches)
Length of Water Column: (ft)
Well Volume: (gals)

Date: 12/8/2021
Project #: 232401.07
Measuring Point: TOC
Personnel: KA/AR
Weather: Overcast, 50°-55°
Additional Notes: Stick up @ ~~[illegible]~~ 0.75 ft

Well Volume Factors (gallons/foot of water in well): 0.75-inch (0.023), 1-inch (0.041), 1.5-inch (0.092), 2-inch (0.163), 4-inch (0.653)

Parameter Monitoring Results

Time	Vol. Purged (units:)	D.T.W. (feet)	Temp. (oF / oC)	Sp. Cond (us/cm)	D.O. (mg/l)	pH	Orp (mV)	Turb. (NTUs)

Comments:
17.03 on 12/8/21 @ 0832. Dry after sampling.

Note: Sampling Method, Sample Interval, Recharge Conditions, Color, Odor, Sediment Content, etc.

Sample Parameters:

Time:	Parameters	Dup. (y/n)	Container Type	Quantity	Preservative
0945	PFAS	N	poly	2	/

Note sample time, parameters, duplicates, field blanks, etc.

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F 925.627.4101

LOW FLOW GROUNDWATER MONITORING WELL SAMPLING FORM

Well ID: L8/9-7
Depth to Water: 20.92' (ft)
Total Depth: 33' (ft)
Well Diameter: 1 (inches)
Length of Water Column: (ft)
Well Volume: (gals)

Date: 12/07/2021
Project #: 232401.07
Measuring Point: TOC
Personnel: KA
Weather: overcast, 55°-60°
Additional Notes:

Well Volume Factors (gallons/foot of water in well): 0.75-inch (0.023), 1-inch (0.041), 1.5-inch (0.092), 2-inch (0.163), 4-inch (0.653)

Start 1556

Parameter Monitoring Results

Time	Vol. Purged (units:)	D.T.W. (feet)	Temp. (oF / oC)	Sp. Cond (us/cm)	D.O. (mg/l)	pH	Orp (mV)	Turb. (NTUs)
1600	0.8	Dry (25')	20.00	1,017	0.53	7.00	-331.1	1,790
		Dry @ 1600						

Comments:
Purge at ~180 ml/min. ~~Sample collected at 8:30, dry after first bottle, letting recharge.~~
Sample & duplicate collected (L8/9-70-GW).
14.78' DTW on 12/8/2021 @ 8:24

Note: Sampling Method, Sample Interval, Recharge Conditions, Color, Odor, Sediment Content, etc.

Sample Parameters:

Time:	Parameters	Dup. (y/n)	Container Type	Quantity	Preservative
0910	PFAS	Y	poly	2	/

Note sample time, parameters, duplicates, field blanks, etc.

L8/9-6 DTW @ 16.95'

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Walnut Creek, CA 94596
Ph: 925.627.4100
F 925.627.4101

LOW FLOW GROUNDWATER MONITORING WELL SAMPLING FORM

Well ID: L8/9-8
Depth to Water: 19.32' (ft)
Total Depth: 35' (ft)
Well Diameter: 1 inch (inches)
Length of Water Column: (ft)
Well Volume: (gals)

Date: 12/7/2021
Project #: 232401.07
Measuring Point: TOC
Personnel: KA
Weather: overcast, 55°-60°
Additional Notes: ~~[illegible]~~ Rising water level. 0.23 Ft above TOC

Well Volume Factors (gallons/foot of water in well): 0.75-inch (0.023), 1-inch (0.041), 1.5-inch (0.092), 2-inch (0.163), 4-inch (0.653)

start purge @ 1510

Parameter Monitoring Results

Time	Vol. Purged (units: Liter)	D.T.W. (feet)	Temp. (oF / oC)	Sp. Cond (us/cm)	D.O. (mg/l)	pH	Orp (mV)	Turb. (NTUs)
1515	1	28.7	20.5	1,026	0.67	~~47~~ 6.69	-479.6	641.7
		Dry @ 1516						

Comments:
19.47' @ 812 on 12/8/2021. Sample collected @ 0830, went dry after 1 bottle, letting recharge

Note: Sampling Method, Sample Interval, Recharge Conditions, Color, Odor, Sediment Content, etc.

Sample Parameters:

Time:	Parameters	Dup. (y/n)	Container Type	Quantity	Preservative
1030	PFAS	N	poly	2	/

Note sample time, parameters, duplicates, field blanks, etc.

collected FB-3-120821 @ 1040

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F 925.627.4101

LOW FLOW GROUNDWATER MONITORING WELL SAMPLING FORM

Well ID: L4/9-9
Depth to Water: 17.35' (ft)
Total Depth: 35' (ft)
Well Diameter: 1" (inches)
Length of Water Column: (ft)
Well Volume: (gals)

Date: 12/7/2021
Project #: 232401.07
Measuring Point: TOC
Personnel: KA/A
Weather: overcast, 55°-60°
Additional Notes: water level dropping. TOC 0.25' above GS.

Well Volume Factors (gallons/foot of water in well): 0.75-inch (0.023), 1-inch (0.041), 1.5-inch (0.092), 2-inch (0.163), 4-inch (0.653)

start @ 1400

Parameter Monitoring Results

Time	Vol. Purged (units: Liter)	D.T.W. (feet)	Temp. (oF / oC)	Sp. Cond (µs/cm)	D.O. (mg/l)	pH	Orp (mV)	Turb. (NTUs)
1405	KA 1	22.65	19.8	1,096	0.78	6.85	-475.6	1,306
1410	2	26.3	19.8	~~3,544~~ 1,100 KA	0.62	6.84	-492.6	3,854
1415	3	27.6	19.7	1,100	0.64	6.89	-449.7	3,247
1420	4	27.56	19.6	1,092	0.63	6.88	-472.2	3,502
1425	5	27.58	19.6	1,084	0.62	6.88	-499.1	2,202.0
1430	~6	Dry	19.3	1,083	0.64	6.90	-486.4	1,764

End Purge

Comments:
purge rate @ ~~200~~ ~180 mL/min. Dry below pump max capable depth (Geotech GeoPump 1"). Let recharge 15 min & sampled @ 1445.

Note: Sampling Method, Sample Interval, Recharge Conditions, Color, Odor, Sediment Content, etc.

Sample Parameters:

Time:	Parameters	Dup. (y/n)	Container Type	Quantity	Preservative
1445	PFAS	N	poly	2	/

Note sample time, parameters, duplicates, field blanks, etc.

- EB-1-120721 collected at 1100
- FB-2-120721 collected at 1110

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Ph: 925.627.4100
F 925.627.4101

LOW FLOW GROUNDWATER MONITORING WELL SAMPLING FORM

Well ID: 40-4 @ 1352
Depth to Water: 13.82 (ft) 13.94 end
Total Depth: 25' (ft)
Well Diameter: 3/4" (inches)
Length of Water Column: (ft)
Well Volume: (gals)

Date: 1/31/2022
Project #: 0232401.07
Measuring Point: TOC
Personnel: NA
Weather: Overcast, 56°
Additional Notes: 0.03' below toc GS.

Well Volume Factors (gallons/foot of water in well): 0.75-inch (0.023), 1-inch (0.041), 1.5-inch (0.092), 2-inch (0.163), 4-inch (0.653)

Parameter Monitoring Results

Time	Vol. Purged (units: L)	D.T.W. (feet)	Temp. (oF / oC)	Sp. Cond (us/cm)	D.O. (mg/l)	pH	Orp (mV)	Turb. (NTUs)
1413	0.5	/	20.5	1345	0.99	7.03	-77.1	2965.96
1418	1.5	/	20.6	1312	0.80	6.78	-97.8	949.87
1423	2.5	/	20.6	1326	0.67	6.74	-100.5	820.94
1428	3.5	/	20.7	1379	0.54	6.75	-107.5	701.60
1433	4.5	/	20.7	1424	0.47	6.75	-116.7	619.34
1438	5.5	/	20.8	1455	0.40	6.76	-128.4	525.13
1443	6.5	/	20.7	1474	0.45	6.76	-126.8	114.62

Comments:
Screen 15'-20'. Blank 0-15', 20-25'. 3/4" PVC 0.020-slot.

Note: Sampling Method, Sample Interval, Recharge Conditions, Color, Odor, Sediment Content, etc.

Sample Parameters:

Time:	Parameters	Dup. (y/n)	Container Type	Quantity	Preservative
1447	PFAS	N	poly	2	/

Note sample time, parameters, duplicates, field blanks, etc.

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95 Cedar Street, Suite 100
Providence, RI 02915
Ph: 401.273.1007
F: 401.273.5087

LOW FLOW GROUNDWATER MONITORING WELL SAMPLING FORM

Well ID: 40-S
Depth to Water: 13.46 (ft) 13.46 end
Total Depth: 25' (ft)
Well Diameter: 3/4" (inches)
Length of Water Column: ______ (ft)
Well Volume: ______ (gals)

Date: 1/31/2022
Project #: 0232401.07
Measuring Point: TOC
Personnel: KA
Weather: overcast, 50°
Additional Notes: TOC 0.005' above GS.

Well Volume Factors (gallons/foot of water in well): 0.75-inch (0.023), 1-inch (0.041), 1.5-inch (0.092), 2-inch (0.163), 4-inch (0.653)

Parameter Monitoring Results

Time	Vol. Purged (units:)	D.T.W. (feet)	Temp. (oF / oC)	Sp. Cond (us/cm)	D.O. (mg/l)	pH	Orp (mV)	Turb. (NTUs)
1324	0.5	/	20.1	1316	0.93	7.47	-7.2	2654.32
1329	1.5	/	20.6	1382	1.25	6.92	-81.7	535.49
1334	2.5	/	20.7	1387	1.01	6.87	-104.8	84.39
1339	3.5	/	20.7	1387	0.85	6.86	-121.3	31.91

Comments:
screened from 15-20, blank 0-15, 20-25.
sampled @ 1344. Got turbid during sampling again.

Note: Sampling Method, Sample Interval, Recharge Conditions, Color, Odor, Sediment Content, etc.

Sample Parameters:

Time:	Parameters	Dup. (y/n)	Container Type	Quantity	Preservative
1344	PFAS	N	poly	2	/

Note sample time, parameters, duplicates, field blanks, etc.

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Providence, RI 02915
Ph: 401.273.1007
F: 401.273.5087

LOW FLOW GROUNDWATER MONITORING WELL SAMPLING FORM

Well ID: L10-6
Depth to Water: 12.60 (ft) 12.89 end
Total Depth: 25' (ft)
Well Diameter: 3/4" (inches)
Length of Water Column: (ft)
Well Volume: (gals)

Date: 1/31/2022
Project #: 0232401.07
Measuring Point: TOC
Personnel: KA
Weather: overcast, 50°
Additional Notes: TOC 0.10' ft below GS

Well Volume Factors (gallons/foot of water in well): 0.75-inch (0.023), 1-inch (0.041), 1.5-inch (0.092), 2-inch (0.163), 4-inch (0.653)

Parameter Monitoring Results

Time	Vol. Purged (units:)	D.T.W. (feet)	Temp. (oF / oC)	Sp. Cond (us/cm)	D.O. (mg/l)	pH	Orp (mV)	Turb. (NTUs)
1202	1		20.3	1252	1.82	6.96	-81.6	74.85
~~1207~~	~~1.5~~		~~20.2~~	~~1252~~	~~1.82~~	~~6.96~~	~~-81.6~~	~~74.85~~ KA

Comments:
screened from 15-20', blank 0-15, 20-25. 3/4" 0.020-slot PVC, ~~[illegible] @ 1207, [illegible] recharged for the well~~ KA. Thought well was dry @ 1207 so allowed 5 minutes to recharge, collected primary & duplicate sample. Pump likely needed to be turned up & not dry.

Note: Sampling Method, Sample Interval, Recharge Conditions, Color, Odor, Sediment Content, etc.

Dup: L10-60-GW

Sample Parameters:

Time:	Parameters	Dup. (y/n)	Container Type	Quantity	Preservative
1220	PFAS	Y	poly	4	/

Note sample time, parameters, duplicates, field blanks, etc.

FB-6-013121: 1/31/2022 @ 1135
EB-3-011321: 1/31/2022 @ 1150

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Ph: 401.273.1007
F: 401.273.5087

LOW FLOW GROUNDWATER MONITORING WELL SAMPLING FORM

Well ID: 40-7

Depth to Water: 17.26 (ft)

Total Depth: 35' (screen 22(ft))

Well Diameter: 1 (inches)

Length of Water Column: (ft)

Well Volume: (gals)

Date: 12/8/2021

Project #: 232401.07

Measuring Point: TOC

Personnel: KA/AR

Weather: overcast 50°-55°

Additional Notes: Stick-up TOC is 1.12 ft above GS

Well Volume Factors (gallons/foot of water in well): 0.75-inch (0.023), 1-inch (0.041), 1.5-inch (0.092), 2-inch (0.163), 4-inch (0.653)

Start @ 1428

Parameter Monitoring Results

Time	Vol. Purged (units: L)	D.T.W. (feet)	Temp. (oF / oC)	Sp. Cond (us/cm)	D.O. (mg/l)	pH	Orp (mV)	Turb. (NTUs)
1431	0.5L	18.97	20.6	1,436	3.66	6.87	-45.7	130.0
1434	1.0L	19.54	21.2	1,463	3.04	6.84	-85.5	137.0
1437	1.5L	19.60	21.0	1,469	2.28	6.82	-151.4	96.0

Comments:

Intake @ 25 ft. Purge @ ~180 ml/min. Samples clear.

Note: Sampling Method, Sample Interval, Recharge Conditions, Color, Odor, Sediment Content, etc.

Sample Parameters:

Time:	Parameters	Dup. (y/n)	Container Type	Quantity	Preservative
1450	PFAS	N	poly	2	—

Note sample time, parameters, duplicates, field blanks, etc.

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Suite 315
Walnut Creek, CA 94596
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F 925.627.4101

LOW FLOW GROUNDWATER MONITORING WELL SAMPLING FORM

Well ID: LID-8

Date: 12/8/2021

Depth to Water: 12.06 (ft)

Project #: 232401.07

Total Depth: 35' (screen 20-35) (ft)

Measuring Point: TOC

Well Diameter: 3/4 (inches)

Personnel: KA/AR

Length of Water Column: (ft)

Weather: overcast, 50-55°

Well Volume: (gals)

Additional Notes: stick-up 1.405 ft above GS

Well Volume Factors (gallons/foot of water in well): 0.75-inch (0.023), 1-inch (0.041), 1.5-inch (0.092), 2-inch (0.163), 4-inch (0.653)

Start 1527

Parameter Monitoring Results

Time	Vol. Purged (units: L)	D.T.W. (feet)	Temp. (oF / oC)	Sp. Cond (us/cm)	D.O. (mg/l)	pH	Orp (mV)	Turb. (NTUs)
1530	0.5	/	19.9	1,319	1.01	6.80	-494.7	464.7
1533	1	/	19.7	1,332	0.63	6.79	-4827	470.0
1536	1.5	/	19.7	1,348	0.62	6.80	-384.6	589.9

Dry @ 1539

Comments:

Intake @ 25'. Allowed to recharge overnight for sample on 12/9/2021.

Note: Sampling Method, Sample Interval, Recharge Conditions, Color, Odor, Sediment Content, etc.

Sample Parameters:

Time:	Parameters	Dup. (y/n)	Container Type	Quantity	Preservative
0730	PFAS	N	poly	2	/

12/9/2021

Note sample time, parameters, duplicates, field blanks, etc.

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APPENDIX D: LABORATORY ANALYTICAL REPORTS

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1 2 3 4 5 6 7 8 9 10 11 12 13 14 15

ANALYTICAL REPORT

Eurofins TestAmerica, Sacramento
880 Riverside Parkway
West Sacramento, CA 95605
Tel: (916)373-5600

Laboratory Job ID: 320-82764-1
Client Project/Site: SJC PFAS Phase 2

For:
Woodard & Curran, Inc.
2175 North California Blvd.
Suite 315
Walnut Creek, California 94596

Attn: Kevin Almestad

Linda C. Laver

Authorized for release by:
12/30/2021 2:55:48 PM

Linda C. Laver, Senior Project Manager
(916)374-4362
Linda.Laver@Eurofinset.com

The test results in this report meet all 2003 NELAC, 2009 TNI, and 2016 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

Table of Contents

Definitions/Glossary

Qualifiers

LCMS

Qualifier	Qualifier Description
*5-	Isotope dilution analyte is outside acceptance limits, low biased.
*5+	Isotope dilution analyte is outside acceptance limits, high biased.
H	Sample was prepped or analyzed beyond the specified holding time
I	Value is EMPC (estimated maximum possible concentration).
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Job ID: 320-82764-1

Laboratory: Eurofins TestAmerica, Sacramento

Narrative

Job Narrative
320-82764-1

Receipt
The samples were received on 12/9/2021 4:57 PM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 5.7º C.

LCMS
Method EPA 537(Mod): The "I" qualifier means the transition mass ratio for the indicated analyte was above the established ratio limits. The qualitative identification of the analyte has some degree of uncertainty, and the reported value may have some high bias. However, analyst judgment was used to positively identify the analyte. L1/2-1-1 (320-82764-1), L8/9-70-GW (320-82764-14) and L10-8-GW (320-82764-17).

Method EPA 537(Mod): The "I" qualifier means the transition mass ratio for the indicated analyte was below the established ratio limits. The qualitative identification of the analyte has some degree of uncertainty. However, analyst judgment was used to positively identify the analyte: L10-7-GW (320-82764-16).

Method EPA 537(Mod): Some results were reported from the analysis of a diluted extract due to high concentration of the target analyte in the analysis of the undiluted extract in the following samples. The dilution factor was applied to the labeled internal standard area counts and these area counts were within acceptance limits. L1/2-2-1 (320-82764-4), L8/9-6-GW (320-82764-11), L10-7-GW (320-82764-16) and L10-8-GW (320-82764-17).

Method EPA 537(Mod): Results for samples L1/2-1-1 (320-82764-1) and L1/2-1-1 (320-82764-5) were reported from the analysis of a diluted extract due to high concentration of the target analyte in the analysis of the undiluted extract. The dilution factor was applied to the labeled internal standard area counts and these area counts were above acceptance limits. The internal standard is not used to quantify the target analytes, therefore the data is reported.

Method EPA 537(Mod): Isotope Dilution Analyte (IDA) recoveries are below the method recommended limit in the following samples: L1/2-2-1 (320-82764-4), L8/9-6-GW (320-82764-11), L8/9-70-GW (320-82764-14), L10-8-GW (320-82764-17), L3-70-GW (320-82764-19) and L3-4-GW (320-82764-24). Generally, data quality is not considered affected if the IDA signal-to-noise ratio is greater than 10:1, which is achieved for all IDA in the samples.

Method EPA 537(Mod): Isotope Dilution Analyte (IDA) recovery is above the method recommended limit for the following sample: L1/2-2-1 (320-82764-4). Quantitation by isotope dilution generally precludes any adverse effect on data quality due to elevated IDA recoveries.

Method EPA 537(Mod): Isotope Dilution Analyte (IDA) recovery for M2 6:2 FTS is significantly above the method recommended limit due to the high concentration of the target analyte 6:2 FTS present in the following sample even at a 100X dilution: L10-7-GW (320-82764-16). This may result in a low bias result for 6:2 FTS in the sample. Client was notified and approved the data to be reported.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

General Chemistry
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Organic Prep
Method 3535: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 320-551851.

Method 3535: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 320-552650.

Method 3535: The following samples contained floating particulates in the sample bottle prior to extraction: L8/9-9-GW (320-82764-8), L8/9-7-GW (320-82764-10), L8/9-6-GW (320-82764-11), L8/9-70-GW (320-82764-14) and L3-5-GW (320-82764-22).
preparation batch 320-552650

Job ID: 320-82764-1 (Continued)

Laboratory: Eurofins TestAmerica, Sacramento (Continued)

Method 3535: The following samples contained a thin layer of sediment at the bottom of the bottle prior to extraction: L10-7-GW (320-82764-16), L10-8-GW (320-82764-17), L3-7-GW (320-82764-18) and L3-70-GW (320-82764-19).
preparation batch 320-552650

Method 3535: During the solid phase extraction process, the following samples contain non-settable particulates which clogged the solid phase extraction column: L8/9-9-GW (320-82764-8), L8/9-8-GW (320-82764-9), L8/9-6-GW (320-82764-11), L8/9-70-GW (320-82764-14), L10-8-GW (320-82764-17), L3-7-GW (320-82764-18) and L3-70-GW (320-82764-19).
preparation batch 320-552650

Method 3535: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 320-552651.

Method 3535: The following samples contained a thin layer of sediment at the bottom of the bottle prior to extraction: L3-6-GW (320-82764-23) and L3-4-GW (320-82764-24).
preparation batch 320-552651

Method 3535: During the solid phase extraction process, the following samples contain non-settable particulates which clogged the solid phase extraction column: L3-6-GW (320-82764-23) and L3-4-GW (320-82764-24).
preparation batch 320-552651

Method 3535: The following sample was inadvertently prepared outside of preparation holding time: FB-1-120621 (320-82764-7).

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Detection Summary

Client: Woodard & Curran, Inc.
Project/Site: SJC PFAS Phase 2

Job ID: 320-82764-1

Client Sample ID: L1/2-1-1 — Lab Sample ID: 320-82764-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	0.84		0.22	0.050	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluoropentanoic acid (PFPeA)	4.1		0.22	0.045	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluorohexanoic acid (PFHxA)	4.0		0.22	0.034	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluoroheptanoic acid (PFHpA)	0.64		0.22	0.042	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluorooctanoic acid (PFOA)	4.6		0.22	0.058	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluorononanoic acid (PFNA)	0.65		0.22	0.024	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluorodecanoic acid (PFDA)	2.8		0.22	0.053	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluoroundecanoic acid (PFUnA)	0.12	J	0.22	0.046	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluorododecanoic acid (PFDoA)	0.070	J	0.22	0.033	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	0.27		0.22	0.042	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluoropentanesulfonic acid (PFPeS)	0.26		0.22	0.041	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	5.2		0.22	0.032	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluoroheptanesulfonic Acid (PFHpS)	0.74		0.22	0.054	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluorodecanesulfonic acid (PFDS)	0.17	J	0.22	0.057	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluorooctanesulfonamide (FOSA)	18		0.22	0.036	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
NMeFOSAA	0.080	J I	0.22	0.025	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
4:2 FTS	0.099	J	0.22	0.056	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
8:2 FTS	13		0.22	0.038	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluorooctanesulfonic acid (PFOS) - DL	180		4.4	0.94	ug/Kg	20	☼	EPA 537(Mod)	Total/NA
6:2 FTS - DL	96		4.4	0.59	ug/Kg	20	☼	EPA 537(Mod)	Total/NA

Client Sample ID: L1/2-1-5 — Lab Sample ID: 320-82764-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	1.5		0.24	0.056	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluoropentanoic acid (PFPeA)	3.6		0.24	0.050	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluorohexanoic acid (PFHxA)	17		0.24	0.038	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluoroheptanoic acid (PFHpA)	0.34		0.24	0.046	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluorooctanoic acid (PFOA)	0.078	J	0.24	0.064	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	4.8		0.24	0.046	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluoropentanesulfonic acid (PFPeS)	0.67		0.24	0.045	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	0.13	J	0.24	0.035	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	0.10	J	0.24	0.052	ug/Kg	1	☼	EPA 537(Mod)	Total/NA

Client Sample ID: L1/2-1-10 — Lab Sample ID: 320-82764-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	0.20	J	0.23	0.053	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluoropentanoic acid (PFPeA)	0.23		0.23	0.047	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluorohexanoic acid (PFHxA)	0.62		0.23	0.036	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluoroheptanoic acid (PFHpA)	0.049	J	0.23	0.044	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluorooctanoic acid (PFOA)	0.11	J	0.23	0.061	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	0.19	J	0.23	0.044	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	0.20	J	0.23	0.033	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	0.080	J	0.23	0.050	ug/Kg	1	☼	EPA 537(Mod)	Total/NA

This Detection Summary does not include radiochemical test results.

Detection Summary

Client Sample ID: L1/2-2-1 Lab Sample ID: 320-82764-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	1.6		0.22	0.052	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluoropentanoic acid (PFPeA)	4.1		0.22	0.046	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluorohexanoic acid (PFHxA)	8.5		0.22	0.035	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluoroheptanoic acid (PFHpA)	1.5		0.22	0.043	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluorooctanoic acid (PFOA)	4.2		0.22	0.060	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluorononanoic acid (PFNA)	0.033	J	0.22	0.025	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	3.5		0.22	0.043	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluoropentanesulfonic acid (PFPeS)	3.7		0.22	0.042	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluoroheptanesulfonic Acid (PFHpS)	2.9		0.22	0.055	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluorodecanesulfonic acid (PFDS)	0.087	J	0.22	0.058	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluorooctanesulfonamide (FOSA)	3.1		0.22	0.037	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
NEtFOSAA	0.080	J	0.22	0.054	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
NMeFOSAA	0.032	J	0.22	0.026	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
4:2 FTS	0.24		0.22	0.057	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
8:2 FTS	0.34		0.22	0.039	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluorohexanesulfonic acid (PFHxS) - DL	37		2.2	0.33	ug/Kg	10	☼	EPA 537(Mod)	Total/NA
Perfluorooctanesulfonic acid (PFOS) - DL	100		2.2	0.48	ug/Kg	10	☼	EPA 537(Mod)	Total/NA
6:2 FTS - DL	32		2.2	0.30	ug/Kg	10	☼	EPA 537(Mod)	Total/NA

Client Sample ID: L1/2-2-5 Lab Sample ID: 320-82764-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	2.4		0.25	0.058	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluoropentanoic acid (PFPeA)	4.3		0.25	0.052	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluorohexanoic acid (PFHxA)	16		0.25	0.039	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluoroheptanoic acid (PFHpA)	3.1		0.25	0.048	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluorooctanoic acid (PFOA)	12		0.25	0.067	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	9.5		0.25	0.048	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluoropentanesulfonic acid (PFPeS)	11		0.25	0.047	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluoroheptanesulfonic Acid (PFHpS)	1.4		0.25	0.062	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	7.8		0.25	0.054	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluorooctanesulfonamide (FOSA)	0.081	J	0.25	0.042	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
6:2 FTS	3.3		0.25	0.034	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluorohexanesulfonic acid (PFHxS) - DL	84		2.5	0.37	ug/Kg	10	☼	EPA 537(Mod)	Total/NA

Client Sample ID: L1/2-2-10 Lab Sample ID: 320-82764-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	0.99		0.25	0.057	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluoropentanoic acid (PFPeA)	1.8		0.25	0.051	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluorohexanoic acid (PFHxA)	7.7		0.25	0.038	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluoroheptanoic acid (PFHpA)	0.81		0.25	0.047	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluorooctanoic acid (PFOA)	0.43		0.25	0.066	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	4.9		0.25	0.047	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluoropentanesulfonic acid (PFPeS)	3.5		0.25	0.046	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	6.6		0.25	0.036	ug/Kg	1	☼	EPA 537(Mod)	Total/NA

This Detection Summary does not include radiochemical test results.

Detection Summary

Client Sample ID: L1/2-2-10 (Continued) Lab Sample ID: 320-82764-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
6:2 FTS	0.13	J	0.25	0.033	ug/Kg	1	☼	EPA 537(Mod)	Total/NA

Client Sample ID: FB-1-120621 Lab Sample ID: 320-82764-7

No Detections.

Client Sample ID: L8/9-9-GW Lab Sample ID: 320-82764-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	9.6		4.7	2.2	ng/L	1		EPA 537(Mod)	Total/NA
Perfluoropentanoic acid (PFPeA)	13		1.9	0.46	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorohexanoic acid (PFHxA)	9.3		1.9	0.54	ng/L	1		EPA 537(Mod)	Total/NA
Perfluoroheptanoic acid (PFHpA)	1.5	J	1.9	0.23	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorooctanoic acid (PFOA)	3.1		1.9	0.80	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	4.5		1.9	0.19	ng/L	1		EPA 537(Mod)	Total/NA
Perfluoropentanesulfonic acid (PFPeS)	2.2		1.9	0.28	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	12		1.9	0.53	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	1.9		1.9	0.51	ng/L	1		EPA 537(Mod)	Total/NA
6:2 FTS	18		4.7	2.3	ng/L	1		EPA 537(Mod)	Total/NA

Client Sample ID: L8/9-8-GW Lab Sample ID: 320-82764-9

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	24		4.7	2.3	ng/L	1		EPA 537(Mod)	Total/NA
Perfluoropentanoic acid (PFPeA)	42		1.9	0.46	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorohexanoic acid (PFHxA)	24		1.9	0.55	ng/L	1		EPA 537(Mod)	Total/NA
Perfluoroheptanoic acid (PFHpA)	5.8		1.9	0.24	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorooctanoic acid (PFOA)	3.4		1.9	0.80	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	3.2		1.9	0.19	ng/L	1		EPA 537(Mod)	Total/NA
Perfluoropentanesulfonic acid (PFPeS)	1.3	J	1.9	0.28	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	5.7		1.9	0.54	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	3.8		1.9	0.51	ng/L	1		EPA 537(Mod)	Total/NA
6:2 FTS	81		4.7	2.4	ng/L	1		EPA 537(Mod)	Total/NA

Client Sample ID: L8/9-7-GW Lab Sample ID: 320-82764-10

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	18		4.7	2.3	ng/L	1		EPA 537(Mod)	Total/NA
Perfluoropentanoic acid (PFPeA)	26		1.9	0.47	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorohexanoic acid (PFHxA)	19		1.9	0.55	ng/L	1		EPA 537(Mod)	Total/NA
Perfluoroheptanoic acid (PFHpA)	4.4		1.9	0.24	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorooctanoic acid (PFOA)	5.0		1.9	0.81	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorononanoic acid (PFNA)	0.40	J	1.9	0.26	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorodecanoic acid (PFDA)	0.67	J	1.9	0.29	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	3.4		1.9	0.19	ng/L	1		EPA 537(Mod)	Total/NA
Perfluoropentanesulfonic acid (PFPeS)	0.97	J	1.9	0.28	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	5.5		1.9	0.54	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	2.5		1.9	0.51	ng/L	1		EPA 537(Mod)	Total/NA
6:2 FTS	6.3		4.7	2.4	ng/L	1		EPA 537(Mod)	Total/NA

This Detection Summary does not include radiochemical test results.

Detection Summary

Client: Woodard & Curran, Inc.
Project/Site: SJC PFAS Phase 2

Job ID: 320-82764-1

Client Sample ID: L8/9-6-GW — Lab Sample ID: 320-82764-11

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	270		25	12	ng/L	5		EPA 537(Mod)	Total/NA
Perfluoropentanoic acid (PFPeA)	690		9.8	2.4	ng/L	5		EPA 537(Mod)	Total/NA
Perfluorohexanoic acid (PFHxA)	300		9.8	2.8	ng/L	5		EPA 537(Mod)	Total/NA
Perfluoroheptanoic acid (PFHpA)	24		9.8	1.2	ng/L	5		EPA 537(Mod)	Total/NA
Perfluorooctanoic acid (PFOA)	15		9.8	4.2	ng/L	5		EPA 537(Mod)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	26		9.8	0.98	ng/L	5		EPA 537(Mod)	Total/NA
Perfluoropentanesulfonic acid (PFPeS)	7.1	J	9.8	1.5	ng/L	5		EPA 537(Mod)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	17		9.8	2.8	ng/L	5		EPA 537(Mod)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	9.6	J	9.8	2.6	ng/L	5		EPA 537(Mod)	Total/NA
6:2 FTS	24	J	25	12	ng/L	5		EPA 537(Mod)	Total/NA

Client Sample ID: FB-2-120721 — Lab Sample ID: 320-82764-12

No Detections.

Client Sample ID: EB-1-120721 — Lab Sample ID: 320-82764-13

No Detections.

Client Sample ID: L8/9-70-GW — Lab Sample ID: 320-82764-14

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	18		4.8	2.3	ng/L	1		EPA 537(Mod)	Total/NA
Perfluoropentanoic acid (PFPeA)	25		1.9	0.47	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorohexanoic acid (PFHxA)	19		1.9	0.55	ng/L	1		EPA 537(Mod)	Total/NA
Perfluoroheptanoic acid (PFHpA)	4.1		1.9	0.24	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorooctanoic acid (PFOA)	4.7		1.9	0.81	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorononanoic acid (PFNA)	0.36	J	1.9	0.26	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorodecanoic acid (PFDA)	0.81	J	1.9	0.30	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	4.3		1.9	0.19	ng/L	1		EPA 537(Mod)	Total/NA
Perfluoropentanesulfonic acid (PFPeS)	0.99	J	1.9	0.29	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	6.1		1.9	0.54	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	3.9	I	1.9	0.52	ng/L	1		EPA 537(Mod)	Total/NA
6:2 FTS	39		4.8	2.4	ng/L	1		EPA 537(Mod)	Total/NA

Client Sample ID: FB-3-120821 — Lab Sample ID: 320-82764-15

No Detections.

Client Sample ID: L10-7-GW — Lab Sample ID: 320-82764-16

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	2600		490	230	ng/L	100		EPA 537(Mod)	Total/NA
Perfluoropentanoic acid (PFPeA)	13000		190	48	ng/L	100		EPA 537(Mod)	Total/NA
Perfluorohexanoic acid (PFHxA)	9200		190	56	ng/L	100		EPA 537(Mod)	Total/NA
Perfluoroheptanoic acid (PFHpA)	1600		190	24	ng/L	100		EPA 537(Mod)	Total/NA
Perfluorooctanoic acid (PFOA)	910		190	83	ng/L	100		EPA 537(Mod)	Total/NA
Perfluorononanoic acid (PFNA)	51	J I	190	26	ng/L	100		EPA 537(Mod)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	900		190	19	ng/L	100		EPA 537(Mod)	Total/NA
Perfluoropentanesulfonic acid (PFPeS)	770		190	29	ng/L	100		EPA 537(Mod)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	5100		190	55	ng/L	100		EPA 537(Mod)	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: L10-7-GW (Continued) Lab Sample ID: 320-82764-16

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluoroheptanesulfonic Acid (PFHpS)	150	J	190	18	ng/L	100		EPA 537(Mod)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	1600		190	52	ng/L	100		EPA 537(Mod)	Total/NA
4:2 FTS	39	J	190	23	ng/L	100		EPA 537(Mod)	Total/NA
6:2 FTS	8800		490	240	ng/L	100		EPA 537(Mod)	Total/NA
8:2 FTS	340		190	45	ng/L	100		EPA 537(Mod)	Total/NA

Client Sample ID: L10-8-GW Lab Sample ID: 320-82764-17

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	20	J	24	12	ng/L	5		EPA 537(Mod)	Total/NA
Perfluoropentanoic acid (PFPeA)	20		9.7	2.4	ng/L	5		EPA 537(Mod)	Total/NA
Perfluorohexanoic acid (PFHxA)	23		9.7	2.8	ng/L	5		EPA 537(Mod)	Total/NA
Perfluoroheptanoic acid (PFHpA)	5.9	J I	9.7	1.2	ng/L	5		EPA 537(Mod)	Total/NA
Perfluorooctanoic acid (PFOA)	12		9.7	4.1	ng/L	5		EPA 537(Mod)	Total/NA
Perfluorononanoic acid (PFNA)	7.2	J	9.7	1.3	ng/L	5		EPA 537(Mod)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	3.9	J	9.7	0.97	ng/L	5		EPA 537(Mod)	Total/NA
Perfluoropentanesulfonic acid (PFPeS)	2.2	J	9.7	1.4	ng/L	5		EPA 537(Mod)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	16		9.7	2.8	ng/L	5		EPA 537(Mod)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	29		9.7	2.6	ng/L	5		EPA 537(Mod)	Total/NA
6:2 FTS	330		24	12	ng/L	5		EPA 537(Mod)	Total/NA
8:2 FTS	7.7	J	9.7	2.2	ng/L	5		EPA 537(Mod)	Total/NA

Client Sample ID: L3-7-GW Lab Sample ID: 320-82764-18

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	18		4.7	2.2	ng/L	1		EPA 537(Mod)	Total/NA
Perfluoropentanoic acid (PFPeA)	6.5		1.9	0.46	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorohexanoic acid (PFHxA)	18		1.9	0.54	ng/L	1		EPA 537(Mod)	Total/NA
Perfluoroheptanoic acid (PFHpA)	3.0		1.9	0.23	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorooctanoic acid (PFOA)	55		1.9	0.79	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	20		1.9	0.19	ng/L	1		EPA 537(Mod)	Total/NA
Perfluoropentanesulfonic acid (PFPeS)	11		1.9	0.28	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	50		1.9	0.53	ng/L	1		EPA 537(Mod)	Total/NA
Perfluoroheptanesulfonic Acid (PFHpS)	0.93	J	1.9	0.18	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	33		1.9	0.50	ng/L	1		EPA 537(Mod)	Total/NA
6:2 FTS	2.4	J	4.7	2.3	ng/L	1		EPA 537(Mod)	Total/NA

Client Sample ID: L3-70-GW Lab Sample ID: 320-82764-19

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	19		4.7	2.2	ng/L	1		EPA 537(Mod)	Total/NA
Perfluoropentanoic acid (PFPeA)	6.4		1.9	0.46	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorohexanoic acid (PFHxA)	17		1.9	0.54	ng/L	1		EPA 537(Mod)	Total/NA
Perfluoroheptanoic acid (PFHpA)	3.1		1.9	0.23	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorooctanoic acid (PFOA)	58		1.9	0.80	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	19		1.9	0.19	ng/L	1		EPA 537(Mod)	Total/NA
Perfluoropentanesulfonic acid (PFPeS)	9.7		1.9	0.28	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	48		1.9	0.53	ng/L	1		EPA 537(Mod)	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: L3-70-GW (Continued) Lab Sample ID: 320-82764-19

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluoroheptanesulfonic Acid (PFHpS)	0.98	J	1.9	0.18	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	35		1.9	0.51	ng/L	1		EPA 537(Mod)	Total/NA

Client Sample ID: EB-2-120921 Lab Sample ID: 320-82764-20

No Detections.

Client Sample ID: FB-4-120921 Lab Sample ID: 320-82764-21

No Detections.

Client Sample ID: L3-5-GW Lab Sample ID: 320-82764-22

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	13		10	4.9	ng/L	2		EPA 537(Mod)	Total/NA
Perfluoropentanoic acid (PFPeA)	11		4.1	1.0	ng/L	2		EPA 537(Mod)	Total/NA
Perfluorohexanoic acid (PFHxA)	50		4.1	1.2	ng/L	2		EPA 537(Mod)	Total/NA
Perfluoroheptanoic acid (PFHpA)	10		4.1	0.51	ng/L	2		EPA 537(Mod)	Total/NA
Perfluorooctanoic acid (PFOA)	280		4.1	1.7	ng/L	2		EPA 537(Mod)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	18		4.1	0.41	ng/L	2		EPA 537(Mod)	Total/NA
Perfluoropentanesulfonic acid (PFPeS)	18		4.1	0.62	ng/L	2		EPA 537(Mod)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	150		4.1	1.2	ng/L	2		EPA 537(Mod)	Total/NA
Perfluoroheptanesulfonic Acid (PFHpS)	6.4		4.1	0.39	ng/L	2		EPA 537(Mod)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	110		4.1	1.1	ng/L	2		EPA 537(Mod)	Total/NA

Client Sample ID: L3-6-GW Lab Sample ID: 320-82764-23

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	8.2		4.7	2.2	ng/L	1		EPA 537(Mod)	Total/NA
Perfluoropentanoic acid (PFPeA)	2.9		1.9	0.46	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorohexanoic acid (PFHxA)	13		1.9	0.54	ng/L	1		EPA 537(Mod)	Total/NA
Perfluoroheptanoic acid (PFHpA)	2.9		1.9	0.23	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorooctanoic acid (PFOA)	140		1.9	0.80	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorononanoic acid (PFNA)	0.38	J	1.9	0.25	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	8.9		1.9	0.19	ng/L	1		EPA 537(Mod)	Total/NA
Perfluoropentanesulfonic acid (PFPeS)	7.4		1.9	0.28	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	60		1.9	0.53	ng/L	1		EPA 537(Mod)	Total/NA
Perfluoroheptanesulfonic Acid (PFHpS)	3.6		1.9	0.18	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	77		1.9	0.51	ng/L	1		EPA 537(Mod)	Total/NA

Client Sample ID: L3-4-GW Lab Sample ID: 320-82764-24

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	15		4.9	2.3	ng/L	1		EPA 537(Mod)	Total/NA
Perfluoropentanoic acid (PFPeA)	7.6		2.0	0.48	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorohexanoic acid (PFHxA)	20		2.0	0.57	ng/L	1		EPA 537(Mod)	Total/NA
Perfluoroheptanoic acid (PFHpA)	4.3		2.0	0.24	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorooctanoic acid (PFOA)	43		2.0	0.83	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorononanoic acid (PFNA)	0.44	J	2.0	0.26	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	14		2.0	0.20	ng/L	1		EPA 537(Mod)	Total/NA

This Detection Summary does not include radiochemical test results.

Detection Summary

Client: Woodard & Curran, Inc.
Project/Site: SJC PFAS Phase 2

Job ID: 320-82764-1

Client Sample ID: L3-4-GW (Continued)

Lab Sample ID: 320-82764-24

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluoropentanesulfonic acid (PFPeS)	9.3		2.0	0.29	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	64		2.0	0.56	ng/L	1		EPA 537(Mod)	Total/NA
Perfluoroheptanesulfonic Acid (PFHpS)	2.4		2.0	0.19	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	100		2.0	0.53	ng/L	1		EPA 537(Mod)	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample Results

Client: Woodard & Curran, Inc.
Project/Site: SJC PFAS Phase 2

Job ID: 320-82764-1

Client Sample ID: L1/2-1-1

Date Collected: 12/06/21 10:19
Date Received: 12/09/21 16:57

Lab Sample ID: 320-82764-1

Matrix: Solid
Percent Solids: 83.2

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**0.84**		0.22	0.050	ug/Kg	☼	12/20/21 19:22	12/23/21 21:09	1
Perfluoropentanoic acid (PFPeA)	**4.1**		0.22	0.045	ug/Kg	☼	12/20/21 19:22	12/23/21 21:09	1
Perfluorohexanoic acid (PFHxA)	**4.0**		0.22	0.034	ug/Kg	☼	12/20/21 19:22	12/23/21 21:09	1
Perfluoroheptanoic acid (PFHpA)	**0.64**		0.22	0.042	ug/Kg	☼	12/20/21 19:22	12/23/21 21:09	1
Perfluorooctanoic acid (PFOA)	**4.6**		0.22	0.058	ug/Kg	☼	12/20/21 19:22	12/23/21 21:09	1
Perfluorononanoic acid (PFNA)	**0.65**		0.22	0.024	ug/Kg	☼	12/20/21 19:22	12/23/21 21:09	1
Perfluorodecanoic acid (PFDA)	**2.8**		0.22	0.053	ug/Kg	☼	12/20/21 19:22	12/23/21 21:09	1
Perfluoroundecanoic acid (PFUnA)	**0.12**	**J**	0.22	0.046	ug/Kg	☼	12/20/21 19:22	12/23/21 21:09	1
Perfluorododecanoic acid (PFDoA)	**0.070**	**J**	0.22	0.033	ug/Kg	☼	12/20/21 19:22	12/23/21 21:09	1
Perfluorotridecanoic acid (PFTrDA)	ND		0.22	0.023	ug/Kg	☼	12/20/21 19:22	12/23/21 21:09	1
Perfluorotetradecanoic acid (PFTeA)	ND		0.22	0.041	ug/Kg	☼	12/20/21 19:22	12/23/21 21:09	1
Perfluorobutanesulfonic acid (PFBS)	**0.27**		0.22	0.042	ug/Kg	☼	12/20/21 19:22	12/23/21 21:09	1
Perfluoropentanesulfonic acid (PFPeS)	**0.26**		0.22	0.041	ug/Kg	☼	12/20/21 19:22	12/23/21 21:09	1
Perfluorohexanesulfonic acid (PFHxS)	**5.2**		0.22	0.032	ug/Kg	☼	12/20/21 19:22	12/23/21 21:09	1
Perfluoroheptanesulfonic Acid (PFHpS)	**0.74**		0.22	0.054	ug/Kg	☼	12/20/21 19:22	12/23/21 21:09	1
Perfluorodecanesulfonic acid (PFDS)	**0.17**	**J**	0.22	0.057	ug/Kg	☼	12/20/21 19:22	12/23/21 21:09	1
Perfluorooctanesulfonamide (FOSA)	**18**		0.22	0.036	ug/Kg	☼	12/20/21 19:22	12/23/21 21:09	1
NEtFOSAA	ND		0.22	0.053	ug/Kg	☼	12/20/21 19:22	12/23/21 21:09	1
NMeFOSAA	**0.080**	**J I**	0.22	0.025	ug/Kg	☼	12/20/21 19:22	12/23/21 21:09	1
4:2 FTS	**0.099**	**J**	0.22	0.056	ug/Kg	☼	12/20/21 19:22	12/23/21 21:09	1
8:2 FTS	**13**		0.22	0.038	ug/Kg	☼	12/20/21 19:22	12/23/21 21:09	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*68*		*50 - 150*	*12/20/21 19:22*	*12/23/21 21:09*	*1*
13C5 PFPeA	*95*		*50 - 150*	*12/20/21 19:22*	*12/23/21 21:09*	*1*
13C2 PFHxA	*81*		*50 - 150*	*12/20/21 19:22*	*12/23/21 21:09*	*1*
13C4 PFHpA	*86*		*50 - 150*	*12/20/21 19:22*	*12/23/21 21:09*	*1*
13C4 PFOA	*80*		*50 - 150*	*12/20/21 19:22*	*12/23/21 21:09*	*1*
13C5 PFNA	*63*		*50 - 150*	*12/20/21 19:22*	*12/23/21 21:09*	*1*
13C2 PFDA	*76*		*50 - 150*	*12/20/21 19:22*	*12/23/21 21:09*	*1*
13C2 PFUnA	*79*		*50 - 150*	*12/20/21 19:22*	*12/23/21 21:09*	*1*
13C2 PFDoA	*78*		*50 - 150*	*12/20/21 19:22*	*12/23/21 21:09*	*1*
13C2 PFTeDA	*80*		*50 - 150*	*12/20/21 19:22*	*12/23/21 21:09*	*1*
13C3 PFBS	*92*		*50 - 150*	*12/20/21 19:22*	*12/23/21 21:09*	*1*
18O2 PFHxS	*68*		*50 - 150*	*12/20/21 19:22*	*12/23/21 21:09*	*1*
13C4 PFOS	*55*		*50 - 150*	*12/20/21 19:22*	*12/23/21 21:09*	*1*
13C8 FOSA	*56*		*50 - 150*	*12/20/21 19:22*	*12/23/21 21:09*	*1*
M2-4:2 FTS	*65*		*50 - 150*	*12/20/21 19:22*	*12/23/21 21:09*	*1*
M2-8:2 FTS	*72*		*50 - 150*	*12/20/21 19:22*	*12/23/21 21:09*	*1*
d5-NEtFOSAA	*86*		*50 - 150*	*12/20/21 19:22*	*12/23/21 21:09*	*1*
d3-NMeFOSAA	*73*		*50 - 150*	*12/20/21 19:22*	*12/23/21 21:09*	*1*

Client Sample Results

Client: Woodard & Curran, Inc.
Project/Site: SJC PFAS Phase 2

Job ID: 320-82764-1

Client Sample ID: L1/2-1-1

Date Collected: 12/06/21 10:19
Date Received: 12/09/21 16:57

Lab Sample ID: 320-82764-1

Matrix: Solid
Percent Solids: 83.2

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15 - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	**180**		4.4	0.94	ug/Kg	☼	12/20/21 19:22	12/26/21 20:21	20
6:2 FTS	**96**		4.4	0.59	ug/Kg	☼	12/20/21 19:22	12/26/21 20:21	20

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFOS	*79*		*50 - 150*	*12/20/21 19:22*	*12/26/21 20:21*	*20*
M2-6:2 FTS	*91*		*50 - 150*	*12/20/21 19:22*	*12/26/21 20:21*	*20*

General Chemistry

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	**16.8**		0.1	0.1	%			12/20/21 14:17	1
Percent Solids	**83.2**		0.1	0.1	%			12/20/21 14:17	1

Client Sample ID: L1/2-1-5

Date Collected: 12/06/21 10:40
Date Received: 12/09/21 16:57

Lab Sample ID: 320-82764-2

Matrix: Solid
Percent Solids: 76.4

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**1.5**		0.24	0.056	ug/Kg	☼	12/20/21 19:22	12/23/21 21:19	1
Perfluoropentanoic acid (PFPeA)	**3.6**		0.24	0.050	ug/Kg	☼	12/20/21 19:22	12/23/21 21:19	1
Perfluorohexanoic acid (PFHxA)	**17**		0.24	0.038	ug/Kg	☼	12/20/21 19:22	12/23/21 21:19	1
Perfluoroheptanoic acid (PFHpA)	**0.34**		0.24	0.046	ug/Kg	☼	12/20/21 19:22	12/23/21 21:19	1
Perfluorooctanoic acid (PFOA)	**0.078**	**J**	0.24	0.064	ug/Kg	☼	12/20/21 19:22	12/23/21 21:19	1
Perfluorononanoic acid (PFNA)	ND		0.24	0.027	ug/Kg	☼	12/20/21 19:22	12/23/21 21:19	1
Perfluorodecanoic acid (PFDA)	ND		0.24	0.058	ug/Kg	☼	12/20/21 19:22	12/23/21 21:19	1
Perfluoroundecanoic acid (PFUnA)	ND		0.24	0.051	ug/Kg	☼	12/20/21 19:22	12/23/21 21:19	1
Perfluorododecanoic acid (PFDoA)	ND		0.24	0.036	ug/Kg	☼	12/20/21 19:22	12/23/21 21:19	1
Perfluorotridecanoic acid (PFTrDA)	ND		0.24	0.025	ug/Kg	☼	12/20/21 19:22	12/23/21 21:19	1
Perfluorotetradecanoic acid (PFTeA)	ND		0.24	0.045	ug/Kg	☼	12/20/21 19:22	12/23/21 21:19	1
Perfluorobutanesulfonic acid (PFBS)	**4.8**		0.24	0.046	ug/Kg	☼	12/20/21 19:22	12/23/21 21:19	1
Perfluoropentanesulfonic acid (PFPeS)	**0.67**		0.24	0.045	ug/Kg	☼	12/20/21 19:22	12/23/21 21:19	1
Perfluorohexanesulfonic acid (PFHxS)	**0.13**	**J**	0.24	0.035	ug/Kg	☼	12/20/21 19:22	12/23/21 21:19	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		0.24	0.059	ug/Kg	☼	12/20/21 19:22	12/23/21 21:19	1
Perfluorooctanesulfonic acid (PFOS)	**0.10**	**J**	0.24	0.052	ug/Kg	☼	12/20/21 19:22	12/23/21 21:19	1
Perfluorodecanesulfonic acid (PFDS)	ND		0.24	0.063	ug/Kg	☼	12/20/21 19:22	12/23/21 21:19	1
Perfluorooctanesulfonamide (FOSA)	ND		0.24	0.040	ug/Kg	☼	12/20/21 19:22	12/23/21 21:19	1
NEtFOSAA	ND		0.24	0.058	ug/Kg	☼	12/20/21 19:22	12/23/21 21:19	1
NMeFOSAA	ND		0.24	0.028	ug/Kg	☼	12/20/21 19:22	12/23/21 21:19	1
4:2 FTS	ND		0.24	0.062	ug/Kg	☼	12/20/21 19:22	12/23/21 21:19	1
6:2 FTS	ND		0.24	0.033	ug/Kg	☼	12/20/21 19:22	12/23/21 21:19	1
8:2 FTS	ND		0.24	0.042	ug/Kg	☼	12/20/21 19:22	12/23/21 21:19	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*64*		*50 - 150*	*12/20/21 19:22*	*12/23/21 21:19*	*1*
13C5 PFPeA	*81*		*50 - 150*	*12/20/21 19:22*	*12/23/21 21:19*	*1*
13C2 PFHxA	*66*		*50 - 150*	*12/20/21 19:22*	*12/23/21 21:19*	*1*
13C4 PFHpA	*68*		*50 - 150*	*12/20/21 19:22*	*12/23/21 21:19*	*1*
13C4 PFOA	*71*		*50 - 150*	*12/20/21 19:22*	*12/23/21 21:19*	*1*
13C5 PFNA	*66*		*50 - 150*	*12/20/21 19:22*	*12/23/21 21:19*	*1*
13C2 PFDA	*64*		*50 - 150*	*12/20/21 19:22*	*12/23/21 21:19*	*1*
13C2 PFUnA	*67*		*50 - 150*	*12/20/21 19:22*	*12/23/21 21:19*	*1*
13C2 PFDoA	*65*		*50 - 150*	*12/20/21 19:22*	*12/23/21 21:19*	*1*
13C2 PFTeDA	*64*		*50 - 150*	*12/20/21 19:22*	*12/23/21 21:19*	*1*
13C3 PFBS	*72*		*50 - 150*	*12/20/21 19:22*	*12/23/21 21:19*	*1*
18O2 PFHxS	*58*		*50 - 150*	*12/20/21 19:22*	*12/23/21 21:19*	*1*
13C4 PFOS	*62*		*50 - 150*	*12/20/21 19:22*	*12/23/21 21:19*	*1*
13C8 FOSA	*53*		*50 - 150*	*12/20/21 19:22*	*12/23/21 21:19*	*1*
M2-4:2 FTS	*55*		*50 - 150*	*12/20/21 19:22*	*12/23/21 21:19*	*1*
M2-6:2 FTS	*60*		*50 - 150*	*12/20/21 19:22*	*12/23/21 21:19*	*1*
M2-8:2 FTS	*58*		*50 - 150*	*12/20/21 19:22*	*12/23/21 21:19*	*1*
d5-NEtFOSAA	*64*		*50 - 150*	*12/20/21 19:22*	*12/23/21 21:19*	*1*
d3-NMeFOSAA	*54*		*50 - 150*	*12/20/21 19:22*	*12/23/21 21:19*	*1*

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Client Sample Results

Client: Woodard & Curran, Inc.
Project/Site: SJC PFAS Phase 2

Job ID: 320-82764-1

Client Sample ID: L1/2-1-5
Date Collected: 12/06/21 10:40
Date Received: 12/09/21 16:57

Lab Sample ID: 320-82764-2
Matrix: Solid
Percent Solids: 76.4

General Chemistry

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	23.6		0.1	0.1	%			12/20/21 14:17	1
Percent Solids	76.4		0.1	0.1	%			12/20/21 14:17	1

Client Sample ID: L1/2-1-10
Date Collected: 12/06/21 10:45
Date Received: 12/09/21 16:57

Lab Sample ID: 320-82764-3
Matrix: Solid
Percent Solids: 79.5

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**0.20**	**J**	0.23	0.053	ug/Kg	☼	12/20/21 19:22	12/23/21 21:29	1
Perfluoropentanoic acid (PFPeA)	**0.23**		0.23	0.047	ug/Kg	☼	12/20/21 19:22	12/23/21 21:29	1
Perfluorohexanoic acid (PFHxA)	**0.62**		0.23	0.036	ug/Kg	☼	12/20/21 19:22	12/23/21 21:29	1
Perfluoroheptanoic acid (PFHpA)	**0.049**	**J**	0.23	0.044	ug/Kg	☼	12/20/21 19:22	12/23/21 21:29	1
Perfluorooctanoic acid (PFOA)	**0.11**	**J**	0.23	0.061	ug/Kg	☼	12/20/21 19:22	12/23/21 21:29	1
Perfluorononanoic acid (PFNA)	ND		0.23	0.025	ug/Kg	☼	12/20/21 19:22	12/23/21 21:29	1
Perfluorodecanoic acid (PFDA)	ND		0.23	0.055	ug/Kg	☼	12/20/21 19:22	12/23/21 21:29	1
Perfluoroundecanoic acid (PFUnA)	ND		0.23	0.048	ug/Kg	☼	12/20/21 19:22	12/23/21 21:29	1
Perfluorododecanoic acid (PFDoA)	ND		0.23	0.035	ug/Kg	☼	12/20/21 19:22	12/23/21 21:29	1
Perfluorotridecanoic acid (PFTrDA)	ND		0.23	0.024	ug/Kg	☼	12/20/21 19:22	12/23/21 21:29	1
Perfluorotetradecanoic acid (PFTeA)	ND		0.23	0.043	ug/Kg	☼	12/20/21 19:22	12/23/21 21:29	1
Perfluorobutanesulfonic acid (PFBS)	**0.19**	**J**	0.23	0.044	ug/Kg	☼	12/20/21 19:22	12/23/21 21:29	1
Perfluoropentanesulfonic acid (PFPeS)	ND		0.23	0.043	ug/Kg	☼	12/20/21 19:22	12/23/21 21:29	1
Perfluorohexanesulfonic acid (PFHxS)	**0.20**	**J**	0.23	0.033	ug/Kg	☼	12/20/21 19:22	12/23/21 21:29	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		0.23	0.056	ug/Kg	☼	12/20/21 19:22	12/23/21 21:29	1
Perfluorooctanesulfonic acid (PFOS)	**0.080**	**J**	0.23	0.050	ug/Kg	☼	12/20/21 19:22	12/23/21 21:29	1
Perfluorodecanesulfonic acid (PFDS)	ND		0.23	0.060	ug/Kg	☼	12/20/21 19:22	12/23/21 21:29	1
Perfluorooctanesulfonamide (FOSA)	ND		0.23	0.038	ug/Kg	☼	12/20/21 19:22	12/23/21 21:29	1
NEtFOSAA	ND		0.23	0.055	ug/Kg	☼	12/20/21 19:22	12/23/21 21:29	1
NMeFOSAA	ND		0.23	0.026	ug/Kg	☼	12/20/21 19:22	12/23/21 21:29	1
4:2 FTS	ND		0.23	0.059	ug/Kg	☼	12/20/21 19:22	12/23/21 21:29	1
6:2 FTS	ND		0.23	0.031	ug/Kg	☼	12/20/21 19:22	12/23/21 21:29	1
8:2 FTS	ND		0.23	0.040	ug/Kg	☼	12/20/21 19:22	12/23/21 21:29	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*59*		*50 - 150*	*12/20/21 19:22*	*12/23/21 21:29*	*1*
13C5 PFPeA	*87*		*50 - 150*	*12/20/21 19:22*	*12/23/21 21:29*	*1*
13C2 PFHxA	*77*		*50 - 150*	*12/20/21 19:22*	*12/23/21 21:29*	*1*
13C4 PFHpA	*80*		*50 - 150*	*12/20/21 19:22*	*12/23/21 21:29*	*1*
13C4 PFOA	*79*		*50 - 150*	*12/20/21 19:22*	*12/23/21 21:29*	*1*
13C5 PFNA	*77*		*50 - 150*	*12/20/21 19:22*	*12/23/21 21:29*	*1*
13C2 PFDA	*79*		*50 - 150*	*12/20/21 19:22*	*12/23/21 21:29*	*1*
13C2 PFUnA	*79*		*50 - 150*	*12/20/21 19:22*	*12/23/21 21:29*	*1*
13C2 PFDoA	*77*		*50 - 150*	*12/20/21 19:22*	*12/23/21 21:29*	*1*
13C2 PFTeDA	*75*		*50 - 150*	*12/20/21 19:22*	*12/23/21 21:29*	*1*
13C3 PFBS	*82*		*50 - 150*	*12/20/21 19:22*	*12/23/21 21:29*	*1*
18O2 PFHxS	*67*		*50 - 150*	*12/20/21 19:22*	*12/23/21 21:29*	*1*
13C4 PFOS	*67*		*50 - 150*	*12/20/21 19:22*	*12/23/21 21:29*	*1*
13C8 FOSA	*63*		*50 - 150*	*12/20/21 19:22*	*12/23/21 21:29*	*1*
M2-4:2 FTS	*62*		*50 - 150*	*12/20/21 19:22*	*12/23/21 21:29*	*1*
M2-6:2 FTS	*68*		*50 - 150*	*12/20/21 19:22*	*12/23/21 21:29*	*1*
M2-8:2 FTS	*66*		*50 - 150*	*12/20/21 19:22*	*12/23/21 21:29*	*1*
d5-NEtFOSAA	*75*		*50 - 150*	*12/20/21 19:22*	*12/23/21 21:29*	*1*
d3-NMeFOSAA	*69*		*50 - 150*	*12/20/21 19:22*	*12/23/21 21:29*	*1*

Client Sample ID: L1/2-1-10
Date Collected: 12/06/21 10:45
Date Received: 12/09/21 16:57

Lab Sample ID: 320-82764-3
Matrix: Solid
Percent Solids: 79.5

General Chemistry

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	**20.5**		0.1	0.1	%			12/20/21 14:17	1
Percent Solids	**79.5**		0.1	0.1	%			12/20/21 14:17	1

Client Sample Results

Client: Woodard & Curran, Inc.
Project/Site: SJC PFAS Phase 2

Job ID: 320-82764-1

Client Sample ID: L1/2-2-1

Date Collected: 12/06/21 12:00
Date Received: 12/09/21 16:57

Lab Sample ID: 320-82764-4
Matrix: Solid
Percent Solids: 89.1

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**1.6**		0.22	0.052	ug/Kg	☼	12/20/21 19:22	12/23/21 21:39	1
Perfluoropentanoic acid (PFPeA)	**4.1**		0.22	0.046	ug/Kg	☼	12/20/21 19:22	12/23/21 21:39	1
Perfluorohexanoic acid (PFHxA)	**8.5**		0.22	0.035	ug/Kg	☼	12/20/21 19:22	12/23/21 21:39	1
Perfluoroheptanoic acid (PFHpA)	**1.5**		0.22	0.043	ug/Kg	☼	12/20/21 19:22	12/23/21 21:39	1
Perfluorooctanoic acid (PFOA)	**4.2**		0.22	0.060	ug/Kg	☼	12/20/21 19:22	12/23/21 21:39	1
Perfluorononanoic acid (PFNA)	**0.033**	**J**	0.22	0.025	ug/Kg	☼	12/20/21 19:22	12/23/21 21:39	1
Perfluorodecanoic acid (PFDA)	ND		0.22	0.054	ug/Kg	☼	12/20/21 19:22	12/23/21 21:39	1
Perfluoroundecanoic acid (PFUnA)	ND		0.22	0.047	ug/Kg	☼	12/20/21 19:22	12/23/21 21:39	1
Perfluorododecanoic acid (PFDoA)	ND		0.22	0.034	ug/Kg	☼	12/20/21 19:22	12/23/21 21:39	1
Perfluorotridecanoic acid (PFTrDA)	ND		0.22	0.024	ug/Kg	☼	12/20/21 19:22	12/23/21 21:39	1
Perfluorotetradecanoic acid (PFTeA)	ND		0.22	0.042	ug/Kg	☼	12/20/21 19:22	12/23/21 21:39	1
Perfluorobutanesulfonic acid (PFBS)	**3.5**		0.22	0.043	ug/Kg	☼	12/20/21 19:22	12/23/21 21:39	1
Perfluoropentanesulfonic acid (PFPeS)	**3.7**		0.22	0.042	ug/Kg	☼	12/20/21 19:22	12/23/21 21:39	1
Perfluoroheptanesulfonic Acid (PFHpS)	**2.9**		0.22	0.055	ug/Kg	☼	12/20/21 19:22	12/23/21 21:39	1
Perfluorodecanesulfonic acid (PFDS)	**0.087**	**J**	0.22	0.058	ug/Kg	☼	12/20/21 19:22	12/23/21 21:39	1
Perfluorooctanesulfonamide (FOSA)	**3.1**		0.22	0.037	ug/Kg	☼	12/20/21 19:22	12/23/21 21:39	1
NEtFOSAA	**0.080**	**J**	0.22	0.054	ug/Kg	☼	12/20/21 19:22	12/23/21 21:39	1
NMeFOSAA	**0.032**	**J**	0.22	0.026	ug/Kg	☼	12/20/21 19:22	12/23/21 21:39	1
4:2 FTS	**0.24**		0.22	0.057	ug/Kg	☼	12/20/21 19:22	12/23/21 21:39	1
8:2 FTS	**0.34**		0.22	0.039	ug/Kg	☼	12/20/21 19:22	12/23/21 21:39	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*49*	**5-*	*50 - 150*	*12/20/21 19:22*	*12/23/21 21:39*	*1*
13C5 PFPeA	*83*		*50 - 150*	*12/20/21 19:22*	*12/23/21 21:39*	*1*
13C2 PFHxA	*73*		*50 - 150*	*12/20/21 19:22*	*12/23/21 21:39*	*1*
13C4 PFHpA	*75*		*50 - 150*	*12/20/21 19:22*	*12/23/21 21:39*	*1*
13C4 PFOA	*80*		*50 - 150*	*12/20/21 19:22*	*12/23/21 21:39*	*1*
13C5 PFNA	*71*		*50 - 150*	*12/20/21 19:22*	*12/23/21 21:39*	*1*
13C2 PFDA	*85*		*50 - 150*	*12/20/21 19:22*	*12/23/21 21:39*	*1*
13C2 PFUnA	*84*		*50 - 150*	*12/20/21 19:22*	*12/23/21 21:39*	*1*
13C2 PFDoA	*79*		*50 - 150*	*12/20/21 19:22*	*12/23/21 21:39*	*1*
13C2 PFTeDA	*69*		*50 - 150*	*12/20/21 19:22*	*12/23/21 21:39*	*1*
13C3 PFBS	*82*		*50 - 150*	*12/20/21 19:22*	*12/23/21 21:39*	*1*
13C4 PFOS	*63*		*50 - 150*	*12/20/21 19:22*	*12/23/21 21:39*	*1*
13C8 FOSA	*57*		*50 - 150*	*12/20/21 19:22*	*12/23/21 21:39*	*1*
M2-4:2 FTS	*77*		*50 - 150*	*12/20/21 19:22*	*12/23/21 21:39*	*1*
M2-8:2 FTS	*185*	**5+*	*50 - 150*	*12/20/21 19:22*	*12/23/21 21:39*	*1*
d5-NEtFOSAA	*104*		*50 - 150*	*12/20/21 19:22*	*12/23/21 21:39*	*1*
d3-NMeFOSAA	*88*		*50 - 150*	*12/20/21 19:22*	*12/23/21 21:39*	*1*

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15 - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanesulfonic acid (PFHxS)	**37**		2.2	0.33	ug/Kg	☼	12/20/21 19:22	12/26/21 20:00	10
Perfluorooctanesulfonic acid (PFOS)	**100**		2.2	0.48	ug/Kg	☼	12/20/21 19:22	12/26/21 20:00	10
6:2 FTS	**32**		2.2	0.30	ug/Kg	☼	12/20/21 19:22	12/26/21 20:00	10

Client Sample Results

Client Sample ID: L1/2-2-1

Date Collected: 12/06/21 12:00
Date Received: 12/09/21 16:57

Lab Sample ID: 320-82764-4

Matrix: Solid
Percent Solids: 89.1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
18O2 PFHxS	*61*		*50 - 150*	*12/20/21 19:22*	*12/26/21 20:00*	*10*
13C4 PFOS	*73*		*50 - 150*	*12/20/21 19:22*	*12/26/21 20:00*	*10*
M2-6:2 FTS	*109*		*50 - 150*	*12/20/21 19:22*	*12/26/21 20:00*	*10*

General Chemistry

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	**10.9**		0.1	0.1	%			12/20/21 14:17	1
Percent Solids	**89.1**		0.1	0.1	%			12/20/21 14:17	1

Client Sample Results

Client: Woodard & Curran, Inc.
Project/Site: SJC PFAS Phase 2

Job ID: 320-82764-1

Client Sample ID: L1/2-2-5

Date Collected: 12/06/21 12:05
Date Received: 12/09/21 16:57

Lab Sample ID: 320-82764-5

Matrix: Solid
Percent Solids: 77.5

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**2.4**		0.25	0.058	ug/Kg	☼	12/20/21 19:22	12/23/21 21:49	1
Perfluoropentanoic acid (PFPeA)	**4.3**		0.25	0.052	ug/Kg	☼	12/20/21 19:22	12/23/21 21:49	1
Perfluorohexanoic acid (PFHxA)	**16**		0.25	0.039	ug/Kg	☼	12/20/21 19:22	12/23/21 21:49	1
Perfluoroheptanoic acid (PFHpA)	**3.1**		0.25	0.048	ug/Kg	☼	12/20/21 19:22	12/23/21 21:49	1
Perfluorooctanoic acid (PFOA)	**12**		0.25	0.067	ug/Kg	☼	12/20/21 19:22	12/23/21 21:49	1
Perfluorononanoic acid (PFNA)	ND		0.25	0.028	ug/Kg	☼	12/20/21 19:22	12/23/21 21:49	1
Perfluorodecanoic acid (PFDA)	ND		0.25	0.060	ug/Kg	☼	12/20/21 19:22	12/23/21 21:49	1
Perfluoroundecanoic acid (PFUnA)	ND		0.25	0.053	ug/Kg	☼	12/20/21 19:22	12/23/21 21:49	1
Perfluorododecanoic acid (PFDoA)	ND		0.25	0.038	ug/Kg	☼	12/20/21 19:22	12/23/21 21:49	1
Perfluorotridecanoic acid (PFTrDA)	ND		0.25	0.026	ug/Kg	☼	12/20/21 19:22	12/23/21 21:49	1
Perfluorotetradecanoic acid (PFTeA)	ND		0.25	0.047	ug/Kg	☼	12/20/21 19:22	12/23/21 21:49	1
Perfluorobutanesulfonic acid (PFBS)	**9.5**		0.25	0.048	ug/Kg	☼	12/20/21 19:22	12/23/21 21:49	1
Perfluoropentanesulfonic acid (PFPeS)	**11**		0.25	0.047	ug/Kg	☼	12/20/21 19:22	12/23/21 21:49	1
Perfluoroheptanesulfonic Acid (PFHpS)	**1.4**		0.25	0.062	ug/Kg	☼	12/20/21 19:22	12/23/21 21:49	1
Perfluorooctanesulfonic acid (PFOS)	**7.8**		0.25	0.054	ug/Kg	☼	12/20/21 19:22	12/23/21 21:49	1
Perfluorodecanesulfonic acid (PFDS)	ND		0.25	0.066	ug/Kg	☼	12/20/21 19:22	12/23/21 21:49	1
Perfluorooctanesulfonamide (FOSA)	**0.081**	**J**	0.25	0.042	ug/Kg	☼	12/20/21 19:22	12/23/21 21:49	1
NEtFOSAA	ND		0.25	0.060	ug/Kg	☼	12/20/21 19:22	12/23/21 21:49	1
NMeFOSAA	ND		0.25	0.029	ug/Kg	☼	12/20/21 19:22	12/23/21 21:49	1
4:2 FTS	ND		0.25	0.064	ug/Kg	☼	12/20/21 19:22	12/23/21 21:49	1
6:2 FTS	**3.3**		0.25	0.034	ug/Kg	☼	12/20/21 19:22	12/23/21 21:49	1
8:2 FTS	ND		0.25	0.044	ug/Kg	☼	12/20/21 19:22	12/23/21 21:49	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*63*		*50 - 150*	*12/20/21 19:22*	*12/23/21 21:49*	*1*
13C5 PFPeA	*84*		*50 - 150*	*12/20/21 19:22*	*12/23/21 21:49*	*1*
13C2 PFHxA	*75*		*50 - 150*	*12/20/21 19:22*	*12/23/21 21:49*	*1*
13C4 PFHpA	*69*		*50 - 150*	*12/20/21 19:22*	*12/23/21 21:49*	*1*
13C4 PFOA	*74*		*50 - 150*	*12/20/21 19:22*	*12/23/21 21:49*	*1*
13C5 PFNA	*74*		*50 - 150*	*12/20/21 19:22*	*12/23/21 21:49*	*1*
13C2 PFDA	*72*		*50 - 150*	*12/20/21 19:22*	*12/23/21 21:49*	*1*
13C2 PFUnA	*76*		*50 - 150*	*12/20/21 19:22*	*12/23/21 21:49*	*1*
13C2 PFDoA	*78*		*50 - 150*	*12/20/21 19:22*	*12/23/21 21:49*	*1*
13C2 PFTeDA	*78*		*50 - 150*	*12/20/21 19:22*	*12/23/21 21:49*	*1*
13C3 PFBS	*84*		*50 - 150*	*12/20/21 19:22*	*12/23/21 21:49*	*1*
13C4 PFOS	*64*		*50 - 150*	*12/20/21 19:22*	*12/23/21 21:49*	*1*
13C8 FOSA	*63*		*50 - 150*	*12/20/21 19:22*	*12/23/21 21:49*	*1*
M2-4:2 FTS	*57*		*50 - 150*	*12/20/21 19:22*	*12/23/21 21:49*	*1*
M2-6:2 FTS	*59*		*50 - 150*	*12/20/21 19:22*	*12/23/21 21:49*	*1*
M2-8:2 FTS	*67*		*50 - 150*	*12/20/21 19:22*	*12/23/21 21:49*	*1*
d5-NEtFOSAA	*74*		*50 - 150*	*12/20/21 19:22*	*12/23/21 21:49*	*1*
d3-NMeFOSAA	*68*		*50 - 150*	*12/20/21 19:22*	*12/23/21 21:49*	*1*

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15 - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanesulfonic acid (PFHxS)	**84**		2.5	0.37	ug/Kg	☼	12/20/21 19:22	12/26/21 20:11	10

Client Sample ID: L1/2-2-5 **Lab Sample ID: 320-82764-5**
Date Collected: 12/06/21 12:05 **Matrix: Solid**
Date Received: 12/09/21 16:57 **Percent Solids: 77.5**

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
18O2 PFHxS	*55*		*50 - 150*	*12/20/21 19:22*	*12/26/21 20:11*	*10*

General Chemistry

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	**22.5**		0.1	0.1	%			12/20/21 14:17	1
Percent Solids	**77.5**		0.1	0.1	%			12/20/21 14:17	1

Client Sample Results

Client Sample ID: L1/2-2-10

Lab Sample ID: 320-82764-6

Date Collected: 12/06/21 12:15
Matrix: Solid
Date Received: 12/09/21 16:57
Percent Solids: 76.8

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**0.99**		0.25	0.057	ug/Kg	☼	12/20/21 19:22	12/23/21 21:59	1
Perfluoropentanoic acid (PFPeA)	**1.8**		0.25	0.051	ug/Kg	☼	12/20/21 19:22	12/23/21 21:59	1
Perfluorohexanoic acid (PFHxA)	**7.7**		0.25	0.038	ug/Kg	☼	12/20/21 19:22	12/23/21 21:59	1
Perfluoroheptanoic acid (PFHpA)	**0.81**		0.25	0.047	ug/Kg	☼	12/20/21 19:22	12/23/21 21:59	1
Perfluorooctanoic acid (PFOA)	**0.43**		0.25	0.066	ug/Kg	☼	12/20/21 19:22	12/23/21 21:59	1
Perfluorononanoic acid (PFNA)	ND		0.25	0.027	ug/Kg	☼	12/20/21 19:22	12/23/21 21:59	1
Perfluorodecanoic acid (PFDA)	ND		0.25	0.060	ug/Kg	☼	12/20/21 19:22	12/23/21 21:59	1
Perfluoroundecanoic acid (PFUnA)	ND		0.25	0.052	ug/Kg	☼	12/20/21 19:22	12/23/21 21:59	1
Perfluorododecanoic acid (PFDoA)	ND		0.25	0.037	ug/Kg	☼	12/20/21 19:22	12/23/21 21:59	1
Perfluorotridecanoic acid (PFTrDA)	ND		0.25	0.026	ug/Kg	☼	12/20/21 19:22	12/23/21 21:59	1
Perfluorotetradecanoic acid (PFTeA)	ND		0.25	0.046	ug/Kg	☼	12/20/21 19:22	12/23/21 21:59	1
Perfluorobutanesulfonic acid (PFBS)	**4.9**		0.25	0.047	ug/Kg	☼	12/20/21 19:22	12/23/21 21:59	1
Perfluoropentanesulfonic acid (PFPeS)	**3.5**		0.25	0.046	ug/Kg	☼	12/20/21 19:22	12/23/21 21:59	1
Perfluorohexanesulfonic acid (PFHxS)	**6.6**		0.25	0.036	ug/Kg	☼	12/20/21 19:22	12/23/21 21:59	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		0.25	0.061	ug/Kg	☼	12/20/21 19:22	12/23/21 21:59	1
Perfluorooctanesulfonic acid (PFOS)	ND		0.25	0.053	ug/Kg	☼	12/20/21 19:22	12/23/21 21:59	1
Perfluorodecanesulfonic acid (PFDS)	ND		0.25	0.064	ug/Kg	☼	12/20/21 19:22	12/23/21 21:59	1
Perfluorooctanesulfonamide (FOSA)	ND		0.25	0.041	ug/Kg	☼	12/20/21 19:22	12/23/21 21:59	1
NEtFOSAA	ND		0.25	0.060	ug/Kg	☼	12/20/21 19:22	12/23/21 21:59	1
NMeFOSAA	ND		0.25	0.029	ug/Kg	☼	12/20/21 19:22	12/23/21 21:59	1
4:2 FTS	ND		0.25	0.063	ug/Kg	☼	12/20/21 19:22	12/23/21 21:59	1
6:2 FTS	**0.13**	**J**	0.25	0.033	ug/Kg	☼	12/20/21 19:22	12/23/21 21:59	1
8:2 FTS	ND		0.25	0.043	ug/Kg	☼	12/20/21 19:22	12/23/21 21:59	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*57*		*50 - 150*	*12/20/21 19:22*	*12/23/21 21:59*	*1*
13C5 PFPeA	*81*		*50 - 150*	*12/20/21 19:22*	*12/23/21 21:59*	*1*
13C2 PFHxA	*66*		*50 - 150*	*12/20/21 19:22*	*12/23/21 21:59*	*1*
13C4 PFHpA	*75*		*50 - 150*	*12/20/21 19:22*	*12/23/21 21:59*	*1*
13C4 PFOA	*72*		*50 - 150*	*12/20/21 19:22*	*12/23/21 21:59*	*1*
13C5 PFNA	*68*		*50 - 150*	*12/20/21 19:22*	*12/23/21 21:59*	*1*
13C2 PFDA	*67*		*50 - 150*	*12/20/21 19:22*	*12/23/21 21:59*	*1*
13C2 PFUnA	*71*		*50 - 150*	*12/20/21 19:22*	*12/23/21 21:59*	*1*
13C2 PFDoA	*73*		*50 - 150*	*12/20/21 19:22*	*12/23/21 21:59*	*1*
13C2 PFTeDA	*68*		*50 - 150*	*12/20/21 19:22*	*12/23/21 21:59*	*1*
13C3 PFBS	*74*		*50 - 150*	*12/20/21 19:22*	*12/23/21 21:59*	*1*
18O2 PFHxS	*59*		*50 - 150*	*12/20/21 19:22*	*12/23/21 21:59*	*1*
13C4 PFOS	*63*		*50 - 150*	*12/20/21 19:22*	*12/23/21 21:59*	*1*
13C8 FOSA	*57*		*50 - 150*	*12/20/21 19:22*	*12/23/21 21:59*	*1*
M2-4:2 FTS	*51*		*50 - 150*	*12/20/21 19:22*	*12/23/21 21:59*	*1*
M2-6:2 FTS	*59*		*50 - 150*	*12/20/21 19:22*	*12/23/21 21:59*	*1*
M2-8:2 FTS	*60*		*50 - 150*	*12/20/21 19:22*	*12/23/21 21:59*	*1*
d5-NEtFOSAA	*68*		*50 - 150*	*12/20/21 19:22*	*12/23/21 21:59*	*1*
d3-NMeFOSAA	*61*		*50 - 150*	*12/20/21 19:22*	*12/23/21 21:59*	*1*

Client Sample ID: L1/2-2-10

Date Collected: 12/06/21 12:15
Date Received: 12/09/21 16:57

Lab Sample ID: 320-82764-6

Matrix: Solid
Percent Solids: 76.8

General Chemistry

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	**23.2**		0.1	0.1	%			12/20/21 14:17	1
Percent Solids	**76.8**		0.1	0.1	%			12/20/21 14:17	1

Client Sample Results

Client Sample ID: FB-1-120621

Lab Sample ID: 320-82764-7

Date Collected: 12/06/21 12:20

Matrix: Water

Date Received: 12/09/21 16:57

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND	H	4.6	2.2	ng/L		12/21/21 04:24	12/24/21 08:07	1
Perfluoropentanoic acid (PFPeA)	ND	H	1.9	0.45	ng/L		12/21/21 04:24	12/24/21 08:07	1
Perfluorohexanoic acid (PFHxA)	ND	H	1.9	0.54	ng/L		12/21/21 04:24	12/24/21 08:07	1
Perfluoroheptanoic acid (PFHpA)	ND	H	1.9	0.23	ng/L		12/21/21 04:24	12/24/21 08:07	1
Perfluorooctanoic acid (PFOA)	ND	H	1.9	0.79	ng/L		12/21/21 04:24	12/24/21 08:07	1
Perfluorononanoic acid (PFNA)	ND	H	1.9	0.25	ng/L		12/21/21 04:24	12/24/21 08:07	1
Perfluorodecanoic acid (PFDA)	ND	H	1.9	0.29	ng/L		12/21/21 04:24	12/24/21 08:07	1
Perfluoroundecanoic acid (PFUnA)	ND	H	1.9	1.0	ng/L		12/21/21 04:24	12/24/21 08:07	1
Perfluorododecanoic acid (PFDoA)	ND	H	1.9	0.51	ng/L		12/21/21 04:24	12/24/21 08:07	1
Perfluorotridecanoic acid (PFTrDA)	ND	H	1.9	1.2	ng/L		12/21/21 04:24	12/24/21 08:07	1
Perfluorotetradecanoic acid (PFTeA)	ND	H	1.9	0.68	ng/L		12/21/21 04:24	12/24/21 08:07	1
Perfluorobutanesulfonic acid (PFBS)	ND	H	1.9	0.19	ng/L		12/21/21 04:24	12/24/21 08:07	1
Perfluoropentanesulfonic acid (PFPeS)	ND	H	1.9	0.28	ng/L		12/21/21 04:24	12/24/21 08:07	1
Perfluorohexanesulfonic acid (PFHxS)	ND	H	1.9	0.53	ng/L		12/21/21 04:24	12/24/21 08:07	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND	H	1.9	0.18	ng/L		12/21/21 04:24	12/24/21 08:07	1
Perfluorooctanesulfonic acid (PFOS)	ND	H	1.9	0.50	ng/L		12/21/21 04:24	12/24/21 08:07	1
Perfluorodecanesulfonic acid (PFDS)	ND	H	1.9	0.30	ng/L		12/21/21 04:24	12/24/21 08:07	1
Perfluorooctanesulfonamide (FOSA)	ND	H	1.9	0.91	ng/L		12/21/21 04:24	12/24/21 08:07	1
NEtFOSAA	ND	H	4.6	1.2	ng/L		12/21/21 04:24	12/24/21 08:07	1
NMeFOSAA	ND	H	4.6	1.1	ng/L		12/21/21 04:24	12/24/21 08:07	1
4:2 FTS	ND	H	1.9	0.22	ng/L		12/21/21 04:24	12/24/21 08:07	1
6:2 FTS	ND	H	4.6	2.3	ng/L		12/21/21 04:24	12/24/21 08:07	1
8:2 FTS	ND	H	1.9	0.43	ng/L		12/21/21 04:24	12/24/21 08:07	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*76*		*50 - 150*	*12/21/21 04:24*	*12/24/21 08:07*	*1*
13C5 PFPeA	*92*		*50 - 150*	*12/21/21 04:24*	*12/24/21 08:07*	*1*
13C2 PFHxA	*77*		*50 - 150*	*12/21/21 04:24*	*12/24/21 08:07*	*1*
13C4 PFHpA	*78*		*50 - 150*	*12/21/21 04:24*	*12/24/21 08:07*	*1*
13C4 PFOA	*77*		*50 - 150*	*12/21/21 04:24*	*12/24/21 08:07*	*1*
13C5 PFNA	*71*		*50 - 150*	*12/21/21 04:24*	*12/24/21 08:07*	*1*
13C2 PFDA	*78*		*50 - 150*	*12/21/21 04:24*	*12/24/21 08:07*	*1*
13C2 PFUnA	*77*		*50 - 150*	*12/21/21 04:24*	*12/24/21 08:07*	*1*
13C2 PFDoA	*72*		*50 - 150*	*12/21/21 04:24*	*12/24/21 08:07*	*1*
13C2 PFTeDA	*72*		*50 - 150*	*12/21/21 04:24*	*12/24/21 08:07*	*1*
13C3 PFBS	*91*		*50 - 150*	*12/21/21 04:24*	*12/24/21 08:07*	*1*
18O2 PFHxS	*71*		*50 - 150*	*12/21/21 04:24*	*12/24/21 08:07*	*1*
13C4 PFOS	*72*		*50 - 150*	*12/21/21 04:24*	*12/24/21 08:07*	*1*
13C8 FOSA	*61*		*50 - 150*	*12/21/21 04:24*	*12/24/21 08:07*	*1*
M2-4:2 FTS	*81*		*50 - 150*	*12/21/21 04:24*	*12/24/21 08:07*	*1*
M2-6:2 FTS	*78*		*50 - 150*	*12/21/21 04:24*	*12/24/21 08:07*	*1*
M2-8:2 FTS	*84*		*50 - 150*	*12/21/21 04:24*	*12/24/21 08:07*	*1*
d5-NEtFOSAA	*90*		*50 - 150*	*12/21/21 04:24*	*12/24/21 08:07*	*1*
d3-NMeFOSAA	*84*		*50 - 150*	*12/21/21 04:24*	*12/24/21 08:07*	*1*

Client Sample Results

Client: Woodard & Curran, Inc.
Project/Site: SJC PFAS Phase 2

Job ID: 320-82764-1

Client Sample ID: L8/9-9-GW
Date Collected: 12/07/21 14:45
Date Received: 12/09/21 16:57

Lab Sample ID: 320-82764-8
Matrix: Water

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**9.6**		4.7	2.2	ng/L		12/21/21 04:24	12/29/21 05:08	1
Perfluoropentanoic acid (PFPeA)	**13**		1.9	0.46	ng/L		12/21/21 04:24	12/29/21 05:08	1
Perfluorohexanoic acid (PFHxA)	**9.3**		1.9	0.54	ng/L		12/21/21 04:24	12/29/21 05:08	1
Perfluoroheptanoic acid (PFHpA)	**1.5**	**J**	1.9	0.23	ng/L		12/21/21 04:24	12/29/21 05:08	1
Perfluorooctanoic acid (PFOA)	**3.1**		1.9	0.80	ng/L		12/21/21 04:24	12/29/21 05:08	1
Perfluorononanoic acid (PFNA)	ND		1.9	0.25	ng/L		12/21/21 04:24	12/29/21 05:08	1
Perfluorodecanoic acid (PFDA)	ND		1.9	0.29	ng/L		12/21/21 04:24	12/29/21 05:08	1
Perfluoroundecanoic acid (PFUnA)	ND		1.9	1.0	ng/L		12/21/21 04:24	12/29/21 05:08	1
Perfluorododecanoic acid (PFDoA)	ND		1.9	0.51	ng/L		12/21/21 04:24	12/29/21 05:08	1
Perfluorotridecanoic acid (PFTrDA)	ND		1.9	1.2	ng/L		12/21/21 04:24	12/29/21 05:08	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.9	0.68	ng/L		12/21/21 04:24	12/29/21 05:08	1
Perfluorobutanesulfonic acid (PFBS)	**4.5**		1.9	0.19	ng/L		12/21/21 04:24	12/29/21 05:08	1
Perfluoropentanesulfonic acid (PFPeS)	**2.2**		1.9	0.28	ng/L		12/21/21 04:24	12/29/21 05:08	1
Perfluorohexanesulfonic acid (PFHxS)	**12**		1.9	0.53	ng/L		12/21/21 04:24	12/29/21 05:08	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		1.9	0.18	ng/L		12/21/21 04:24	12/29/21 05:08	1
Perfluorooctanesulfonic acid (PFOS)	**1.9**		1.9	0.51	ng/L		12/21/21 04:24	12/29/21 05:08	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.9	0.30	ng/L		12/21/21 04:24	12/29/21 05:08	1
Perfluorooctanesulfonamide (FOSA)	ND		1.9	0.92	ng/L		12/21/21 04:24	12/29/21 05:08	1
NEtFOSAA	ND		4.7	1.2	ng/L		12/21/21 04:24	12/29/21 05:08	1
NMeFOSAA	ND		4.7	1.1	ng/L		12/21/21 04:24	12/29/21 05:08	1
4:2 FTS	ND		1.9	0.22	ng/L		12/21/21 04:24	12/29/21 05:08	1
6:2 FTS	**18**		4.7	2.3	ng/L		12/21/21 04:24	12/29/21 05:08	1
8:2 FTS	ND		1.9	0.43	ng/L		12/21/21 04:24	12/29/21 05:08	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*68*		*50 - 150*	*12/21/21 04:24*	*12/29/21 05:08*	*1*
13C5 PFPeA	*83*		*50 - 150*	*12/21/21 04:24*	*12/29/21 05:08*	*1*
13C2 PFHxA	*66*		*50 - 150*	*12/21/21 04:24*	*12/29/21 05:08*	*1*
13C4 PFHpA	*78*		*50 - 150*	*12/21/21 04:24*	*12/29/21 05:08*	*1*
13C4 PFOA	*77*		*50 - 150*	*12/21/21 04:24*	*12/29/21 05:08*	*1*
13C5 PFNA	*80*		*50 - 150*	*12/21/21 04:24*	*12/29/21 05:08*	*1*
13C2 PFDA	*81*		*50 - 150*	*12/21/21 04:24*	*12/29/21 05:08*	*1*
13C2 PFUnA	*74*		*50 - 150*	*12/21/21 04:24*	*12/29/21 05:08*	*1*
13C2 PFDoA	*66*		*50 - 150*	*12/21/21 04:24*	*12/29/21 05:08*	*1*
13C2 PFTeDA	*57*		*50 - 150*	*12/21/21 04:24*	*12/29/21 05:08*	*1*
13C3 PFBS	*73*		*50 - 150*	*12/21/21 04:24*	*12/29/21 05:08*	*1*
18O2 PFHxS	*78*		*50 - 150*	*12/21/21 04:24*	*12/29/21 05:08*	*1*
13C4 PFOS	*83*		*50 - 150*	*12/21/21 04:24*	*12/29/21 05:08*	*1*
13C8 FOSA	*61*		*50 - 150*	*12/21/21 04:24*	*12/29/21 05:08*	*1*
M2-4:2 FTS	*77*		*50 - 150*	*12/21/21 04:24*	*12/29/21 05:08*	*1*
M2-6:2 FTS	*92*		*50 - 150*	*12/21/21 04:24*	*12/29/21 05:08*	*1*
M2-8:2 FTS	*100*		*50 - 150*	*12/21/21 04:24*	*12/29/21 05:08*	*1*
d5-NEtFOSAA	*79*		*50 - 150*	*12/21/21 04:24*	*12/29/21 05:08*	*1*
d3-NMeFOSAA	*73*		*50 - 150*	*12/21/21 04:24*	*12/29/21 05:08*	*1*

Client Sample Results

Client: Woodard & Curran, Inc.
Project/Site: SJC PFAS Phase 2

Job ID: 320-82764-1

Client Sample ID: L8/9-8-GW

Date Collected: 12/08/21 10:30
Date Received: 12/09/21 16:57

Lab Sample ID: 320-82764-9

Matrix: Water

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**24**		4.7	2.3	ng/L		12/21/21 04:24	12/29/21 05:18	1
Perfluoropentanoic acid (PFPeA)	**42**		1.9	0.46	ng/L		12/21/21 04:24	12/29/21 05:18	1
Perfluorohexanoic acid (PFHxA)	**24**		1.9	0.55	ng/L		12/21/21 04:24	12/29/21 05:18	1
Perfluoroheptanoic acid (PFHpA)	**5.8**		1.9	0.24	ng/L		12/21/21 04:24	12/29/21 05:18	1
Perfluorooctanoic acid (PFOA)	**3.4**		1.9	0.80	ng/L		12/21/21 04:24	12/29/21 05:18	1
Perfluorononanoic acid (PFNA)	ND		1.9	0.26	ng/L		12/21/21 04:24	12/29/21 05:18	1
Perfluorodecanoic acid (PFDA)	ND		1.9	0.29	ng/L		12/21/21 04:24	12/29/21 05:18	1
Perfluoroundecanoic acid (PFUnA)	ND		1.9	1.0	ng/L		12/21/21 04:24	12/29/21 05:18	1
Perfluorododecanoic acid (PFDoA)	ND		1.9	0.52	ng/L		12/21/21 04:24	12/29/21 05:18	1
Perfluorotridecanoic acid (PFTrDA)	ND		1.9	1.2	ng/L		12/21/21 04:24	12/29/21 05:18	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.9	0.69	ng/L		12/21/21 04:24	12/29/21 05:18	1
Perfluorobutanesulfonic acid (PFBS)	**3.2**		1.9	0.19	ng/L		12/21/21 04:24	12/29/21 05:18	1
Perfluoropentanesulfonic acid (PFPeS)	**1.3**	**J**	1.9	0.28	ng/L		12/21/21 04:24	12/29/21 05:18	1
Perfluorohexanesulfonic acid (PFHxS)	**5.7**		1.9	0.54	ng/L		12/21/21 04:24	12/29/21 05:18	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		1.9	0.18	ng/L		12/21/21 04:24	12/29/21 05:18	1
Perfluorooctanesulfonic acid (PFOS)	**3.8**		1.9	0.51	ng/L		12/21/21 04:24	12/29/21 05:18	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.9	0.30	ng/L		12/21/21 04:24	12/29/21 05:18	1
Perfluorooctanesulfonamide (FOSA)	ND		1.9	0.93	ng/L		12/21/21 04:24	12/29/21 05:18	1
NEtFOSAA	ND		4.7	1.2	ng/L		12/21/21 04:24	12/29/21 05:18	1
NMeFOSAA	ND		4.7	1.1	ng/L		12/21/21 04:24	12/29/21 05:18	1
4:2 FTS	ND		1.9	0.23	ng/L		12/21/21 04:24	12/29/21 05:18	1
6:2 FTS	**81**		4.7	2.4	ng/L		12/21/21 04:24	12/29/21 05:18	1
8:2 FTS	ND		1.9	0.43	ng/L		12/21/21 04:24	12/29/21 05:18	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*58*		*50 - 150*	*12/21/21 04:24*	*12/29/21 05:18*	*1*
13C5 PFPeA	*77*		*50 - 150*	*12/21/21 04:24*	*12/29/21 05:18*	*1*
13C2 PFHxA	*69*		*50 - 150*	*12/21/21 04:24*	*12/29/21 05:18*	*1*
13C4 PFHpA	*75*		*50 - 150*	*12/21/21 04:24*	*12/29/21 05:18*	*1*
13C4 PFOA	*88*		*50 - 150*	*12/21/21 04:24*	*12/29/21 05:18*	*1*
13C5 PFNA	*88*		*50 - 150*	*12/21/21 04:24*	*12/29/21 05:18*	*1*
13C2 PFDA	*86*		*50 - 150*	*12/21/21 04:24*	*12/29/21 05:18*	*1*
13C2 PFUnA	*85*		*50 - 150*	*12/21/21 04:24*	*12/29/21 05:18*	*1*
13C2 PFDoA	*78*		*50 - 150*	*12/21/21 04:24*	*12/29/21 05:18*	*1*
13C2 PFTeDA	*63*		*50 - 150*	*12/21/21 04:24*	*12/29/21 05:18*	*1*
13C3 PFBS	*79*		*50 - 150*	*12/21/21 04:24*	*12/29/21 05:18*	*1*
18O2 PFHxS	*87*		*50 - 150*	*12/21/21 04:24*	*12/29/21 05:18*	*1*
13C4 PFOS	*91*		*50 - 150*	*12/21/21 04:24*	*12/29/21 05:18*	*1*
13C8 FOSA	*64*		*50 - 150*	*12/21/21 04:24*	*12/29/21 05:18*	*1*
M2-4:2 FTS	*107*		*50 - 150*	*12/21/21 04:24*	*12/29/21 05:18*	*1*
M2-6:2 FTS	*115*		*50 - 150*	*12/21/21 04:24*	*12/29/21 05:18*	*1*
M2-8:2 FTS	*138*		*50 - 150*	*12/21/21 04:24*	*12/29/21 05:18*	*1*
d5-NEtFOSAA	*89*		*50 - 150*	*12/21/21 04:24*	*12/29/21 05:18*	*1*
d3-NMeFOSAA	*79*		*50 - 150*	*12/21/21 04:24*	*12/29/21 05:18*	*1*

Client Sample Results

Client: Woodard & Curran, Inc.
Project/Site: SJC PFAS Phase 2

Job ID: 320-82764-1

Client Sample ID: L8/9-7-GW

Lab Sample ID: 320-82764-10

Date Collected: 12/08/21 09:10
Date Received: 12/09/21 16:57
Matrix: Water

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**18**		4.7	2.3	ng/L		12/21/21 04:24	12/29/21 05:29	1
Perfluoropentanoic acid (PFPeA)	**26**		1.9	0.47	ng/L		12/21/21 04:24	12/29/21 05:29	1
Perfluorohexanoic acid (PFHxA)	**19**		1.9	0.55	ng/L		12/21/21 04:24	12/29/21 05:29	1
Perfluoroheptanoic acid (PFHpA)	**4.4**		1.9	0.24	ng/L		12/21/21 04:24	12/29/21 05:29	1
Perfluorooctanoic acid (PFOA)	**5.0**		1.9	0.81	ng/L		12/21/21 04:24	12/29/21 05:29	1
Perfluorononanoic acid (PFNA)	**0.40**	**J**	1.9	0.26	ng/L		12/21/21 04:24	12/29/21 05:29	1
Perfluorodecanoic acid (PFDA)	**0.67**	**J**	1.9	0.29	ng/L		12/21/21 04:24	12/29/21 05:29	1
Perfluoroundecanoic acid (PFUnA)	ND		1.9	1.0	ng/L		12/21/21 04:24	12/29/21 05:29	1
Perfluorododecanoic acid (PFDoA)	ND		1.9	0.52	ng/L		12/21/21 04:24	12/29/21 05:29	1
Perfluorotridecanoic acid (PFTrDA)	ND		1.9	1.2	ng/L		12/21/21 04:24	12/29/21 05:29	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.9	0.69	ng/L		12/21/21 04:24	12/29/21 05:29	1
Perfluorobutanesulfonic acid (PFBS)	**3.4**		1.9	0.19	ng/L		12/21/21 04:24	12/29/21 05:29	1
Perfluoropentanesulfonic acid (PFPeS)	**0.97**	**J**	1.9	0.28	ng/L		12/21/21 04:24	12/29/21 05:29	1
Perfluorohexanesulfonic acid (PFHxS)	**5.5**		1.9	0.54	ng/L		12/21/21 04:24	12/29/21 05:29	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		1.9	0.18	ng/L		12/21/21 04:24	12/29/21 05:29	1
Perfluorooctanesulfonic acid (PFOS)	**2.5**		1.9	0.51	ng/L		12/21/21 04:24	12/29/21 05:29	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.9	0.30	ng/L		12/21/21 04:24	12/29/21 05:29	1
Perfluorooctanesulfonamide (FOSA)	ND		1.9	0.93	ng/L		12/21/21 04:24	12/29/21 05:29	1
NEtFOSAA	ND		4.7	1.2	ng/L		12/21/21 04:24	12/29/21 05:29	1
NMeFOSAA	ND		4.7	1.1	ng/L		12/21/21 04:24	12/29/21 05:29	1
4:2 FTS	ND		1.9	0.23	ng/L		12/21/21 04:24	12/29/21 05:29	1
6:2 FTS	**6.3**		4.7	2.4	ng/L		12/21/21 04:24	12/29/21 05:29	1
8:2 FTS	ND		1.9	0.44	ng/L		12/21/21 04:24	12/29/21 05:29	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*52*		*50 - 150*	*12/21/21 04:24*	*12/29/21 05:29*	*1*
13C5 PFPeA	*68*		*50 - 150*	*12/21/21 04:24*	*12/29/21 05:29*	*1*
13C2 PFHxA	*55*		*50 - 150*	*12/21/21 04:24*	*12/29/21 05:29*	*1*
13C4 PFHpA	*70*		*50 - 150*	*12/21/21 04:24*	*12/29/21 05:29*	*1*
13C4 PFOA	*78*		*50 - 150*	*12/21/21 04:24*	*12/29/21 05:29*	*1*
13C5 PFNA	*85*		*50 - 150*	*12/21/21 04:24*	*12/29/21 05:29*	*1*
13C2 PFDA	*82*		*50 - 150*	*12/21/21 04:24*	*12/29/21 05:29*	*1*
13C2 PFUnA	*75*		*50 - 150*	*12/21/21 04:24*	*12/29/21 05:29*	*1*
13C2 PFDoA	*77*		*50 - 150*	*12/21/21 04:24*	*12/29/21 05:29*	*1*
13C2 PFTeDA	*69*		*50 - 150*	*12/21/21 04:24*	*12/29/21 05:29*	*1*
13C3 PFBS	*72*		*50 - 150*	*12/21/21 04:24*	*12/29/21 05:29*	*1*
18O2 PFHxS	*72*		*50 - 150*	*12/21/21 04:24*	*12/29/21 05:29*	*1*
13C4 PFOS	*81*		*50 - 150*	*12/21/21 04:24*	*12/29/21 05:29*	*1*
13C8 FOSA	*63*		*50 - 150*	*12/21/21 04:24*	*12/29/21 05:29*	*1*
M2-4:2 FTS	*105*		*50 - 150*	*12/21/21 04:24*	*12/29/21 05:29*	*1*
M2-6:2 FTS	*135*		*50 - 150*	*12/21/21 04:24*	*12/29/21 05:29*	*1*
M2-8:2 FTS	*127*		*50 - 150*	*12/21/21 04:24*	*12/29/21 05:29*	*1*
d5-NEtFOSAA	*87*		*50 - 150*	*12/21/21 04:24*	*12/29/21 05:29*	*1*
d3-NMeFOSAA	*86*		*50 - 150*	*12/21/21 04:24*	*12/29/21 05:29*	*1*

Client Sample Results

Client: Woodard & Curran, Inc.
Project/Site: SJC PFAS Phase 2

Job ID: 320-82764-1

Client Sample ID: L8/9-6-GW

Lab Sample ID: 320-82764-11

Date Collected: 12/08/21 09:45
Date Received: 12/09/21 16:57

Matrix: Water

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**270**		25	12	ng/L		12/21/21 04:24	12/29/21 06:21	5
Perfluoropentanoic acid (PFPeA)	**690**		9.8	2.4	ng/L		12/21/21 04:24	12/29/21 06:21	5
Perfluorohexanoic acid (PFHxA)	**300**		9.8	2.8	ng/L		12/21/21 04:24	12/29/21 06:21	5
Perfluoroheptanoic acid (PFHpA)	**24**		9.8	1.2	ng/L		12/21/21 04:24	12/29/21 06:21	5
Perfluorooctanoic acid (PFOA)	**15**		9.8	4.2	ng/L		12/21/21 04:24	12/29/21 06:21	5
Perfluorononanoic acid (PFNA)	ND		9.8	1.3	ng/L		12/21/21 04:24	12/29/21 06:21	5
Perfluorodecanoic acid (PFDA)	ND		9.8	1.5	ng/L		12/21/21 04:24	12/29/21 06:21	5
Perfluoroundecanoic acid (PFUnA)	ND		9.8	5.4	ng/L		12/21/21 04:24	12/29/21 06:21	5
Perfluorododecanoic acid (PFDoA)	ND		9.8	2.7	ng/L		12/21/21 04:24	12/29/21 06:21	5
Perfluorotridecanoic acid (PFTrDA)	ND		9.8	6.4	ng/L		12/21/21 04:24	12/29/21 06:21	5
Perfluorotetradecanoic acid (PFTeA)	ND		9.8	3.6	ng/L		12/21/21 04:24	12/29/21 06:21	5
Perfluorobutanesulfonic acid (PFBS)	**26**		9.8	0.98	ng/L		12/21/21 04:24	12/29/21 06:21	5
Perfluoropentanesulfonic acid (PFPeS)	**7.1**	**J**	9.8	1.5	ng/L		12/21/21 04:24	12/29/21 06:21	5
Perfluorohexanesulfonic acid (PFHxS)	**17**		9.8	2.8	ng/L		12/21/21 04:24	12/29/21 06:21	5
Perfluoroheptanesulfonic Acid (PFHpS)	ND		9.8	0.93	ng/L		12/21/21 04:24	12/29/21 06:21	5
Perfluorooctanesulfonic acid (PFOS)	**9.6**	**J**	9.8	2.6	ng/L		12/21/21 04:24	12/29/21 06:21	5
Perfluorodecanesulfonic acid (PFDS)	ND		9.8	1.6	ng/L		12/21/21 04:24	12/29/21 06:21	5
Perfluorooctanesulfonamide (FOSA)	ND		9.8	4.8	ng/L		12/21/21 04:24	12/29/21 06:21	5
NEtFOSAA	ND		25	6.4	ng/L		12/21/21 04:24	12/29/21 06:21	5
NMeFOSAA	ND		25	5.9	ng/L		12/21/21 04:24	12/29/21 06:21	5
4:2 FTS	ND		9.8	1.2	ng/L		12/21/21 04:24	12/29/21 06:21	5
6:2 FTS	**24**	**J**	25	12	ng/L		12/21/21 04:24	12/29/21 06:21	5
8:2 FTS	ND		9.8	2.3	ng/L		12/21/21 04:24	12/29/21 06:21	5

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*56*		*50 - 150*	*12/21/21 04:24*	*12/29/21 06:21*	*5*
13C5 PFPeA	*68*		*50 - 150*	*12/21/21 04:24*	*12/29/21 06:21*	*5*
13C2 PFHxA	*64*		*50 - 150*	*12/21/21 04:24*	*12/29/21 06:21*	*5*
13C4 PFHpA	*76*		*50 - 150*	*12/21/21 04:24*	*12/29/21 06:21*	*5*
13C4 PFOA	*73*		*50 - 150*	*12/21/21 04:24*	*12/29/21 06:21*	*5*
13C5 PFNA	*76*		*50 - 150*	*12/21/21 04:24*	*12/29/21 06:21*	*5*
13C2 PFDA	*70*		*50 - 150*	*12/21/21 04:24*	*12/29/21 06:21*	*5*
13C2 PFUnA	*76*		*50 - 150*	*12/21/21 04:24*	*12/29/21 06:21*	*5*
13C2 PFDoA	*65*		*50 - 150*	*12/21/21 04:24*	*12/29/21 06:21*	*5*
13C2 PFTeDA	*32*	**5-*	*50 - 150*	*12/21/21 04:24*	*12/29/21 06:21*	*5*
13C3 PFBS	*67*		*50 - 150*	*12/21/21 04:24*	*12/29/21 06:21*	*5*
18O2 PFHxS	*68*		*50 - 150*	*12/21/21 04:24*	*12/29/21 06:21*	*5*
13C4 PFOS	*68*		*50 - 150*	*12/21/21 04:24*	*12/29/21 06:21*	*5*
13C8 FOSA	*51*		*50 - 150*	*12/21/21 04:24*	*12/29/21 06:21*	*5*
M2-4:2 FTS	*74*		*50 - 150*	*12/21/21 04:24*	*12/29/21 06:21*	*5*
M2-6:2 FTS	*79*		*50 - 150*	*12/21/21 04:24*	*12/29/21 06:21*	*5*
M2-8:2 FTS	*88*		*50 - 150*	*12/21/21 04:24*	*12/29/21 06:21*	*5*
d5-NEtFOSAA	*76*		*50 - 150*	*12/21/21 04:24*	*12/29/21 06:21*	*5*
d3-NMeFOSAA	*63*		*50 - 150*	*12/21/21 04:24*	*12/29/21 06:21*	*5*

Client Sample Results

Client Sample ID: FB-2-120721
Date Collected: 12/07/21 11:10
Date Received: 12/09/21 16:57

Lab Sample ID: 320-82764-12
Matrix: Water

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		4.7	2.3	ng/L		12/17/21 12:51	12/21/21 23:30	1
Perfluoropentanoic acid (PFPeA)	ND		1.9	0.46	ng/L		12/17/21 12:51	12/21/21 23:30	1
Perfluorohexanoic acid (PFHxA)	ND		1.9	0.55	ng/L		12/17/21 12:51	12/21/21 23:30	1
Perfluoroheptanoic acid (PFHpA)	ND		1.9	0.24	ng/L		12/17/21 12:51	12/21/21 23:30	1
Perfluorooctanoic acid (PFOA)	ND		1.9	0.80	ng/L		12/17/21 12:51	12/21/21 23:30	1
Perfluorononanoic acid (PFNA)	ND		1.9	0.25	ng/L		12/17/21 12:51	12/21/21 23:30	1
Perfluorodecanoic acid (PFDA)	ND		1.9	0.29	ng/L		12/17/21 12:51	12/21/21 23:30	1
Perfluoroundecanoic acid (PFUnA)	ND		1.9	1.0	ng/L		12/17/21 12:51	12/21/21 23:30	1
Perfluorododecanoic acid (PFDoA)	ND		1.9	0.52	ng/L		12/17/21 12:51	12/21/21 23:30	1
Perfluorotridecanoic acid (PFTrDA)	ND		1.9	1.2	ng/L		12/17/21 12:51	12/21/21 23:30	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.9	0.69	ng/L		12/17/21 12:51	12/21/21 23:30	1
Perfluorobutanesulfonic acid (PFBS)	ND		1.9	0.19	ng/L		12/17/21 12:51	12/21/21 23:30	1
Perfluoropentanesulfonic acid (PFPeS)	ND		1.9	0.28	ng/L		12/17/21 12:51	12/21/21 23:30	1
Perfluorohexanesulfonic acid (PFHxS)	ND		1.9	0.54	ng/L		12/17/21 12:51	12/21/21 23:30	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		1.9	0.18	ng/L		12/17/21 12:51	12/21/21 23:30	1
Perfluorooctanesulfonic acid (PFOS)	ND		1.9	0.51	ng/L		12/17/21 12:51	12/21/21 23:30	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.9	0.30	ng/L		12/17/21 12:51	12/21/21 23:30	1
Perfluorooctanesulfonamide (FOSA)	ND		1.9	0.93	ng/L		12/17/21 12:51	12/21/21 23:30	1
NEtFOSAA	ND		4.7	1.2	ng/L		12/17/21 12:51	12/21/21 23:30	1
NMeFOSAA	ND		4.7	1.1	ng/L		12/17/21 12:51	12/21/21 23:30	1
4:2 FTS	ND		1.9	0.23	ng/L		12/17/21 12:51	12/21/21 23:30	1
6:2 FTS	ND		4.7	2.4	ng/L		12/17/21 12:51	12/21/21 23:30	1
8:2 FTS	ND		1.9	0.43	ng/L		12/17/21 12:51	12/21/21 23:30	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*84*		*50 - 150*	*12/17/21 12:51*	*12/21/21 23:30*	*1*
13C5 PFPeA	*92*		*50 - 150*	*12/17/21 12:51*	*12/21/21 23:30*	*1*
13C2 PFHxA	*94*		*50 - 150*	*12/17/21 12:51*	*12/21/21 23:30*	*1*
13C4 PFHpA	*100*		*50 - 150*	*12/17/21 12:51*	*12/21/21 23:30*	*1*
13C4 PFOA	*98*		*50 - 150*	*12/17/21 12:51*	*12/21/21 23:30*	*1*
13C5 PFNA	*94*		*50 - 150*	*12/17/21 12:51*	*12/21/21 23:30*	*1*
13C2 PFDA	*96*		*50 - 150*	*12/17/21 12:51*	*12/21/21 23:30*	*1*
13C2 PFUnA	*91*		*50 - 150*	*12/17/21 12:51*	*12/21/21 23:30*	*1*
13C2 PFDoA	*84*		*50 - 150*	*12/17/21 12:51*	*12/21/21 23:30*	*1*
13C2 PFTeDA	*80*		*50 - 150*	*12/17/21 12:51*	*12/21/21 23:30*	*1*
13C3 PFBS	*95*		*50 - 150*	*12/17/21 12:51*	*12/21/21 23:30*	*1*
18O2 PFHxS	*91*		*50 - 150*	*12/17/21 12:51*	*12/21/21 23:30*	*1*
13C4 PFOS	*91*		*50 - 150*	*12/17/21 12:51*	*12/21/21 23:30*	*1*
13C8 FOSA	*71*		*50 - 150*	*12/17/21 12:51*	*12/21/21 23:30*	*1*
M2-4:2 FTS	*99*		*50 - 150*	*12/17/21 12:51*	*12/21/21 23:30*	*1*
M2-6:2 FTS	*93*		*50 - 150*	*12/17/21 12:51*	*12/21/21 23:30*	*1*
M2-8:2 FTS	*96*		*50 - 150*	*12/17/21 12:51*	*12/21/21 23:30*	*1*
d5-NEtFOSAA	*96*		*50 - 150*	*12/17/21 12:51*	*12/21/21 23:30*	*1*
d3-NMeFOSAA	*91*		*50 - 150*	*12/17/21 12:51*	*12/21/21 23:30*	*1*

Client Sample ID: EB-1-120721

Lab Sample ID: 320-82764-13

Date Collected: 12/07/21 11:00
Matrix: Water
Date Received: 12/09/21 16:57

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		4.7	2.3	ng/L		12/17/21 12:51	12/21/21 23:40	1
Perfluoropentanoic acid (PFPeA)	ND		1.9	0.46	ng/L		12/17/21 12:51	12/21/21 23:40	1
Perfluorohexanoic acid (PFHxA)	ND		1.9	0.54	ng/L		12/17/21 12:51	12/21/21 23:40	1
Perfluoroheptanoic acid (PFHpA)	ND		1.9	0.23	ng/L		12/17/21 12:51	12/21/21 23:40	1
Perfluorooctanoic acid (PFOA)	ND		1.9	0.80	ng/L		12/17/21 12:51	12/21/21 23:40	1
Perfluorononanoic acid (PFNA)	ND		1.9	0.25	ng/L		12/17/21 12:51	12/21/21 23:40	1
Perfluorodecanoic acid (PFDA)	ND		1.9	0.29	ng/L		12/17/21 12:51	12/21/21 23:40	1
Perfluoroundecanoic acid (PFUnA)	ND		1.9	1.0	ng/L		12/17/21 12:51	12/21/21 23:40	1
Perfluorododecanoic acid (PFDoA)	ND		1.9	0.52	ng/L		12/17/21 12:51	12/21/21 23:40	1
Perfluorotridecanoic acid (PFTrDA)	ND		1.9	1.2	ng/L		12/17/21 12:51	12/21/21 23:40	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.9	0.69	ng/L		12/17/21 12:51	12/21/21 23:40	1
Perfluorobutanesulfonic acid (PFBS)	ND		1.9	0.19	ng/L		12/17/21 12:51	12/21/21 23:40	1
Perfluoropentanesulfonic acid (PFPeS)	ND		1.9	0.28	ng/L		12/17/21 12:51	12/21/21 23:40	1
Perfluorohexanesulfonic acid (PFHxS)	ND		1.9	0.54	ng/L		12/17/21 12:51	12/21/21 23:40	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		1.9	0.18	ng/L		12/17/21 12:51	12/21/21 23:40	1
Perfluorooctanesulfonic acid (PFOS)	ND		1.9	0.51	ng/L		12/17/21 12:51	12/21/21 23:40	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.9	0.30	ng/L		12/17/21 12:51	12/21/21 23:40	1
Perfluorooctanesulfonamide (FOSA)	ND		1.9	0.92	ng/L		12/17/21 12:51	12/21/21 23:40	1
NEtFOSAA	ND		4.7	1.2	ng/L		12/17/21 12:51	12/21/21 23:40	1
NMeFOSAA	ND		4.7	1.1	ng/L		12/17/21 12:51	12/21/21 23:40	1
4:2 FTS	ND		1.9	0.23	ng/L		12/17/21 12:51	12/21/21 23:40	1
6:2 FTS	ND		4.7	2.3	ng/L		12/17/21 12:51	12/21/21 23:40	1
8:2 FTS	ND		1.9	0.43	ng/L		12/17/21 12:51	12/21/21 23:40	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*82*		*50 - 150*	*12/17/21 12:51*	*12/21/21 23:40*	*1*
13C5 PFPeA	*97*		*50 - 150*	*12/17/21 12:51*	*12/21/21 23:40*	*1*
13C2 PFHxA	*85*		*50 - 150*	*12/17/21 12:51*	*12/21/21 23:40*	*1*
13C4 PFHpA	*101*		*50 - 150*	*12/17/21 12:51*	*12/21/21 23:40*	*1*
13C4 PFOA	*99*		*50 - 150*	*12/17/21 12:51*	*12/21/21 23:40*	*1*
13C5 PFNA	*93*		*50 - 150*	*12/17/21 12:51*	*12/21/21 23:40*	*1*
13C2 PFDA	*97*		*50 - 150*	*12/17/21 12:51*	*12/21/21 23:40*	*1*
13C2 PFUnA	*99*		*50 - 150*	*12/17/21 12:51*	*12/21/21 23:40*	*1*
13C2 PFDoA	*84*		*50 - 150*	*12/17/21 12:51*	*12/21/21 23:40*	*1*
13C2 PFTeDA	*82*		*50 - 150*	*12/17/21 12:51*	*12/21/21 23:40*	*1*
13C3 PFBS	*98*		*50 - 150*	*12/17/21 12:51*	*12/21/21 23:40*	*1*
18O2 PFHxS	*94*		*50 - 150*	*12/17/21 12:51*	*12/21/21 23:40*	*1*
13C4 PFOS	*98*		*50 - 150*	*12/17/21 12:51*	*12/21/21 23:40*	*1*
13C8 FOSA	*69*		*50 - 150*	*12/17/21 12:51*	*12/21/21 23:40*	*1*
M2-4:2 FTS	*108*		*50 - 150*	*12/17/21 12:51*	*12/21/21 23:40*	*1*
M2-6:2 FTS	*99*		*50 - 150*	*12/17/21 12:51*	*12/21/21 23:40*	*1*
M2-8:2 FTS	*106*		*50 - 150*	*12/17/21 12:51*	*12/21/21 23:40*	*1*
d5-NEtFOSAA	*103*		*50 - 150*	*12/17/21 12:51*	*12/21/21 23:40*	*1*
d3-NMeFOSAA	*101*		*50 - 150*	*12/17/21 12:51*	*12/21/21 23:40*	*1*

Client Sample Results

Client: Woodard & Curran, Inc.
Project/Site: SJC PFAS Phase 2

Job ID: 320-82764-1

Client Sample ID: L8/9-70-GW

Date Collected: 12/08/21 09:10
Date Received: 12/09/21 16:57

Lab Sample ID: 320-82764-14
Matrix: Water

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**18**		4.8	2.3	ng/L		12/21/21 04:24	12/29/21 05:39	1
Perfluoropentanoic acid (PFPeA)	**25**		1.9	0.47	ng/L		12/21/21 04:24	12/29/21 05:39	1
Perfluorohexanoic acid (PFHxA)	**19**		1.9	0.55	ng/L		12/21/21 04:24	12/29/21 05:39	1
Perfluoroheptanoic acid (PFHpA)	**4.1**		1.9	0.24	ng/L		12/21/21 04:24	12/29/21 05:39	1
Perfluorooctanoic acid (PFOA)	**4.7**		1.9	0.81	ng/L		12/21/21 04:24	12/29/21 05:39	1
Perfluorononanoic acid (PFNA)	**0.36**	**J**	1.9	0.26	ng/L		12/21/21 04:24	12/29/21 05:39	1
Perfluorodecanoic acid (PFDA)	**0.81**	**J**	1.9	0.30	ng/L		12/21/21 04:24	12/29/21 05:39	1
Perfluoroundecanoic acid (PFUnA)	ND		1.9	1.1	ng/L		12/21/21 04:24	12/29/21 05:39	1
Perfluorododecanoic acid (PFDoA)	ND		1.9	0.53	ng/L		12/21/21 04:24	12/29/21 05:39	1
Perfluorotridecanoic acid (PFTrDA)	ND		1.9	1.2	ng/L		12/21/21 04:24	12/29/21 05:39	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.9	0.70	ng/L		12/21/21 04:24	12/29/21 05:39	1
Perfluorobutanesulfonic acid (PFBS)	**4.3**		1.9	0.19	ng/L		12/21/21 04:24	12/29/21 05:39	1
Perfluoropentanesulfonic acid (PFPeS)	**0.99**	**J**	1.9	0.29	ng/L		12/21/21 04:24	12/29/21 05:39	1
Perfluorohexanesulfonic acid (PFHxS)	**6.1**		1.9	0.54	ng/L		12/21/21 04:24	12/29/21 05:39	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		1.9	0.18	ng/L		12/21/21 04:24	12/29/21 05:39	1
Perfluorooctanesulfonic acid (PFOS)	**3.9**	**I**	1.9	0.52	ng/L		12/21/21 04:24	12/29/21 05:39	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.9	0.31	ng/L		12/21/21 04:24	12/29/21 05:39	1
Perfluorooctanesulfonamide (FOSA)	ND		1.9	0.94	ng/L		12/21/21 04:24	12/29/21 05:39	1
NEtFOSAA	ND		4.8	1.2	ng/L		12/21/21 04:24	12/29/21 05:39	1
NMeFOSAA	ND		4.8	1.1	ng/L		12/21/21 04:24	12/29/21 05:39	1
4:2 FTS	ND		1.9	0.23	ng/L		12/21/21 04:24	12/29/21 05:39	1
6:2 FTS	**39**		4.8	2.4	ng/L		12/21/21 04:24	12/29/21 05:39	1
8:2 FTS	ND		1.9	0.44	ng/L		12/21/21 04:24	12/29/21 05:39	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*51*		*50 - 150*	*12/21/21 04:24*	*12/29/21 05:39*	*1*
13C5 PFPeA	*66*		*50 - 150*	*12/21/21 04:24*	*12/29/21 05:39*	*1*
13C2 PFHxA	*60*		*50 - 150*	*12/21/21 04:24*	*12/29/21 05:39*	*1*
13C4 PFHpA	*71*		*50 - 150*	*12/21/21 04:24*	*12/29/21 05:39*	*1*
13C4 PFOA	*76*		*50 - 150*	*12/21/21 04:24*	*12/29/21 05:39*	*1*
13C5 PFNA	*81*		*50 - 150*	*12/21/21 04:24*	*12/29/21 05:39*	*1*
13C2 PFDA	*78*		*50 - 150*	*12/21/21 04:24*	*12/29/21 05:39*	*1*
13C2 PFUnA	*71*		*50 - 150*	*12/21/21 04:24*	*12/29/21 05:39*	*1*
13C2 PFDoA	*62*		*50 - 150*	*12/21/21 04:24*	*12/29/21 05:39*	*1*
13C2 PFTeDA	*48*	**5-*	*50 - 150*	*12/21/21 04:24*	*12/29/21 05:39*	*1*
13C3 PFBS	*64*		*50 - 150*	*12/21/21 04:24*	*12/29/21 05:39*	*1*
18O2 PFHxS	*68*		*50 - 150*	*12/21/21 04:24*	*12/29/21 05:39*	*1*
13C4 PFOS	*77*		*50 - 150*	*12/21/21 04:24*	*12/29/21 05:39*	*1*
13C8 FOSA	*57*		*50 - 150*	*12/21/21 04:24*	*12/29/21 05:39*	*1*
M2-4:2 FTS	*106*		*50 - 150*	*12/21/21 04:24*	*12/29/21 05:39*	*1*
M2-6:2 FTS	*114*		*50 - 150*	*12/21/21 04:24*	*12/29/21 05:39*	*1*
M2-8:2 FTS	*144*		*50 - 150*	*12/21/21 04:24*	*12/29/21 05:39*	*1*
d5-NEtFOSAA	*70*		*50 - 150*	*12/21/21 04:24*	*12/29/21 05:39*	*1*
d3-NMeFOSAA	*72*		*50 - 150*	*12/21/21 04:24*	*12/29/21 05:39*	*1*

Client Sample ID: FB-3-120821

Lab Sample ID: 320-82764-15

Date Collected: 12/08/21 10:40
Date Received: 12/09/21 16:57
Matrix: Water

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		4.6	2.2	ng/L		12/17/21 12:51	12/21/21 23:51	1
Perfluoropentanoic acid (PFPeA)	ND		1.9	0.46	ng/L		12/17/21 12:51	12/21/21 23:51	1
Perfluorohexanoic acid (PFHxA)	ND		1.9	0.54	ng/L		12/17/21 12:51	12/21/21 23:51	1
Perfluoroheptanoic acid (PFHpA)	ND		1.9	0.23	ng/L		12/17/21 12:51	12/21/21 23:51	1
Perfluorooctanoic acid (PFOA)	ND		1.9	0.79	ng/L		12/17/21 12:51	12/21/21 23:51	1
Perfluorononanoic acid (PFNA)	ND		1.9	0.25	ng/L		12/17/21 12:51	12/21/21 23:51	1
Perfluorodecanoic acid (PFDA)	ND		1.9	0.29	ng/L		12/17/21 12:51	12/21/21 23:51	1
Perfluoroundecanoic acid (PFUnA)	ND		1.9	1.0	ng/L		12/17/21 12:51	12/21/21 23:51	1
Perfluorododecanoic acid (PFDoA)	ND		1.9	0.51	ng/L		12/17/21 12:51	12/21/21 23:51	1
Perfluorotridecanoic acid (PFTrDA)	ND		1.9	1.2	ng/L		12/17/21 12:51	12/21/21 23:51	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.9	0.68	ng/L		12/17/21 12:51	12/21/21 23:51	1
Perfluorobutanesulfonic acid (PFBS)	ND		1.9	0.19	ng/L		12/17/21 12:51	12/21/21 23:51	1
Perfluoropentanesulfonic acid (PFPeS)	ND		1.9	0.28	ng/L		12/17/21 12:51	12/21/21 23:51	1
Perfluorohexanesulfonic acid (PFHxS)	ND		1.9	0.53	ng/L		12/17/21 12:51	12/21/21 23:51	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		1.9	0.18	ng/L		12/17/21 12:51	12/21/21 23:51	1
Perfluorooctanesulfonic acid (PFOS)	ND		1.9	0.50	ng/L		12/17/21 12:51	12/21/21 23:51	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.9	0.30	ng/L		12/17/21 12:51	12/21/21 23:51	1
Perfluorooctanesulfonamide (FOSA)	ND		1.9	0.91	ng/L		12/17/21 12:51	12/21/21 23:51	1
NEtFOSAA	ND		4.6	1.2	ng/L		12/17/21 12:51	12/21/21 23:51	1
NMeFOSAA	ND		4.6	1.1	ng/L		12/17/21 12:51	12/21/21 23:51	1
4:2 FTS	ND		1.9	0.22	ng/L		12/17/21 12:51	12/21/21 23:51	1
6:2 FTS	ND		4.6	2.3	ng/L		12/17/21 12:51	12/21/21 23:51	1
8:2 FTS	ND		1.9	0.43	ng/L		12/17/21 12:51	12/21/21 23:51	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*95*		*50 - 150*	*12/17/21 12:51*	*12/21/21 23:51*	*1*
13C5 PFPeA	*101*		*50 - 150*	*12/17/21 12:51*	*12/21/21 23:51*	*1*
13C2 PFHxA	*97*		*50 - 150*	*12/17/21 12:51*	*12/21/21 23:51*	*1*
13C4 PFHpA	*110*		*50 - 150*	*12/17/21 12:51*	*12/21/21 23:51*	*1*
13C4 PFOA	*100*		*50 - 150*	*12/17/21 12:51*	*12/21/21 23:51*	*1*
13C5 PFNA	*94*		*50 - 150*	*12/17/21 12:51*	*12/21/21 23:51*	*1*
13C2 PFDA	*97*		*50 - 150*	*12/17/21 12:51*	*12/21/21 23:51*	*1*
13C2 PFUnA	*102*		*50 - 150*	*12/17/21 12:51*	*12/21/21 23:51*	*1*
13C2 PFDoA	*85*		*50 - 150*	*12/17/21 12:51*	*12/21/21 23:51*	*1*
13C2 PFTeDA	*91*		*50 - 150*	*12/17/21 12:51*	*12/21/21 23:51*	*1*
13C3 PFBS	*108*		*50 - 150*	*12/17/21 12:51*	*12/21/21 23:51*	*1*
18O2 PFHxS	*101*		*50 - 150*	*12/17/21 12:51*	*12/21/21 23:51*	*1*
13C4 PFOS	*94*		*50 - 150*	*12/17/21 12:51*	*12/21/21 23:51*	*1*
13C8 FOSA	*73*		*50 - 150*	*12/17/21 12:51*	*12/21/21 23:51*	*1*
M2-4:2 FTS	*116*		*50 - 150*	*12/17/21 12:51*	*12/21/21 23:51*	*1*
M2-6:2 FTS	*99*		*50 - 150*	*12/17/21 12:51*	*12/21/21 23:51*	*1*
M2-8:2 FTS	*102*		*50 - 150*	*12/17/21 12:51*	*12/21/21 23:51*	*1*
d5-NEtFOSAA	*106*		*50 - 150*	*12/17/21 12:51*	*12/21/21 23:51*	*1*
d3-NMeFOSAA	*100*		*50 - 150*	*12/17/21 12:51*	*12/21/21 23:51*	*1*

Client Sample Results

Client: Woodard & Curran, Inc.
Project/Site: SJC PFAS Phase 2
Job ID: 320-82764-1

Client Sample ID: L10-7-GW
Date Collected: 12/08/21 14:50
Date Received: 12/09/21 16:57

Lab Sample ID: 320-82764-16
Matrix: Water

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**2600**		490	230	ng/L		12/21/21 04:24	12/29/21 06:42	100
Perfluoropentanoic acid (PFPeA)	**13000**		190	48	ng/L		12/21/21 04:24	12/29/21 06:42	100
Perfluorohexanoic acid (PFHxA)	**9200**		190	56	ng/L		12/21/21 04:24	12/29/21 06:42	100
Perfluoroheptanoic acid (PFHpA)	**1600**		190	24	ng/L		12/21/21 04:24	12/29/21 06:42	100
Perfluorooctanoic acid (PFOA)	**910**		190	83	ng/L		12/21/21 04:24	12/29/21 06:42	100
Perfluorononanoic acid (PFNA)	**51**	**J I**	190	26	ng/L		12/21/21 04:24	12/29/21 06:42	100
Perfluorodecanoic acid (PFDA)	ND		190	30	ng/L		12/21/21 04:24	12/29/21 06:42	100
Perfluoroundecanoic acid (PFUnA)	ND		190	110	ng/L		12/21/21 04:24	12/29/21 06:42	100
Perfluorododecanoic acid (PFDoA)	ND		190	53	ng/L		12/21/21 04:24	12/29/21 06:42	100
Perfluorotridecanoic acid (PFTrDA)	ND		190	130	ng/L		12/21/21 04:24	12/29/21 06:42	100
Perfluorotetradecanoic acid (PFTeA)	ND		190	71	ng/L		12/21/21 04:24	12/29/21 06:42	100
Perfluorobutanesulfonic acid (PFBS)	**900**		190	19	ng/L		12/21/21 04:24	12/29/21 06:42	100
Perfluoropentanesulfonic acid (PFPeS)	**770**		190	29	ng/L		12/21/21 04:24	12/29/21 06:42	100
Perfluorohexanesulfonic acid (PFHxS)	**5100**		190	55	ng/L		12/21/21 04:24	12/29/21 06:42	100
Perfluoroheptanesulfonic Acid (PFHpS)	**150**	**J**	190	18	ng/L		12/21/21 04:24	12/29/21 06:42	100
Perfluorooctanesulfonic acid (PFOS)	**1600**		190	52	ng/L		12/21/21 04:24	12/29/21 06:42	100
Perfluorodecanesulfonic acid (PFDS)	ND		190	31	ng/L		12/21/21 04:24	12/29/21 06:42	100
Perfluorooctanesulfonamide (FOSA)	ND		190	95	ng/L		12/21/21 04:24	12/29/21 06:42	100
NEtFOSAA	ND		490	130	ng/L		12/21/21 04:24	12/29/21 06:42	100
NMeFOSAA	ND		490	120	ng/L		12/21/21 04:24	12/29/21 06:42	100
4:2 FTS	**39**	**J**	190	23	ng/L		12/21/21 04:24	12/29/21 06:42	100
6:2 FTS	**8800**		490	240	ng/L		12/21/21 04:24	12/29/21 06:42	100
8:2 FTS	**340**		190	45	ng/L		12/21/21 04:24	12/29/21 06:42	100

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*83*		*50 - 150*	*12/21/21 04:24*	*12/29/21 06:42*	*100*
13C5 PFPeA	*73*		*50 - 150*	*12/21/21 04:24*	*12/29/21 06:42*	*100*
13C2 PFHxA	*93*		*50 - 150*	*12/21/21 04:24*	*12/29/21 06:42*	*100*
13C4 PFHpA	*77*		*50 - 150*	*12/21/21 04:24*	*12/29/21 06:42*	*100*
13C4 PFOA	*92*		*50 - 150*	*12/21/21 04:24*	*12/29/21 06:42*	*100*
13C5 PFNA	*85*		*50 - 150*	*12/21/21 04:24*	*12/29/21 06:42*	*100*
13C2 PFDA	*102*		*50 - 150*	*12/21/21 04:24*	*12/29/21 06:42*	*100*
13C2 PFUnA	*94*		*50 - 150*	*12/21/21 04:24*	*12/29/21 06:42*	*100*
13C2 PFDoA	*76*		*50 - 150*	*12/21/21 04:24*	*12/29/21 06:42*	*100*
13C2 PFTeDA	*91*		*50 - 150*	*12/21/21 04:24*	*12/29/21 06:42*	*100*
13C3 PFBS	*74*		*50 - 150*	*12/21/21 04:24*	*12/29/21 06:42*	*100*
18O2 PFHxS	*70*		*50 - 150*	*12/21/21 04:24*	*12/29/21 06:42*	*100*
13C4 PFOS	*78*		*50 - 150*	*12/21/21 04:24*	*12/29/21 06:42*	*100*
13C8 FOSA	*63*		*50 - 150*	*12/21/21 04:24*	*12/29/21 06:42*	*100*
M2-4:2 FTS	*114*		*50 - 150*	*12/21/21 04:24*	*12/29/21 06:42*	*100*
M2-6:2 FTS	*861*	**5+*	*50 - 150*	*12/21/21 04:24*	*12/29/21 06:42*	*100*
M2-8:2 FTS	*131*		*50 - 150*	*12/21/21 04:24*	*12/29/21 06:42*	*100*
d5-NEtFOSAA	*117*		*50 - 150*	*12/21/21 04:24*	*12/29/21 06:42*	*100*
d3-NMeFOSAA	*110*		*50 - 150*	*12/21/21 04:24*	*12/29/21 06:42*	*100*

Client Sample ID: L10-8-GW

Lab Sample ID: 320-82764-17

Date Collected: 12/09/21 07:30

Matrix: Water

Date Received: 12/09/21 16:57

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**20**	**J**	24	12	ng/L		12/21/21 04:24	12/29/21 06:31	5
Perfluoropentanoic acid (PFPeA)	**20**		9.7	2.4	ng/L		12/21/21 04:24	12/29/21 06:31	5
Perfluorohexanoic acid (PFHxA)	**23**		9.7	2.8	ng/L		12/21/21 04:24	12/29/21 06:31	5
Perfluoroheptanoic acid (PFHpA)	**5.9**	**J I**	9.7	1.2	ng/L		12/21/21 04:24	12/29/21 06:31	5
Perfluorooctanoic acid (PFOA)	**12**		9.7	4.1	ng/L		12/21/21 04:24	12/29/21 06:31	5
Perfluorononanoic acid (PFNA)	**7.2**	**J**	9.7	1.3	ng/L		12/21/21 04:24	12/29/21 06:31	5
Perfluorodecanoic acid (PFDA)	ND		9.7	1.5	ng/L		12/21/21 04:24	12/29/21 06:31	5
Perfluoroundecanoic acid (PFUnA)	ND		9.7	5.3	ng/L		12/21/21 04:24	12/29/21 06:31	5
Perfluorododecanoic acid (PFDoA)	ND		9.7	2.7	ng/L		12/21/21 04:24	12/29/21 06:31	5
Perfluorotridecanoic acid (PFTrDA)	ND		9.7	6.3	ng/L		12/21/21 04:24	12/29/21 06:31	5
Perfluorotetradecanoic acid (PFTeA)	ND		9.7	3.5	ng/L		12/21/21 04:24	12/29/21 06:31	5
Perfluorobutanesulfonic acid (PFBS)	**3.9**	**J**	9.7	0.97	ng/L		12/21/21 04:24	12/29/21 06:31	5
Perfluoropentanesulfonic acid (PFPeS)	**2.2**	**J**	9.7	1.4	ng/L		12/21/21 04:24	12/29/21 06:31	5
Perfluorohexanesulfonic acid (PFHxS)	**16**		9.7	2.8	ng/L		12/21/21 04:24	12/29/21 06:31	5
Perfluoroheptanesulfonic Acid (PFHpS)	ND		9.7	0.92	ng/L		12/21/21 04:24	12/29/21 06:31	5
Perfluorooctanesulfonic acid (PFOS)	**29**		9.7	2.6	ng/L		12/21/21 04:24	12/29/21 06:31	5
Perfluorodecanesulfonic acid (PFDS)	ND		9.7	1.5	ng/L		12/21/21 04:24	12/29/21 06:31	5
Perfluorooctanesulfonamide (FOSA)	ND		9.7	4.7	ng/L		12/21/21 04:24	12/29/21 06:31	5
NEtFOSAA	ND		24	6.3	ng/L		12/21/21 04:24	12/29/21 06:31	5
NMeFOSAA	ND		24	5.8	ng/L		12/21/21 04:24	12/29/21 06:31	5
4:2 FTS	ND		9.7	1.2	ng/L		12/21/21 04:24	12/29/21 06:31	5
6:2 FTS	**330**		24	12	ng/L		12/21/21 04:24	12/29/21 06:31	5
8:2 FTS	**7.7**	**J**	9.7	2.2	ng/L		12/21/21 04:24	12/29/21 06:31	5

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*48*	**5-*	*50 - 150*	*12/21/21 04:24*	*12/29/21 06:31*	*5*
13C5 PFPeA	*56*		*50 - 150*	*12/21/21 04:24*	*12/29/21 06:31*	*5*
13C2 PFHxA	*50*		*50 - 150*	*12/21/21 04:24*	*12/29/21 06:31*	*5*
13C4 PFHpA	*51*		*50 - 150*	*12/21/21 04:24*	*12/29/21 06:31*	*5*
13C4 PFOA	*55*		*50 - 150*	*12/21/21 04:24*	*12/29/21 06:31*	*5*
13C5 PFNA	*54*		*50 - 150*	*12/21/21 04:24*	*12/29/21 06:31*	*5*
13C2 PFDA	*48*	**5-*	*50 - 150*	*12/21/21 04:24*	*12/29/21 06:31*	*5*
13C2 PFUnA	*47*	**5-*	*50 - 150*	*12/21/21 04:24*	*12/29/21 06:31*	*5*
13C2 PFDoA	*32*	**5-*	*50 - 150*	*12/21/21 04:24*	*12/29/21 06:31*	*5*
13C2 PFTeDA	*10*	**5-*	*50 - 150*	*12/21/21 04:24*	*12/29/21 06:31*	*5*
13C3 PFBS	*50*		*50 - 150*	*12/21/21 04:24*	*12/29/21 06:31*	*5*
18O2 PFHxS	*47*	**5-*	*50 - 150*	*12/21/21 04:24*	*12/29/21 06:31*	*5*
13C4 PFOS	*50*		*50 - 150*	*12/21/21 04:24*	*12/29/21 06:31*	*5*
13C8 FOSA	*39*	**5-*	*50 - 150*	*12/21/21 04:24*	*12/29/21 06:31*	*5*
M2-4:2 FTS	*64*		*50 - 150*	*12/21/21 04:24*	*12/29/21 06:31*	*5*
M2-6:2 FTS	*51*		*50 - 150*	*12/21/21 04:24*	*12/29/21 06:31*	*5*
M2-8:2 FTS	*55*		*50 - 150*	*12/21/21 04:24*	*12/29/21 06:31*	*5*
d5-NEtFOSAA	*52*		*50 - 150*	*12/21/21 04:24*	*12/29/21 06:31*	*5*
d3-NMeFOSAA	*41*	**5-*	*50 - 150*	*12/21/21 04:24*	*12/29/21 06:31*	*5*

Client Sample Results

Client: Woodard & Curran, Inc.
Project/Site: SJC PFAS Phase 2

Job ID: 320-82764-1

Client Sample ID: L3-7-GW

Date Collected: 12/09/21 11:23
Date Received: 12/09/21 16:57

Lab Sample ID: 320-82764-18

Matrix: Water

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**18**		4.7	2.2	ng/L		12/21/21 04:24	12/29/21 05:50	1
Perfluoropentanoic acid (PFPeA)	**6.5**		1.9	0.46	ng/L		12/21/21 04:24	12/29/21 05:50	1
Perfluorohexanoic acid (PFHxA)	**18**		1.9	0.54	ng/L		12/21/21 04:24	12/29/21 05:50	1
Perfluoroheptanoic acid (PFHpA)	**3.0**		1.9	0.23	ng/L		12/21/21 04:24	12/29/21 05:50	1
Perfluorooctanoic acid (PFOA)	**55**		1.9	0.79	ng/L		12/21/21 04:24	12/29/21 05:50	1
Perfluorononanoic acid (PFNA)	ND		1.9	0.25	ng/L		12/21/21 04:24	12/29/21 05:50	1
Perfluorodecanoic acid (PFDA)	ND		1.9	0.29	ng/L		12/21/21 04:24	12/29/21 05:50	1
Perfluoroundecanoic acid (PFUnA)	ND		1.9	1.0	ng/L		12/21/21 04:24	12/29/21 05:50	1
Perfluorododecanoic acid (PFDoA)	ND		1.9	0.51	ng/L		12/21/21 04:24	12/29/21 05:50	1
Perfluorotridecanoic acid (PFTrDA)	ND		1.9	1.2	ng/L		12/21/21 04:24	12/29/21 05:50	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.9	0.68	ng/L		12/21/21 04:24	12/29/21 05:50	1
Perfluorobutanesulfonic acid (PFBS)	**20**		1.9	0.19	ng/L		12/21/21 04:24	12/29/21 05:50	1
Perfluoropentanesulfonic acid (PFPeS)	**11**		1.9	0.28	ng/L		12/21/21 04:24	12/29/21 05:50	1
Perfluorohexanesulfonic acid (PFHxS)	**50**		1.9	0.53	ng/L		12/21/21 04:24	12/29/21 05:50	1
Perfluoroheptanesulfonic Acid (PFHpS)	**0.93**	**J**	1.9	0.18	ng/L		12/21/21 04:24	12/29/21 05:50	1
Perfluorooctanesulfonic acid (PFOS)	**33**		1.9	0.50	ng/L		12/21/21 04:24	12/29/21 05:50	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.9	0.30	ng/L		12/21/21 04:24	12/29/21 05:50	1
Perfluorooctanesulfonamide (FOSA)	ND		1.9	0.91	ng/L		12/21/21 04:24	12/29/21 05:50	1
NEtFOSAA	ND		4.7	1.2	ng/L		12/21/21 04:24	12/29/21 05:50	1
NMeFOSAA	ND		4.7	1.1	ng/L		12/21/21 04:24	12/29/21 05:50	1
4:2 FTS	ND		1.9	0.22	ng/L		12/21/21 04:24	12/29/21 05:50	1
6:2 FTS	**2.4**	**J**	4.7	2.3	ng/L		12/21/21 04:24	12/29/21 05:50	1
8:2 FTS	ND		1.9	0.43	ng/L		12/21/21 04:24	12/29/21 05:50	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*58*		*50 - 150*	*12/21/21 04:24*	*12/29/21 05:50*	*1*
13C5 PFPeA	*70*		*50 - 150*	*12/21/21 04:24*	*12/29/21 05:50*	*1*
13C2 PFHxA	*62*		*50 - 150*	*12/21/21 04:24*	*12/29/21 05:50*	*1*
13C4 PFHpA	*69*		*50 - 150*	*12/21/21 04:24*	*12/29/21 05:50*	*1*
13C4 PFOA	*71*		*50 - 150*	*12/21/21 04:24*	*12/29/21 05:50*	*1*
13C5 PFNA	*73*		*50 - 150*	*12/21/21 04:24*	*12/29/21 05:50*	*1*
13C2 PFDA	*67*		*50 - 150*	*12/21/21 04:24*	*12/29/21 05:50*	*1*
13C2 PFUnA	*72*		*50 - 150*	*12/21/21 04:24*	*12/29/21 05:50*	*1*
13C2 PFDoA	*62*		*50 - 150*	*12/21/21 04:24*	*12/29/21 05:50*	*1*
13C2 PFTeDA	*57*		*50 - 150*	*12/21/21 04:24*	*12/29/21 05:50*	*1*
13C3 PFBS	*63*		*50 - 150*	*12/21/21 04:24*	*12/29/21 05:50*	*1*
18O2 PFHxS	*63*		*50 - 150*	*12/21/21 04:24*	*12/29/21 05:50*	*1*
13C4 PFOS	*72*		*50 - 150*	*12/21/21 04:24*	*12/29/21 05:50*	*1*
13C8 FOSA	*55*		*50 - 150*	*12/21/21 04:24*	*12/29/21 05:50*	*1*
M2-4:2 FTS	*67*		*50 - 150*	*12/21/21 04:24*	*12/29/21 05:50*	*1*
M2-6:2 FTS	*70*		*50 - 150*	*12/21/21 04:24*	*12/29/21 05:50*	*1*
M2-8:2 FTS	*82*		*50 - 150*	*12/21/21 04:24*	*12/29/21 05:50*	*1*
d5-NEtFOSAA	*74*		*50 - 150*	*12/21/21 04:24*	*12/29/21 05:50*	*1*
d3-NMeFOSAA	*73*		*50 - 150*	*12/21/21 04:24*	*12/29/21 05:50*	*1*

Client Sample Results

Client Sample ID: L3-70-GW

Lab Sample ID: 320-82764-19

Date Collected: 12/09/21 11:23

Matrix: Water

Date Received: 12/09/21 16:57

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**19**		4.7	2.2	ng/L		12/21/21 04:24	12/29/21 06:00	1
Perfluoropentanoic acid (PFPeA)	**6.4**		1.9	0.46	ng/L		12/21/21 04:24	12/29/21 06:00	1
Perfluorohexanoic acid (PFHxA)	**17**		1.9	0.54	ng/L		12/21/21 04:24	12/29/21 06:00	1
Perfluoroheptanoic acid (PFHpA)	**3.1**		1.9	0.23	ng/L		12/21/21 04:24	12/29/21 06:00	1
Perfluorooctanoic acid (PFOA)	**58**		1.9	0.80	ng/L		12/21/21 04:24	12/29/21 06:00	1
Perfluorononanoic acid (PFNA)	ND		1.9	0.25	ng/L		12/21/21 04:24	12/29/21 06:00	1
Perfluorodecanoic acid (PFDA)	ND		1.9	0.29	ng/L		12/21/21 04:24	12/29/21 06:00	1
Perfluoroundecanoic acid (PFUnA)	ND		1.9	1.0	ng/L		12/21/21 04:24	12/29/21 06:00	1
Perfluorododecanoic acid (PFDoA)	ND		1.9	0.52	ng/L		12/21/21 04:24	12/29/21 06:00	1
Perfluorotridecanoic acid (PFTrDA)	ND		1.9	1.2	ng/L		12/21/21 04:24	12/29/21 06:00	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.9	0.68	ng/L		12/21/21 04:24	12/29/21 06:00	1
Perfluorobutanesulfonic acid (PFBS)	**19**		1.9	0.19	ng/L		12/21/21 04:24	12/29/21 06:00	1
Perfluoropentanesulfonic acid (PFPeS)	**9.7**		1.9	0.28	ng/L		12/21/21 04:24	12/29/21 06:00	1
Perfluorohexanesulfonic acid (PFHxS)	**48**		1.9	0.53	ng/L		12/21/21 04:24	12/29/21 06:00	1
Perfluoroheptanesulfonic Acid (PFHpS)	**0.98**	**J**	1.9	0.18	ng/L		12/21/21 04:24	12/29/21 06:00	1
Perfluorooctanesulfonic acid (PFOS)	**35**		1.9	0.51	ng/L		12/21/21 04:24	12/29/21 06:00	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.9	0.30	ng/L		12/21/21 04:24	12/29/21 06:00	1
Perfluorooctanesulfonamide (FOSA)	ND		1.9	0.92	ng/L		12/21/21 04:24	12/29/21 06:00	1
NEtFOSAA	ND		4.7	1.2	ng/L		12/21/21 04:24	12/29/21 06:00	1
NMeFOSAA	ND		4.7	1.1	ng/L		12/21/21 04:24	12/29/21 06:00	1
4:2 FTS	ND		1.9	0.22	ng/L		12/21/21 04:24	12/29/21 06:00	1
6:2 FTS	ND		4.7	2.3	ng/L		12/21/21 04:24	12/29/21 06:00	1
8:2 FTS	ND		1.9	0.43	ng/L		12/21/21 04:24	12/29/21 06:00	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*55*		*50 - 150*	*12/21/21 04:24*	*12/29/21 06:00*	*1*
13C5 PFPeA	*63*		*50 - 150*	*12/21/21 04:24*	*12/29/21 06:00*	*1*
13C2 PFHxA	*53*		*50 - 150*	*12/21/21 04:24*	*12/29/21 06:00*	*1*
13C4 PFHpA	*65*		*50 - 150*	*12/21/21 04:24*	*12/29/21 06:00*	*1*
13C4 PFOA	*65*		*50 - 150*	*12/21/21 04:24*	*12/29/21 06:00*	*1*
13C5 PFNA	*66*		*50 - 150*	*12/21/21 04:24*	*12/29/21 06:00*	*1*
13C2 PFDA	*62*		*50 - 150*	*12/21/21 04:24*	*12/29/21 06:00*	*1*
13C2 PFUnA	*63*		*50 - 150*	*12/21/21 04:24*	*12/29/21 06:00*	*1*
13C2 PFDoA	*58*		*50 - 150*	*12/21/21 04:24*	*12/29/21 06:00*	*1*
13C2 PFTeDA	*52*		*50 - 150*	*12/21/21 04:24*	*12/29/21 06:00*	*1*
13C3 PFBS	*60*		*50 - 150*	*12/21/21 04:24*	*12/29/21 06:00*	*1*
18O2 PFHxS	*62*		*50 - 150*	*12/21/21 04:24*	*12/29/21 06:00*	*1*
13C4 PFOS	*63*		*50 - 150*	*12/21/21 04:24*	*12/29/21 06:00*	*1*
13C8 FOSA	*48*	**5-*	*50 - 150*	*12/21/21 04:24*	*12/29/21 06:00*	*1*
M2-4:2 FTS	*66*		*50 - 150*	*12/21/21 04:24*	*12/29/21 06:00*	*1*
M2-6:2 FTS	*69*		*50 - 150*	*12/21/21 04:24*	*12/29/21 06:00*	*1*
M2-8:2 FTS	*71*		*50 - 150*	*12/21/21 04:24*	*12/29/21 06:00*	*1*
d5-NEtFOSAA	*67*		*50 - 150*	*12/21/21 04:24*	*12/29/21 06:00*	*1*
d3-NMeFOSAA	*59*		*50 - 150*	*12/21/21 04:24*	*12/29/21 06:00*	*1*

Client Sample Results

Client Sample ID: EB-2-120921
Lab Sample ID: 320-82764-20
Date Collected: 12/09/21 10:30
Matrix: Water
Date Received: 12/09/21 16:57

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		4.7	2.3	ng/L		12/17/21 12:51	12/22/21 00:01	1
Perfluoropentanoic acid (PFPeA)	ND		1.9	0.46	ng/L		12/17/21 12:51	12/22/21 00:01	1
Perfluorohexanoic acid (PFHxA)	ND		1.9	0.55	ng/L		12/17/21 12:51	12/22/21 00:01	1
Perfluoroheptanoic acid (PFHpA)	ND		1.9	0.24	ng/L		12/17/21 12:51	12/22/21 00:01	1
Perfluorooctanoic acid (PFOA)	ND		1.9	0.80	ng/L		12/17/21 12:51	12/22/21 00:01	1
Perfluorononanoic acid (PFNA)	ND		1.9	0.25	ng/L		12/17/21 12:51	12/22/21 00:01	1
Perfluorodecanoic acid (PFDA)	ND		1.9	0.29	ng/L		12/17/21 12:51	12/22/21 00:01	1
Perfluoroundecanoic acid (PFUnA)	ND		1.9	1.0	ng/L		12/17/21 12:51	12/22/21 00:01	1
Perfluorododecanoic acid (PFDoA)	ND		1.9	0.52	ng/L		12/17/21 12:51	12/22/21 00:01	1
Perfluorotridecanoic acid (PFTrDA)	ND		1.9	1.2	ng/L		12/17/21 12:51	12/22/21 00:01	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.9	0.69	ng/L		12/17/21 12:51	12/22/21 00:01	1
Perfluorobutanesulfonic acid (PFBS)	ND		1.9	0.19	ng/L		12/17/21 12:51	12/22/21 00:01	1
Perfluoropentanesulfonic acid (PFPeS)	ND		1.9	0.28	ng/L		12/17/21 12:51	12/22/21 00:01	1
Perfluorohexanesulfonic acid (PFHxS)	ND		1.9	0.54	ng/L		12/17/21 12:51	12/22/21 00:01	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		1.9	0.18	ng/L		12/17/21 12:51	12/22/21 00:01	1
Perfluorooctanesulfonic acid (PFOS)	ND		1.9	0.51	ng/L		12/17/21 12:51	12/22/21 00:01	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.9	0.30	ng/L		12/17/21 12:51	12/22/21 00:01	1
Perfluorooctanesulfonamide (FOSA)	ND		1.9	0.92	ng/L		12/17/21 12:51	12/22/21 00:01	1
NEtFOSAA	ND		4.7	1.2	ng/L		12/17/21 12:51	12/22/21 00:01	1
NMeFOSAA	ND		4.7	1.1	ng/L		12/17/21 12:51	12/22/21 00:01	1
4:2 FTS	ND		1.9	0.23	ng/L		12/17/21 12:51	12/22/21 00:01	1
6:2 FTS	ND		4.7	2.4	ng/L		12/17/21 12:51	12/22/21 00:01	1
8:2 FTS	ND		1.9	0.43	ng/L		12/17/21 12:51	12/22/21 00:01	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*94*		*50 - 150*	*12/17/21 12:51*	*12/22/21 00:01*	*1*
13C5 PFPeA	*104*		*50 - 150*	*12/17/21 12:51*	*12/22/21 00:01*	*1*
13C2 PFHxA	*97*		*50 - 150*	*12/17/21 12:51*	*12/22/21 00:01*	*1*
13C4 PFHpA	*112*		*50 - 150*	*12/17/21 12:51*	*12/22/21 00:01*	*1*
13C4 PFOA	*103*		*50 - 150*	*12/17/21 12:51*	*12/22/21 00:01*	*1*
13C5 PFNA	*94*		*50 - 150*	*12/17/21 12:51*	*12/22/21 00:01*	*1*
13C2 PFDA	*95*		*50 - 150*	*12/17/21 12:51*	*12/22/21 00:01*	*1*
13C2 PFUnA	*103*		*50 - 150*	*12/17/21 12:51*	*12/22/21 00:01*	*1*
13C2 PFDoA	*95*		*50 - 150*	*12/17/21 12:51*	*12/22/21 00:01*	*1*
13C2 PFTeDA	*88*		*50 - 150*	*12/17/21 12:51*	*12/22/21 00:01*	*1*
13C3 PFBS	*105*		*50 - 150*	*12/17/21 12:51*	*12/22/21 00:01*	*1*
18O2 PFHxS	*100*		*50 - 150*	*12/17/21 12:51*	*12/22/21 00:01*	*1*
13C4 PFOS	*103*		*50 - 150*	*12/17/21 12:51*	*12/22/21 00:01*	*1*
13C8 FOSA	*75*		*50 - 150*	*12/17/21 12:51*	*12/22/21 00:01*	*1*
M2-4:2 FTS	*116*		*50 - 150*	*12/17/21 12:51*	*12/22/21 00:01*	*1*
M2-6:2 FTS	*98*		*50 - 150*	*12/17/21 12:51*	*12/22/21 00:01*	*1*
M2-8:2 FTS	*107*		*50 - 150*	*12/17/21 12:51*	*12/22/21 00:01*	*1*
d5-NEtFOSAA	*108*		*50 - 150*	*12/17/21 12:51*	*12/22/21 00:01*	*1*
d3-NMeFOSAA	*100*		*50 - 150*	*12/17/21 12:51*	*12/22/21 00:01*	*1*

Client Sample ID: FB-4-120921

Lab Sample ID: 320-82764-21

Date Collected: 12/09/21 11:25
Date Received: 12/09/21 16:57
Matrix: Water

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		4.5	2.2	ng/L		12/17/21 12:51	12/22/21 00:11	1
Perfluoropentanoic acid (PFPeA)	ND		1.8	0.44	ng/L		12/17/21 12:51	12/22/21 00:11	1
Perfluorohexanoic acid (PFHxA)	ND		1.8	0.52	ng/L		12/17/21 12:51	12/22/21 00:11	1
Perfluoroheptanoic acid (PFHpA)	ND		1.8	0.23	ng/L		12/17/21 12:51	12/22/21 00:11	1
Perfluorooctanoic acid (PFOA)	ND		1.8	0.77	ng/L		12/17/21 12:51	12/22/21 00:11	1
Perfluorononanoic acid (PFNA)	ND		1.8	0.24	ng/L		12/17/21 12:51	12/22/21 00:11	1
Perfluorodecanoic acid (PFDA)	ND		1.8	0.28	ng/L		12/17/21 12:51	12/22/21 00:11	1
Perfluoroundecanoic acid (PFUnA)	ND		1.8	0.99	ng/L		12/17/21 12:51	12/22/21 00:11	1
Perfluorododecanoic acid (PFDoA)	ND		1.8	0.50	ng/L		12/17/21 12:51	12/22/21 00:11	1
Perfluorotridecanoic acid (PFTrDA)	ND		1.8	1.2	ng/L		12/17/21 12:51	12/22/21 00:11	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.8	0.66	ng/L		12/17/21 12:51	12/22/21 00:11	1
Perfluorobutanesulfonic acid (PFBS)	ND		1.8	0.18	ng/L		12/17/21 12:51	12/22/21 00:11	1
Perfluoropentanesulfonic acid (PFPeS)	ND		1.8	0.27	ng/L		12/17/21 12:51	12/22/21 00:11	1
Perfluorohexanesulfonic acid (PFHxS)	ND		1.8	0.52	ng/L		12/17/21 12:51	12/22/21 00:11	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		1.8	0.17	ng/L		12/17/21 12:51	12/22/21 00:11	1
Perfluorooctanesulfonic acid (PFOS)	ND		1.8	0.49	ng/L		12/17/21 12:51	12/22/21 00:11	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.8	0.29	ng/L		12/17/21 12:51	12/22/21 00:11	1
Perfluorooctanesulfonamide (FOSA)	ND		1.8	0.89	ng/L		12/17/21 12:51	12/22/21 00:11	1
NEtFOSAA	ND		4.5	1.2	ng/L		12/17/21 12:51	12/22/21 00:11	1
NMeFOSAA	ND		4.5	1.1	ng/L		12/17/21 12:51	12/22/21 00:11	1
4:2 FTS	ND		1.8	0.22	ng/L		12/17/21 12:51	12/22/21 00:11	1
6:2 FTS	ND		4.5	2.3	ng/L		12/17/21 12:51	12/22/21 00:11	1
8:2 FTS	ND		1.8	0.42	ng/L		12/17/21 12:51	12/22/21 00:11	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*92*		*50 - 150*	*12/17/21 12:51*	*12/22/21 00:11*	*1*
13C5 PFPeA	*100*		*50 - 150*	*12/17/21 12:51*	*12/22/21 00:11*	*1*
13C2 PFHxA	*97*		*50 - 150*	*12/17/21 12:51*	*12/22/21 00:11*	*1*
13C4 PFHpA	*108*		*50 - 150*	*12/17/21 12:51*	*12/22/21 00:11*	*1*
13C4 PFOA	*102*		*50 - 150*	*12/17/21 12:51*	*12/22/21 00:11*	*1*
13C5 PFNA	*91*		*50 - 150*	*12/17/21 12:51*	*12/22/21 00:11*	*1*
13C2 PFDA	*89*		*50 - 150*	*12/17/21 12:51*	*12/22/21 00:11*	*1*
13C2 PFUnA	*99*		*50 - 150*	*12/17/21 12:51*	*12/22/21 00:11*	*1*
13C2 PFDoA	*92*		*50 - 150*	*12/17/21 12:51*	*12/22/21 00:11*	*1*
13C2 PFTeDA	*80*		*50 - 150*	*12/17/21 12:51*	*12/22/21 00:11*	*1*
13C3 PFBS	*96*		*50 - 150*	*12/17/21 12:51*	*12/22/21 00:11*	*1*
18O2 PFHxS	*101*		*50 - 150*	*12/17/21 12:51*	*12/22/21 00:11*	*1*
13C4 PFOS	*96*		*50 - 150*	*12/17/21 12:51*	*12/22/21 00:11*	*1*
13C8 FOSA	*71*		*50 - 150*	*12/17/21 12:51*	*12/22/21 00:11*	*1*
M2-4:2 FTS	*93*		*50 - 150*	*12/17/21 12:51*	*12/22/21 00:11*	*1*
M2-6:2 FTS	*100*		*50 - 150*	*12/17/21 12:51*	*12/22/21 00:11*	*1*
M2-8:2 FTS	*110*		*50 - 150*	*12/17/21 12:51*	*12/22/21 00:11*	*1*
d5-NEtFOSAA	*102*		*50 - 150*	*12/17/21 12:51*	*12/22/21 00:11*	*1*
d3-NMeFOSAA	*91*		*50 - 150*	*12/17/21 12:51*	*12/22/21 00:11*	*1*

Client Sample ID: L3-5-GW

Date Collected: 12/09/21 13:10
Date Received: 12/09/21 16:57

Lab Sample ID: 320-82764-22
Matrix: Water

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**13**		10	4.9	ng/L		12/21/21 04:24	12/29/21 06:11	2
Perfluoropentanoic acid (PFPeA)	**11**		4.1	1.0	ng/L		12/21/21 04:24	12/29/21 06:11	2
Perfluorohexanoic acid (PFHxA)	**50**		4.1	1.2	ng/L		12/21/21 04:24	12/29/21 06:11	2
Perfluoroheptanoic acid (PFHpA)	**10**		4.1	0.51	ng/L		12/21/21 04:24	12/29/21 06:11	2
Perfluorooctanoic acid (PFOA)	**280**		4.1	1.7	ng/L		12/21/21 04:24	12/29/21 06:11	2
Perfluorononanoic acid (PFNA)	ND		4.1	0.55	ng/L		12/21/21 04:24	12/29/21 06:11	2
Perfluorodecanoic acid (PFDA)	ND		4.1	0.64	ng/L		12/21/21 04:24	12/29/21 06:11	2
Perfluoroundecanoic acid (PFUnA)	ND		4.1	2.3	ng/L		12/21/21 04:24	12/29/21 06:11	2
Perfluorododecanoic acid (PFDoA)	ND		4.1	1.1	ng/L		12/21/21 04:24	12/29/21 06:11	2
Perfluorotridecanoic acid (PFTrDA)	ND		4.1	2.7	ng/L		12/21/21 04:24	12/29/21 06:11	2
Perfluorotetradecanoic acid (PFTeA)	ND		4.1	1.5	ng/L		12/21/21 04:24	12/29/21 06:11	2
Perfluorobutanesulfonic acid (PFBS)	**18**		4.1	0.41	ng/L		12/21/21 04:24	12/29/21 06:11	2
Perfluoropentanesulfonic acid (PFPeS)	**18**		4.1	0.62	ng/L		12/21/21 04:24	12/29/21 06:11	2
Perfluorohexanesulfonic acid (PFHxS)	**150**		4.1	1.2	ng/L		12/21/21 04:24	12/29/21 06:11	2
Perfluoroheptanesulfonic Acid (PFHpS)	**6.4**		4.1	0.39	ng/L		12/21/21 04:24	12/29/21 06:11	2
Perfluorooctanesulfonic acid (PFOS)	**110**		4.1	1.1	ng/L		12/21/21 04:24	12/29/21 06:11	2
Perfluorodecanesulfonic acid (PFDS)	ND		4.1	0.66	ng/L		12/21/21 04:24	12/29/21 06:11	2
Perfluorooctanesulfonamide (FOSA)	ND		4.1	2.0	ng/L		12/21/21 04:24	12/29/21 06:11	2
NEtFOSAA	ND		10	2.7	ng/L		12/21/21 04:24	12/29/21 06:11	2
NMeFOSAA	ND		10	2.5	ng/L		12/21/21 04:24	12/29/21 06:11	2
4:2 FTS	ND		4.1	0.49	ng/L		12/21/21 04:24	12/29/21 06:11	2
6:2 FTS	ND		10	5.1	ng/L		12/21/21 04:24	12/29/21 06:11	2
8:2 FTS	ND		4.1	0.95	ng/L		12/21/21 04:24	12/29/21 06:11	2

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*79*		*50 - 150*	*12/21/21 04:24*	*12/29/21 06:11*	*2*
13C5 PFPeA	*86*		*50 - 150*	*12/21/21 04:24*	*12/29/21 06:11*	*2*
13C2 PFHxA	*77*		*50 - 150*	*12/21/21 04:24*	*12/29/21 06:11*	*2*
13C4 PFHpA	*82*		*50 - 150*	*12/21/21 04:24*	*12/29/21 06:11*	*2*
13C4 PFOA	*94*		*50 - 150*	*12/21/21 04:24*	*12/29/21 06:11*	*2*
13C5 PFNA	*88*		*50 - 150*	*12/21/21 04:24*	*12/29/21 06:11*	*2*
13C2 PFDA	*88*		*50 - 150*	*12/21/21 04:24*	*12/29/21 06:11*	*2*
13C2 PFUnA	*91*		*50 - 150*	*12/21/21 04:24*	*12/29/21 06:11*	*2*
13C2 PFDoA	*85*		*50 - 150*	*12/21/21 04:24*	*12/29/21 06:11*	*2*
13C2 PFTeDA	*82*		*50 - 150*	*12/21/21 04:24*	*12/29/21 06:11*	*2*
13C3 PFBS	*82*		*50 - 150*	*12/21/21 04:24*	*12/29/21 06:11*	*2*
18O2 PFHxS	*84*		*50 - 150*	*12/21/21 04:24*	*12/29/21 06:11*	*2*
13C4 PFOS	*87*		*50 - 150*	*12/21/21 04:24*	*12/29/21 06:11*	*2*
13C8 FOSA	*71*		*50 - 150*	*12/21/21 04:24*	*12/29/21 06:11*	*2*
M2-4:2 FTS	*92*		*50 - 150*	*12/21/21 04:24*	*12/29/21 06:11*	*2*
M2-6:2 FTS	*97*		*50 - 150*	*12/21/21 04:24*	*12/29/21 06:11*	*2*
M2-8:2 FTS	*97*		*50 - 150*	*12/21/21 04:24*	*12/29/21 06:11*	*2*
d5-NEtFOSAA	*92*		*50 - 150*	*12/21/21 04:24*	*12/29/21 06:11*	*2*
d3-NMeFOSAA	*83*		*50 - 150*	*12/21/21 04:24*	*12/29/21 06:11*	*2*

Client Sample Results

Client: Woodard & Curran, Inc. | Job ID: 320-82764-1
Project/Site: SJC PFAS Phase 2

Client Sample ID: L3-6-GW | Lab Sample ID: 320-82764-23

Date Collected: 12/09/21 14:45 | **Matrix: Water**
Date Received: 12/09/21 16:57

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**8.2**		4.7	2.2	ng/L		12/21/21 04:34	12/27/21 14:42	1
Perfluoropentanoic acid (PFPeA)	**2.9**		1.9	0.46	ng/L		12/21/21 04:34	12/27/21 14:42	1
Perfluorohexanoic acid (PFHxA)	**13**		1.9	0.54	ng/L		12/21/21 04:34	12/27/21 14:42	1
Perfluoroheptanoic acid (PFHpA)	**2.9**		1.9	0.23	ng/L		12/21/21 04:34	12/27/21 14:42	1
Perfluorooctanoic acid (PFOA)	**140**		1.9	0.80	ng/L		12/21/21 04:34	12/27/21 14:42	1
Perfluorononanoic acid (PFNA)	**0.38**	**J**	1.9	0.25	ng/L		12/21/21 04:34	12/27/21 14:42	1
Perfluorodecanoic acid (PFDA)	ND		1.9	0.29	ng/L		12/21/21 04:34	12/27/21 14:42	1
Perfluoroundecanoic acid (PFUnA)	ND		1.9	1.0	ng/L		12/21/21 04:34	12/27/21 14:42	1
Perfluorododecanoic acid (PFDoA)	ND		1.9	0.51	ng/L		12/21/21 04:34	12/27/21 14:42	1
Perfluorotridecanoic acid (PFTrDA)	ND		1.9	1.2	ng/L		12/21/21 04:34	12/27/21 14:42	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.9	0.68	ng/L		12/21/21 04:34	12/27/21 14:42	1
Perfluorobutanesulfonic acid (PFBS)	**8.9**		1.9	0.19	ng/L		12/21/21 04:34	12/27/21 14:42	1
Perfluoropentanesulfonic acid (PFPeS)	**7.4**		1.9	0.28	ng/L		12/21/21 04:34	12/27/21 14:42	1
Perfluorohexanesulfonic acid (PFHxS)	**60**		1.9	0.53	ng/L		12/21/21 04:34	12/27/21 14:42	1
Perfluoroheptanesulfonic Acid (PFHpS)	**3.6**		1.9	0.18	ng/L		12/21/21 04:34	12/27/21 14:42	1
Perfluorooctanesulfonic acid (PFOS)	**77**		1.9	0.51	ng/L		12/21/21 04:34	12/27/21 14:42	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.9	0.30	ng/L		12/21/21 04:34	12/27/21 14:42	1
Perfluorooctanesulfonamide (FOSA)	ND		1.9	0.92	ng/L		12/21/21 04:34	12/27/21 14:42	1
NEtFOSAA	ND		4.7	1.2	ng/L		12/21/21 04:34	12/27/21 14:42	1
NMeFOSAA	ND		4.7	1.1	ng/L		12/21/21 04:34	12/27/21 14:42	1
4:2 FTS	ND		1.9	0.22	ng/L		12/21/21 04:34	12/27/21 14:42	1
6:2 FTS	ND		4.7	2.3	ng/L		12/21/21 04:34	12/27/21 14:42	1
8:2 FTS	ND		1.9	0.43	ng/L		12/21/21 04:34	12/27/21 14:42	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*66*		*50 - 150*	*12/21/21 04:34*	*12/27/21 14:42*	*1*
13C5 PFPeA	*67*		*50 - 150*	*12/21/21 04:34*	*12/27/21 14:42*	*1*
13C2 PFHxA	*68*		*50 - 150*	*12/21/21 04:34*	*12/27/21 14:42*	*1*
13C4 PFHpA	*69*		*50 - 150*	*12/21/21 04:34*	*12/27/21 14:42*	*1*
13C4 PFOA	*79*		*50 - 150*	*12/21/21 04:34*	*12/27/21 14:42*	*1*
13C5 PFNA	*67*		*50 - 150*	*12/21/21 04:34*	*12/27/21 14:42*	*1*
13C2 PFDA	*68*		*50 - 150*	*12/21/21 04:34*	*12/27/21 14:42*	*1*
13C2 PFUnA	*59*		*50 - 150*	*12/21/21 04:34*	*12/27/21 14:42*	*1*
13C2 PFDoA	*56*		*50 - 150*	*12/21/21 04:34*	*12/27/21 14:42*	*1*
13C2 PFTeDA	*54*		*50 - 150*	*12/21/21 04:34*	*12/27/21 14:42*	*1*
13C3 PFBS	*64*		*50 - 150*	*12/21/21 04:34*	*12/27/21 14:42*	*1*
18O2 PFHxS	*66*		*50 - 150*	*12/21/21 04:34*	*12/27/21 14:42*	*1*
13C4 PFOS	*63*		*50 - 150*	*12/21/21 04:34*	*12/27/21 14:42*	*1*
13C8 FOSA	*51*		*50 - 150*	*12/21/21 04:34*	*12/27/21 14:42*	*1*
M2-4:2 FTS	*66*		*50 - 150*	*12/21/21 04:34*	*12/27/21 14:42*	*1*
M2-6:2 FTS	*67*		*50 - 150*	*12/21/21 04:34*	*12/27/21 14:42*	*1*
M2-8:2 FTS	*62*		*50 - 150*	*12/21/21 04:34*	*12/27/21 14:42*	*1*
d5-NEtFOSAA	*61*		*50 - 150*	*12/21/21 04:34*	*12/27/21 14:42*	*1*
d3-NMeFOSAA	*59*		*50 - 150*	*12/21/21 04:34*	*12/27/21 14:42*	*1*

Client Sample Results

Client Sample ID: L3-4-GW

Lab Sample ID: 320-82764-24

Date Collected: 12/09/21 16:15

Matrix: Water

Date Received: 12/09/21 16:57

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**15**		4.9	2.3	ng/L		12/21/21 04:34	12/27/21 14:52	1
Perfluoropentanoic acid (PFPeA)	**7.6**		2.0	0.48	ng/L		12/21/21 04:34	12/27/21 14:52	1
Perfluorohexanoic acid (PFHxA)	**20**		2.0	0.57	ng/L		12/21/21 04:34	12/27/21 14:52	1
Perfluoroheptanoic acid (PFHpA)	**4.3**		2.0	0.24	ng/L		12/21/21 04:34	12/27/21 14:52	1
Perfluorooctanoic acid (PFOA)	**43**		2.0	0.83	ng/L		12/21/21 04:34	12/27/21 14:52	1
Perfluorononanoic acid (PFNA)	**0.44**	**J**	2.0	0.26	ng/L		12/21/21 04:34	12/27/21 14:52	1
Perfluorodecanoic acid (PFDA)	ND		2.0	0.30	ng/L		12/21/21 04:34	12/27/21 14:52	1
Perfluoroundecanoic acid (PFUnA)	ND		2.0	1.1	ng/L		12/21/21 04:34	12/27/21 14:52	1
Perfluorododecanoic acid (PFDoA)	ND		2.0	0.54	ng/L		12/21/21 04:34	12/27/21 14:52	1
Perfluorotridecanoic acid (PFTrDA)	ND		2.0	1.3	ng/L		12/21/21 04:34	12/27/21 14:52	1
Perfluorotetradecanoic acid (PFTeA)	ND		2.0	0.71	ng/L		12/21/21 04:34	12/27/21 14:52	1
Perfluorobutanesulfonic acid (PFBS)	**14**		2.0	0.20	ng/L		12/21/21 04:34	12/27/21 14:52	1
Perfluoropentanesulfonic acid (PFPeS)	**9.3**		2.0	0.29	ng/L		12/21/21 04:34	12/27/21 14:52	1
Perfluorohexanesulfonic acid (PFHxS)	**64**		2.0	0.56	ng/L		12/21/21 04:34	12/27/21 14:52	1
Perfluoroheptanesulfonic Acid (PFHpS)	**2.4**		2.0	0.19	ng/L		12/21/21 04:34	12/27/21 14:52	1
Perfluorooctanesulfonic acid (PFOS)	**100**		2.0	0.53	ng/L		12/21/21 04:34	12/27/21 14:52	1
Perfluorodecanesulfonic acid (PFDS)	ND		2.0	0.31	ng/L		12/21/21 04:34	12/27/21 14:52	1
Perfluorooctanesulfonamide (FOSA)	ND		2.0	0.96	ng/L		12/21/21 04:34	12/27/21 14:52	1
NEtFOSAA	ND		4.9	1.3	ng/L		12/21/21 04:34	12/27/21 14:52	1
NMeFOSAA	ND		4.9	1.2	ng/L		12/21/21 04:34	12/27/21 14:52	1
4:2 FTS	ND		2.0	0.23	ng/L		12/21/21 04:34	12/27/21 14:52	1
6:2 FTS	ND		4.9	2.4	ng/L		12/21/21 04:34	12/27/21 14:52	1
8:2 FTS	ND		2.0	0.45	ng/L		12/21/21 04:34	12/27/21 14:52	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*60*		*50 - 150*	*12/21/21 04:34*	*12/27/21 14:52*	*1*
13C5 PFPeA	*60*		*50 - 150*	*12/21/21 04:34*	*12/27/21 14:52*	*1*
13C2 PFHxA	*55*		*50 - 150*	*12/21/21 04:34*	*12/27/21 14:52*	*1*
13C4 PFHpA	*63*		*50 - 150*	*12/21/21 04:34*	*12/27/21 14:52*	*1*
13C4 PFOA	*61*		*50 - 150*	*12/21/21 04:34*	*12/27/21 14:52*	*1*
13C5 PFNA	*57*		*50 - 150*	*12/21/21 04:34*	*12/27/21 14:52*	*1*
13C2 PFDA	*58*		*50 - 150*	*12/21/21 04:34*	*12/27/21 14:52*	*1*
13C2 PFUnA	*54*		*50 - 150*	*12/21/21 04:34*	*12/27/21 14:52*	*1*
13C2 PFDoA	*44*	**5-*	*50 - 150*	*12/21/21 04:34*	*12/27/21 14:52*	*1*
13C2 PFTeDA	*36*	**5-*	*50 - 150*	*12/21/21 04:34*	*12/27/21 14:52*	*1*
13C3 PFBS	*61*		*50 - 150*	*12/21/21 04:34*	*12/27/21 14:52*	*1*
18O2 PFHxS	*56*		*50 - 150*	*12/21/21 04:34*	*12/27/21 14:52*	*1*
13C4 PFOS	*55*		*50 - 150*	*12/21/21 04:34*	*12/27/21 14:52*	*1*
13C8 FOSA	*44*	**5-*	*50 - 150*	*12/21/21 04:34*	*12/27/21 14:52*	*1*
M2-4:2 FTS	*55*		*50 - 150*	*12/21/21 04:34*	*12/27/21 14:52*	*1*
M2-6:2 FTS	*54*		*50 - 150*	*12/21/21 04:34*	*12/27/21 14:52*	*1*
M2-8:2 FTS	*58*		*50 - 150*	*12/21/21 04:34*	*12/27/21 14:52*	*1*
d5-NEtFOSAA	*51*		*50 - 150*	*12/21/21 04:34*	*12/27/21 14:52*	*1*
d3-NMeFOSAA	*50*		*50 - 150*	*12/21/21 04:34*	*12/27/21 14:52*	*1*

Isotope Dilution Summary

Client: Woodard & Curran, Inc.
Project/Site: SJC PFAS Phase 2

Job ID: 320-82764-1

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

Matrix: Solid

Prep Type: Total/NA

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	**Client Sample ID**	**PFBA (50-150)**	**PFPeA (50-150)**	**PFHxA (50-150)**	**C4PFHA (50-150)**	**PFOA (50-150)**	**PFNA (50-150)**	**PFDA (50-150)**	**PFUnA (50-150)**
320-82764-1	L1/2-1-1	68	95	81	86	80	63	76	79
320-82764-1 - DL	L1/2-1-1								
320-82764-2	L1/2-1-5	64	81	66	68	71	66	64	67
320-82764-3	L1/2-1-10	59	87	77	80	79	77	79	79
320-82764-4	L1/2-2-1	49 *5-	83	73	75	80	71	85	84
320-82764-4 - DL	L1/2-2-1								
320-82764-5	L1/2-2-5	63	84	75	69	74	74	72	76
320-82764-5 - DL	L1/2-2-5								
320-82764-6	L1/2-2-10	57	81	66	75	72	68	67	71
LCS 320-552643/2-A	Lab Control Sample	62	83	72	73	72	77	71	78
LCSD 320-552643/3-A	Lab Control Sample Dup	53	94	78	81	80	75	73	77
MB 320-552643/1-A	Method Blank	64	89	76	78	76	72	75	80

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	**Client Sample ID**	**PFDoA (50-150)**	**PFTDA (50-150)**	**C3PFBS (50-150)**	**PFHxS (50-150)**	**PFOS (50-150)**	**PFOSA (50-150)**	**M242FTS (50-150)**	**M262FTS (50-150)**
320-82764-1	L1/2-1-1	78	80	92	68	55	56	65	
320-82764-1 - DL	L1/2-1-1					79			91
320-82764-2	L1/2-1-5	65	64	72	58	62	53	55	60
320-82764-3	L1/2-1-10	77	75	82	67	67	63	62	68
320-82764-4	L1/2-2-1	79	69	82		63	57	77	
320-82764-4 - DL	L1/2-2-1				61	73			109
320-82764-5	L1/2-2-5	78	78	84		64	63	57	59
320-82764-5 - DL	L1/2-2-5				55				
320-82764-6	L1/2-2-10	73	68	74	59	63	57	51	59
LCS 320-552643/2-A	Lab Control Sample	71	75	89	67	68	59	74	74
LCSD 320-552643/3-A	Lab Control Sample Dup	72	72	92	71	72	63	70	79
MB 320-552643/1-A	Method Blank	67	70	89	70	75	63	73	79

		Percent Isotope Dilution Recovery (Acceptance Limits)		
Lab Sample ID	**Client Sample ID**	**M282FTS (50-150)**	**d5NEFOS (50-150)**	**d3NMFOS (50-150)**
320-82764-1	L1/2-1-1	72	86	73
320-82764-1 - DL	L1/2-1-1			
320-82764-2	L1/2-1-5	58	64	54
320-82764-3	L1/2-1-10	66	75	69
320-82764-4	L1/2-2-1	185 *5+	104	88
320-82764-4 - DL	L1/2-2-1			
320-82764-5	L1/2-2-5	67	74	68
320-82764-5 - DL	L1/2-2-5			
320-82764-6	L1/2-2-10	60	68	61
LCS 320-552643/2-A	Lab Control Sample	71	81	76
LCSD 320-552643/3-A	Lab Control Sample Dup	72	84	79
MB 320-552643/1-A	Method Blank	79	81	74

Surrogate Legend

PFBA = 13C4 PFBA
PFPeA = 13C5 PFPeA
PFHxA = 13C2 PFHxA
C4PFHA = 13C4 PFHpA
PFOA = 13C4 PFOA

Isotope Dilution Summary

PFNA = 13C5 PFNA
PFDA = 13C2 PFDA
PFUnA = 13C2 PFUnA
PFDoA = 13C2 PFDoA
PFTDA = 13C2 PFTeDA
C3PFBS = 13C3 PFBS
PFHxS = 18O2 PFHxS
PFOS = 13C4 PFOS
PFOSA = 13C8 FOSA
M242FTS = M2-4:2 FTS
M262FTS = M2-6:2 FTS
M282FTS = M2-8:2 FTS
d5NEFOS = d5-NEtFOSAA
d3NMFOS = d3-NMeFOSAA

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

Matrix: Water **Prep Type: Total/NA**

		Percent Isotope Dilution Recovery (Acceptance Limits)							
		PFBA	PFPeA	PFHxA	C4PFHA	PFOA	PFNA	PFDA	PFUnA
Lab Sample ID	**Client Sample ID**	(50-150)	(50-150)	(50-150)	(50-150)	(50-150)	(50-150)	(50-150)	(50-150)
320-82764-7	FB-1-120621	76	92	77	78	77	71	78	77
320-82764-8	L8/9-9-GW	68	83	66	78	77	80	81	74
320-82764-9	L8/9-8-GW	58	77	69	75	88	88	86	85
320-82764-10	L8/9-7-GW	52	68	55	70	78	85	82	75
320-82764-11	L8/9-6-GW	56	68	64	76	73	76	70	76
320-82764-12	FB-2-120721	84	92	94	100	98	94	96	91
320-82764-13	EB-1-120721	82	97	85	101	99	93	97	99
320-82764-14	L8/9-70-GW	51	66	60	71	76	81	78	71
320-82764-15	FB-3-120821	95	101	97	110	100	94	97	102
320-82764-16	L10-7-GW	83	73	93	77	92	85	102	94
320-82764-17	L10-8-GW	48 *5-	56	50	51	55	54	48 *5-	47 *5-
320-82764-18	L3-7-GW	58	70	62	69	71	73	67	72
320-82764-19	L3-70-GW	55	63	53	65	65	66	62	63
320-82764-20	EB-2-120921	94	104	97	112	103	94	95	103
320-82764-21	FB-4-120921	92	100	97	108	102	91	89	99
320-82764-22	L3-5-GW	79	86	77	82	94	88	88	91
320-82764-23	L3-6-GW	66	67	68	69	79	67	68	59
320-82764-24	L3-4-GW	60	60	55	63	61	57	58	54
LCS 320-551851/2-A	Lab Control Sample	94	111	99	103	102	96	96	103
LCS 320-552650/2-A	Lab Control Sample	72	82	74	76	75	68	72	78
LCS 320-552651/2-A	Lab Control Sample	92	90	90	90	98	87	89	95
LCSD 320-551851/3-A	Lab Control Sample Dup	88	99	94	101	95	92	90	94
LCSD 320-552650/3-A	Lab Control Sample Dup	89	107	91	91	94	89	91	93
LCSD 320-552651/3-A	Lab Control Sample Dup	90	94	97	97	102	95	90	98
MB 320-551851/1-A	Method Blank	85	96	90	105	102	97	91	98
MB 320-552650/1-A	Method Blank	79	97	80	80	81	74	74	82
MB 320-552651/1-A	Method Blank	82	84	79	84	87	83	82	87

		Percent Isotope Dilution Recovery (Acceptance Limits)							
		PFDoA	PFTDA	C3PFBS	PFHxS	PFOS	PFOSA	M242FTS	M262FTS
Lab Sample ID	**Client Sample ID**	(50-150)	(50-150)	(50-150)	(50-150)	(50-150)	(50-150)	(50-150)	(50-150)
320-82764-7	FB-1-120621	72	72	91	71	72	61	81	78
320-82764-8	L8/9-9-GW	66	57	73	78	83	61	77	92
320-82764-9	L8/9-8-GW	78	63	79	87	91	64	107	115
320-82764-10	L8/9-7-GW	77	69	72	72	81	63	105	135
320-82764-11	L8/9-6-GW	65	32 *5-	67	68	68	51	74	79

Isotope Dilution Summary

Client: Woodard & Curran, Inc. Job ID: 320-82764-1
Project/Site: SJC PFAS Phase 2

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15 (Continued)

Matrix: Water **Prep Type: Total/NA**

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	**Client Sample ID**	**PFDoA (50-150)**	**PFTDA (50-150)**	**C3PFBS (50-150)**	**PFHxS (50-150)**	**PFOS (50-150)**	**PFOSA (50-150)**	**M242FTS (50-150)**	**M262FTS (50-150)**
320-82764-12	FB-2-120721	84	80	95	91	91	71	99	93
320-82764-13	EB-1-120721	84	82	98	94	98	69	108	99
320-82764-14	L8/9-70-GW	62	48 *5-	64	68	77	57	106	114
320-82764-15	FB-3-120821	85	91	108	101	94	73	116	99
320-82764-16	L10-7-GW	76	91	74	70	78	63	114	861 *5+
320-82764-17	L10-8-GW	32 *5-	10 *5-	50	47 *5-	50	39 *5-	64	51
320-82764-18	L3-7-GW	62	57	63	63	72	55	67	70
320-82764-19	L3-70-GW	58	52	60	62	63	48 *5-	66	69
320-82764-20	EB-2-120921	95	88	105	100	103	75	116	98
320-82764-21	FB-4-120921	92	80	96	101	96	71	93	100
320-82764-22	L3-5-GW	85	82	82	84	87	71	92	97
320-82764-23	L3-6-GW	56	54	64	66	63	51	66	67
320-82764-24	L3-4-GW	44 *5-	36 *5-	61	56	55	44 *5-	55	54
LCS 320-551851/2-A	Lab Control Sample	91	87	98	100	98	75	92	96
LCS 320-552650/2-A	Lab Control Sample	74	72	87	67	67	55	72	70
LCS 320-552651/2-A	Lab Control Sample	89	94	91	91	88	69	84	84
LCSD 320-551851/3-A	Lab Control Sample Dup	88	79	103	94	93	70	99	101
LCSD 320-552650/3-A	Lab Control Sample Dup	86	81	109	80	83	70	97	93
LCSD 320-552651/3-A	Lab Control Sample Dup	99	101	94	95	96	73	93	96
MB 320-551851/1-A	Method Blank	90	84	94	100	98	75	111	102
MB 320-552650/1-A	Method Blank	70	78	93	72	75	61	76	80
MB 320-552651/1-A	Method Blank	88	85	80	78	79	62	85	92

		Percent Isotope Dilution Recovery (Acceptance Limits)		
Lab Sample ID	**Client Sample ID**	**M282FTS (50-150)**	**d5NEFOS (50-150)**	**d3NMFOS (50-150)**
320-82764-7	FB-1-120621	84	90	84
320-82764-8	L8/9-9-GW	100	79	73
320-82764-9	L8/9-8-GW	138	89	79
320-82764-10	L8/9-7-GW	127	87	86
320-82764-11	L8/9-6-GW	88	76	63
320-82764-12	FB-2-120721	96	96	91
320-82764-13	EB-1-120721	106	103	101
320-82764-14	L8/9-70-GW	144	70	72
320-82764-15	FB-3-120821	102	106	100
320-82764-16	L10-7-GW	131	117	110
320-82764-17	L10-8-GW	55	52	41 *5-
320-82764-18	L3-7-GW	82	74	73
320-82764-19	L3-70-GW	71	67	59
320-82764-20	EB-2-120921	107	108	100
320-82764-21	FB-4-120921	110	102	91
320-82764-22	L3-5-GW	97	92	83
320-82764-23	L3-6-GW	62	61	59
320-82764-24	L3-4-GW	58	51	50
LCS 320-551851/2-A	Lab Control Sample	98	104	98
LCS 320-552650/2-A	Lab Control Sample	68	82	81
LCS 320-552651/2-A	Lab Control Sample	88	94	93
LCSD 320-551851/3-A	Lab Control Sample Dup	95	89	95
LCSD 320-552650/3-A	Lab Control Sample Dup	83	100	100
LCSD 320-552651/3-A	Lab Control Sample Dup	98	99	95
MB 320-551851/1-A	Method Blank	97	97	95

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15 (Continued)

Matrix: Water **Prep Type: Total/NA**

		Percent Isotope Dilution Recovery (Acceptance Limits)		
Lab Sample ID	**Client Sample ID**	**M282FTS (50-150)**	**d5NEFOS (50-150)**	**d3NMFOS (50-150)**
MB 320-552650/1-A	Method Blank	79	91	87
MB 320-552651/1-A	Method Blank	79	89	88

Surrogate Legend

PFBA = 13C4 PFBA
PFPeA = 13C5 PFPeA
PFHxA = 13C2 PFHxA
C4PFHA = 13C4 PFHpA
PFOA = 13C4 PFOA
PFNA = 13C5 PFNA
PFDA = 13C2 PFDA
PFUnA = 13C2 PFUnA
PFDoA = 13C2 PFDoA
PFTDA = 13C2 PFTeDA
C3PFBS = 13C3 PFBS
PFHxS = 18O2 PFHxS
PFOS = 13C4 PFOS
PFOSA = 13C8 FOSA
M242FTS = M2-4:2 FTS
M262FTS = M2-6:2 FTS
M282FTS = M2-8:2 FTS
d5NEFOS = d5-NEtFOSAA
d3NMFOS = d3-NMeFOSAA

QC Sample Results

Client: Woodard & Curran, Inc.
Project/Site: SJC PFAS Phase 2

Job ID: 320-82764-1

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

Lab Sample ID: MB 320-551851/1-A
Matrix: Water
Analysis Batch: 552904

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 551851

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		5.0	2.4	ng/L		12/17/21 12:51	12/21/21 22:58	1
Perfluoropentanoic acid (PFPeA)	ND		2.0	0.49	ng/L		12/17/21 12:51	12/21/21 22:58	1
Perfluorohexanoic acid (PFHxA)	ND		2.0	0.58	ng/L		12/17/21 12:51	12/21/21 22:58	1
Perfluoroheptanoic acid (PFHpA)	ND		2.0	0.25	ng/L		12/17/21 12:51	12/21/21 22:58	1
Perfluorooctanoic acid (PFOA)	ND		2.0	0.85	ng/L		12/17/21 12:51	12/21/21 22:58	1
Perfluorononanoic acid (PFNA)	ND		2.0	0.27	ng/L		12/17/21 12:51	12/21/21 22:58	1
Perfluorodecanoic acid (PFDA)	ND		2.0	0.31	ng/L		12/17/21 12:51	12/21/21 22:58	1
Perfluoroundecanoic acid (PFUnA)	ND		2.0	1.1	ng/L		12/17/21 12:51	12/21/21 22:58	1
Perfluorododecanoic acid (PFDoA)	ND		2.0	0.55	ng/L		12/17/21 12:51	12/21/21 22:58	1
Perfluorotridecanoic acid (PFTrDA)	ND		2.0	1.3	ng/L		12/17/21 12:51	12/21/21 22:58	1
Perfluorotetradecanoic acid (PFTeA)	ND		2.0	0.73	ng/L		12/17/21 12:51	12/21/21 22:58	1
Perfluorobutanesulfonic acid (PFBS)	ND		2.0	0.20	ng/L		12/17/21 12:51	12/21/21 22:58	1
Perfluoropentanesulfonic acid (PFPeS)	ND		2.0	0.30	ng/L		12/17/21 12:51	12/21/21 22:58	1
Perfluorohexanesulfonic acid (PFHxS)	ND		2.0	0.57	ng/L		12/17/21 12:51	12/21/21 22:58	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		2.0	0.19	ng/L		12/17/21 12:51	12/21/21 22:58	1
Perfluorooctanesulfonic acid (PFOS)	ND		2.0	0.54	ng/L		12/17/21 12:51	12/21/21 22:58	1
Perfluorodecanesulfonic acid (PFDS)	ND		2.0	0.32	ng/L		12/17/21 12:51	12/21/21 22:58	1
Perfluorooctanesulfonamide (FOSA)	ND		2.0	0.98	ng/L		12/17/21 12:51	12/21/21 22:58	1
NEtFOSAA	ND		5.0	1.3	ng/L		12/17/21 12:51	12/21/21 22:58	1
NMeFOSAA	ND		5.0	1.2	ng/L		12/17/21 12:51	12/21/21 22:58	1
4:2 FTS	ND		2.0	0.24	ng/L		12/17/21 12:51	12/21/21 22:58	1
6:2 FTS	ND		5.0	2.5	ng/L		12/17/21 12:51	12/21/21 22:58	1
8:2 FTS	ND		2.0	0.46	ng/L		12/17/21 12:51	12/21/21 22:58	1

Isotope Dilution	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*85*		*50 - 150*	*12/17/21 12:51*	*12/21/21 22:58*	*1*
13C5 PFPeA	*96*		*50 - 150*	*12/17/21 12:51*	*12/21/21 22:58*	*1*
13C2 PFHxA	*90*		*50 - 150*	*12/17/21 12:51*	*12/21/21 22:58*	*1*
13C4 PFHpA	*105*		*50 - 150*	*12/17/21 12:51*	*12/21/21 22:58*	*1*
13C4 PFOA	*102*		*50 - 150*	*12/17/21 12:51*	*12/21/21 22:58*	*1*
13C5 PFNA	*97*		*50 - 150*	*12/17/21 12:51*	*12/21/21 22:58*	*1*
13C2 PFDA	*91*		*50 - 150*	*12/17/21 12:51*	*12/21/21 22:58*	*1*
13C2 PFUnA	*98*		*50 - 150*	*12/17/21 12:51*	*12/21/21 22:58*	*1*
13C2 PFDoA	*90*		*50 - 150*	*12/17/21 12:51*	*12/21/21 22:58*	*1*
13C2 PFTeDA	*84*		*50 - 150*	*12/17/21 12:51*	*12/21/21 22:58*	*1*
13C3 PFBS	*94*		*50 - 150*	*12/17/21 12:51*	*12/21/21 22:58*	*1*
18O2 PFHxS	*100*		*50 - 150*	*12/17/21 12:51*	*12/21/21 22:58*	*1*
13C4 PFOS	*98*		*50 - 150*	*12/17/21 12:51*	*12/21/21 22:58*	*1*
13C8 FOSA	*75*		*50 - 150*	*12/17/21 12:51*	*12/21/21 22:58*	*1*
M2-4:2 FTS	*111*		*50 - 150*	*12/17/21 12:51*	*12/21/21 22:58*	*1*
M2-6:2 FTS	*102*		*50 - 150*	*12/17/21 12:51*	*12/21/21 22:58*	*1*
M2-8:2 FTS	*97*		*50 - 150*	*12/17/21 12:51*	*12/21/21 22:58*	*1*
d5-NEtFOSAA	*97*		*50 - 150*	*12/17/21 12:51*	*12/21/21 22:58*	*1*
d3-NMeFOSAA	*95*		*50 - 150*	*12/17/21 12:51*	*12/21/21 22:58*	*1*

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15 (Continued)

Lab Sample ID: LCS 320-551851/2-A
Matrix: Water
Analysis Batch: 552904

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 551851

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Perfluorobutanoic acid (PFBA)	40.0	38.9		ng/L		97	73 - 129
Perfluoropentanoic acid (PFPeA)	40.0	32.0		ng/L		80	72 - 129
Perfluorohexanoic acid (PFHxA)	40.0	38.8		ng/L		97	72 - 129
Perfluoroheptanoic acid (PFHpA)	40.0	37.2		ng/L		93	72 - 130
Perfluorooctanoic acid (PFOA)	40.0	38.6		ng/L		97	71 - 133
Perfluorononanoic acid (PFNA)	40.0	40.7		ng/L		102	69 - 130
Perfluorodecanoic acid (PFDA)	40.0	35.9		ng/L		90	71 - 129
Perfluoroundecanoic acid (PFUnA)	40.0	36.8		ng/L		92	69 - 133
Perfluorododecanoic acid (PFDoA)	40.0	38.2		ng/L		95	72 - 134
Perfluorotridecanoic acid (PFTrDA)	40.0	40.0		ng/L		100	65 - 144
Perfluorotetradecanoic acid (PFTeA)	40.0	38.3		ng/L		96	71 - 132
Perfluorobutanesulfonic acid (PFBS)	35.4	34.0		ng/L		96	72 - 130
Perfluoropentanesulfonic acid (PFPeS)	37.5	39.0		ng/L		104	71 - 127
Perfluorohexanesulfonic acid (PFHxS)	36.4	33.5		ng/L		92	68 - 131
Perfluoroheptanesulfonic Acid (PFHpS)	38.1	34.8		ng/L		91	69 - 134
Perfluorooctanesulfonic acid (PFOS)	37.1	34.1		ng/L		92	65 - 140
Perfluorodecanesulfonic acid (PFDS)	38.6	36.2		ng/L		94	53 - 142
Perfluorooctanesulfonamide (FOSA)	40.0	45.8		ng/L		115	67 - 137
NEtFOSAA	40.0	35.1		ng/L		88	61 - 135
NMeFOSAA	40.0	35.6		ng/L		89	65 - 136
4:2 FTS	37.4	38.8		ng/L		104	63 - 143
6:2 FTS	37.9	39.0		ng/L		103	64 - 140
8:2 FTS	38.3	36.1		ng/L		94	67 - 138

Isotope Dilution	*LCS %Recovery*	*LCS Qualifier*	*Limits*
13C4 PFBA	*94*		*50 - 150*
13C5 PFPeA	*111*		*50 - 150*
13C2 PFHxA	*99*		*50 - 150*
13C4 PFHpA	*103*		*50 - 150*
13C4 PFOA	*102*		*50 - 150*
13C5 PFNA	*96*		*50 - 150*
13C2 PFDA	*96*		*50 - 150*
13C2 PFUnA	*103*		*50 - 150*
13C2 PFDoA	*91*		*50 - 150*
13C2 PFTeDA	*87*		*50 - 150*
13C3 PFBS	*98*		*50 - 150*
18O2 PFHxS	*100*		*50 - 150*
13C4 PFOS	*98*		*50 - 150*
13C8 FOSA	*75*		*50 - 150*
M2-4:2 FTS	*92*		*50 - 150*

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15 (Continued)

Lab Sample ID: LCS 320-551851/2-A
Matrix: Water
Analysis Batch: 552904

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 551851

Isotope Dilution	*LCS %Recovery*	*LCS Qualifier*	*Limits*
M2-6:2 FTS	*96*		*50 - 150*
M2-8:2 FTS	*98*		*50 - 150*
d5-NEtFOSAA	*104*		*50 - 150*
d3-NMeFOSAA	*98*		*50 - 150*

Lab Sample ID: LCSD 320-551851/3-A
Matrix: Water
Analysis Batch: 552904

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 551851

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Perfluorobutanoic acid (PFBA)	40.0	40.7		ng/L		102	73 - 129	4	30
Perfluoropentanoic acid (PFPeA)	40.0	35.2		ng/L		88	72 - 129	9	30
Perfluorohexanoic acid (PFHxA)	40.0	40.0		ng/L		100	72 - 129	3	30
Perfluoroheptanoic acid (PFHpA)	40.0	39.3		ng/L		98	72 - 130	6	30
Perfluorooctanoic acid (PFOA)	40.0	41.3		ng/L		103	71 - 133	7	30
Perfluorononanoic acid (PFNA)	40.0	42.6		ng/L		106	69 - 130	4	30
Perfluorodecanoic acid (PFDA)	40.0	38.9		ng/L		97	71 - 129	8	30
Perfluoroundecanoic acid (PFUnA)	40.0	38.0		ng/L		95	69 - 133	3	30
Perfluorododecanoic acid (PFDoA)	40.0	36.5		ng/L		91	72 - 134	5	30
Perfluorotridecanoic acid (PFTrDA)	40.0	36.0		ng/L		90	65 - 144	11	30
Perfluorotetradecanoic acid (PFTeA)	40.0	39.5		ng/L		99	71 - 132	3	30
Perfluorobutanesulfonic acid (PFBS)	35.4	29.3		ng/L		83	72 - 130	15	30
Perfluoropentanesulfonic acid (PFPeS)	37.5	36.3		ng/L		97	71 - 127	7	30
Perfluorohexanesulfonic acid (PFHxS)	36.4	34.6		ng/L		95	68 - 131	3	30
Perfluoroheptanesulfonic Acid (PFHpS)	38.1	35.8		ng/L		94	69 - 134	3	30
Perfluorooctanesulfonic acid (PFOS)	37.1	37.0		ng/L		100	65 - 140	8	30
Perfluorodecanesulfonic acid (PFDS)	38.6	40.5		ng/L		105	53 - 142	11	30
Perfluorooctanesulfonamide (FOSA)	40.0	48.2		ng/L		120	67 - 137	5	30
NEtFOSAA	40.0	41.7		ng/L		104	61 - 135	17	30
NMeFOSAA	40.0	36.8		ng/L		92	65 - 136	3	30
4:2 FTS	37.4	36.1		ng/L		97	63 - 143	7	30
6:2 FTS	37.9	40.0		ng/L		105	64 - 140	2	30
8:2 FTS	38.3	36.5		ng/L		95	67 - 138	1	30

Isotope Dilution	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
13C4 PFBA	*88*		*50 - 150*
13C5 PFPeA	*99*		*50 - 150*
13C2 PFHxA	*94*		*50 - 150*
13C4 PFHpA	*101*		*50 - 150*
13C4 PFOA	*95*		*50 - 150*
13C5 PFNA	*92*		*50 - 150*

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15 (Continued)

Lab Sample ID: LCSD 320-551851/3-A
Matrix: Water
Analysis Batch: 552904

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 551851

Isotope Dilution	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
13C2 PFDA	*90*		*50 - 150*
13C2 PFUnA	*94*		*50 - 150*
13C2 PFDoA	*88*		*50 - 150*
13C2 PFTeDA	*79*		*50 - 150*
13C3 PFBS	*103*		*50 - 150*
18O2 PFHxS	*94*		*50 - 150*
13C4 PFOS	*93*		*50 - 150*
13C8 FOSA	*70*		*50 - 150*
M2-4:2 FTS	*99*		*50 - 150*
M2-6:2 FTS	*101*		*50 - 150*
M2-8:2 FTS	*95*		*50 - 150*
d5-NEtFOSAA	*89*		*50 - 150*
d3-NMeFOSAA	*95*		*50 - 150*

Lab Sample ID: MB 320-552643/1-A
Matrix: Solid
Analysis Batch: 553496

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 552643

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		0.20	0.046	ug/Kg		12/20/21 19:22	12/23/21 20:38	1
Perfluoropentanoic acid (PFPeA)	ND		0.20	0.041	ug/Kg		12/20/21 19:22	12/23/21 20:38	1
Perfluorohexanoic acid (PFHxA)	ND		0.20	0.031	ug/Kg		12/20/21 19:22	12/23/21 20:38	1
Perfluoroheptanoic acid (PFHpA)	ND		0.20	0.038	ug/Kg		12/20/21 19:22	12/23/21 20:38	1
Perfluorooctanoic acid (PFOA)	ND		0.20	0.053	ug/Kg		12/20/21 19:22	12/23/21 20:38	1
Perfluorononanoic acid (PFNA)	ND		0.20	0.022	ug/Kg		12/20/21 19:22	12/23/21 20:38	1
Perfluorodecanoic acid (PFDA)	ND		0.20	0.048	ug/Kg		12/20/21 19:22	12/23/21 20:38	1
Perfluoroundecanoic acid (PFUnA)	ND		0.20	0.042	ug/Kg		12/20/21 19:22	12/23/21 20:38	1
Perfluorododecanoic acid (PFDoA)	ND		0.20	0.030	ug/Kg		12/20/21 19:22	12/23/21 20:38	1
Perfluorotridecanoic acid (PFTrDA)	ND		0.20	0.021	ug/Kg		12/20/21 19:22	12/23/21 20:38	1
Perfluorotetradecanoic acid (PFTeA)	ND		0.20	0.037	ug/Kg		12/20/21 19:22	12/23/21 20:38	1
Perfluorobutanesulfonic acid (PFBS)	ND		0.20	0.038	ug/Kg		12/20/21 19:22	12/23/21 20:38	1
Perfluoropentanesulfonic acid (PFPeS)	ND		0.20	0.037	ug/Kg		12/20/21 19:22	12/23/21 20:38	1
Perfluorohexanesulfonic acid (PFHxS)	ND		0.20	0.029	ug/Kg		12/20/21 19:22	12/23/21 20:38	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		0.20	0.049	ug/Kg		12/20/21 19:22	12/23/21 20:38	1
Perfluorooctanesulfonic acid (PFOS)	ND		0.20	0.043	ug/Kg		12/20/21 19:22	12/23/21 20:38	1
Perfluorodecanesulfonic acid (PFDS)	ND		0.20	0.052	ug/Kg		12/20/21 19:22	12/23/21 20:38	1
Perfluorooctanesulfonamide (FOSA)	ND		0.20	0.033	ug/Kg		12/20/21 19:22	12/23/21 20:38	1
NEtFOSAA	ND		0.20	0.048	ug/Kg		12/20/21 19:22	12/23/21 20:38	1
NMeFOSAA	ND		0.20	0.023	ug/Kg		12/20/21 19:22	12/23/21 20:38	1
4:2 FTS	ND		0.20	0.051	ug/Kg		12/20/21 19:22	12/23/21 20:38	1
6:2 FTS	ND		0.20	0.027	ug/Kg		12/20/21 19:22	12/23/21 20:38	1
8:2 FTS	ND		0.20	0.035	ug/Kg		12/20/21 19:22	12/23/21 20:38	1

Isotope Dilution	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*64*		*50 - 150*	*12/20/21 19:22*	*12/23/21 20:38*	*1*
13C5 PFPeA	*89*		*50 - 150*	*12/20/21 19:22*	*12/23/21 20:38*	*1*
13C2 PFHxA	*76*		*50 - 150*	*12/20/21 19:22*	*12/23/21 20:38*	*1*

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15 (Continued)

Lab Sample ID: MB 320-552643/1-A
Matrix: Solid
Analysis Batch: 553496

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 552643

Isotope Dilution	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFHpA	*78*		*50 - 150*	*12/20/21 19:22*	*12/23/21 20:38*	*1*
13C4 PFOA	*76*		*50 - 150*	*12/20/21 19:22*	*12/23/21 20:38*	*1*
13C5 PFNA	*72*		*50 - 150*	*12/20/21 19:22*	*12/23/21 20:38*	*1*
13C2 PFDA	*75*		*50 - 150*	*12/20/21 19:22*	*12/23/21 20:38*	*1*
13C2 PFUnA	*80*		*50 - 150*	*12/20/21 19:22*	*12/23/21 20:38*	*1*
13C2 PFDoA	*67*		*50 - 150*	*12/20/21 19:22*	*12/23/21 20:38*	*1*
13C2 PFTeDA	*70*		*50 - 150*	*12/20/21 19:22*	*12/23/21 20:38*	*1*
13C3 PFBS	*89*		*50 - 150*	*12/20/21 19:22*	*12/23/21 20:38*	*1*
18O2 PFHxS	*70*		*50 - 150*	*12/20/21 19:22*	*12/23/21 20:38*	*1*
13C4 PFOS	*75*		*50 - 150*	*12/20/21 19:22*	*12/23/21 20:38*	*1*
13C8 FOSA	*63*		*50 - 150*	*12/20/21 19:22*	*12/23/21 20:38*	*1*
M2-4:2 FTS	*73*		*50 - 150*	*12/20/21 19:22*	*12/23/21 20:38*	*1*
M2-6:2 FTS	*79*		*50 - 150*	*12/20/21 19:22*	*12/23/21 20:38*	*1*
M2-8:2 FTS	*79*		*50 - 150*	*12/20/21 19:22*	*12/23/21 20:38*	*1*
d5-NEtFOSAA	*81*		*50 - 150*	*12/20/21 19:22*	*12/23/21 20:38*	*1*
d3-NMeFOSAA	*74*		*50 - 150*	*12/20/21 19:22*	*12/23/21 20:38*	*1*

Lab Sample ID: LCS 320-552643/2-A
Matrix: Solid
Analysis Batch: 553496

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 552643

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Perfluorobutanoic acid (PFBA)	2.00	1.93		ug/Kg		97	71 - 135
Perfluoropentanoic acid (PFPeA)	2.00	1.89		ug/Kg		95	69 - 132
Perfluorohexanoic acid (PFHxA)	2.00	2.10		ug/Kg		105	70 - 132
Perfluoroheptanoic acid (PFHpA)	2.00	2.06		ug/Kg		103	71 - 131
Perfluorooctanoic acid (PFOA)	2.00	1.99		ug/Kg		100	69 - 133
Perfluorononanoic acid (PFNA)	2.00	1.81		ug/Kg		90	72 - 129
Perfluorodecanoic acid (PFDA)	2.00	1.79		ug/Kg		89	69 - 133
Perfluoroundecanoic acid (PFUnA)	2.00	1.92		ug/Kg		96	64 - 136
Perfluorododecanoic acid (PFDoA)	2.00	1.96		ug/Kg		98	69 - 135
Perfluorotridecanoic acid (PFTrDA)	2.00	1.92		ug/Kg		96	66 - 139
Perfluorotetradecanoic acid (PFTeA)	2.00	1.70		ug/Kg		85	69 - 133
Perfluorobutanesulfonic acid (PFBS)	1.77	1.49		ug/Kg		85	72 - 128
Perfluoropentanesulfonic acid (PFPeS)	1.88	1.43		ug/Kg		76	73 - 123
Perfluorohexanesulfonic acid (PFHxS)	1.82	1.86		ug/Kg		102	67 - 130
Perfluoroheptanesulfonic Acid (PFHpS)	1.90	1.84		ug/Kg		97	70 - 132
Perfluorooctanesulfonic acid (PFOS)	1.86	1.85		ug/Kg		100	68 - 136
Perfluorodecanesulfonic acid (PFDS)	1.93	1.98		ug/Kg		103	59 - 134
Perfluorooctanesulfonamide (FOSA)	2.00	2.49		ug/Kg		124	67 - 137
NEtFOSAA	2.00	1.91		ug/Kg		95	61 - 139

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15 (Continued)

Lab Sample ID: LCS 320-552643/2-A
Matrix: Solid
Analysis Batch: 553496

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 552643

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
NMeFOSAA	2.00	1.95		ug/Kg		98	63 - 144
4:2 FTS	1.87	1.68		ug/Kg		90	62 - 145
6:2 FTS	1.90	1.84		ug/Kg		97	64 - 140
8:2 FTS	1.92	1.88		ug/Kg		98	65 - 137

Isotope Dilution	*LCS %Recovery*	*LCS Qualifier*	*Limits*
13C4 PFBA	*62*		*50 - 150*
13C5 PFPeA	*83*		*50 - 150*
13C2 PFHxA	*72*		*50 - 150*
13C4 PFHpA	*73*		*50 - 150*
13C4 PFOA	*72*		*50 - 150*
13C5 PFNA	*77*		*50 - 150*
13C2 PFDA	*71*		*50 - 150*
13C2 PFUnA	*78*		*50 - 150*
13C2 PFDoA	*71*		*50 - 150*
13C2 PFTeDA	*75*		*50 - 150*
13C3 PFBS	*89*		*50 - 150*
18O2 PFHxS	*67*		*50 - 150*
13C4 PFOS	*68*		*50 - 150*
13C8 FOSA	*59*		*50 - 150*
M2-4:2 FTS	*74*		*50 - 150*
M2-6:2 FTS	*74*		*50 - 150*
M2-8:2 FTS	*71*		*50 - 150*
d5-NEtFOSAA	*81*		*50 - 150*
d3-NMeFOSAA	*76*		*50 - 150*

Lab Sample ID: LCSD 320-552643/3-A
Matrix: Solid
Analysis Batch: 553496

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 552643

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Perfluorobutanoic acid (PFBA)	2.00	2.05		ug/Kg		103	71 - 135	6	30
Perfluoropentanoic acid (PFPeA)	2.00	1.71		ug/Kg		86	69 - 132	10	30
Perfluorohexanoic acid (PFHxA)	2.00	1.95		ug/Kg		97	70 - 132	8	30
Perfluoroheptanoic acid (PFHpA)	2.00	1.90		ug/Kg		95	71 - 131	8	30
Perfluorooctanoic acid (PFOA)	2.00	1.87		ug/Kg		93	69 - 133	6	30
Perfluorononanoic acid (PFNA)	2.00	1.97		ug/Kg		98	72 - 129	8	30
Perfluorodecanoic acid (PFDA)	2.00	1.80		ug/Kg		90	69 - 133	0	30
Perfluoroundecanoic acid (PFUnA)	2.00	1.98		ug/Kg		99	64 - 136	3	30
Perfluorododecanoic acid (PFDoA)	2.00	2.07		ug/Kg		104	69 - 135	6	30
Perfluorotridecanoic acid (PFTrDA)	2.00	2.07		ug/Kg		103	66 - 139	7	30
Perfluorotetradecanoic acid (PFTeA)	2.00	1.87		ug/Kg		94	69 - 133	10	30
Perfluorobutanesulfonic acid (PFBS)	1.77	1.50		ug/Kg		85	72 - 128	1	30
Perfluoropentanesulfonic acid (PFPeS)	1.88	1.55		ug/Kg		83	73 - 123	8	30

QC Sample Results

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15 (Continued)

Lab Sample ID: LCSD 320-552643/3-A
Matrix: Solid
Analysis Batch: 553496

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 552643

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Perfluorohexanesulfonic acid (PFHxS)	1.82	1.78		ug/Kg		98	67 - 130	5	30
Perfluoroheptanesulfonic Acid (PFHpS)	1.90	1.89		ug/Kg		99	70 - 132	3	30
Perfluorooctanesulfonic acid (PFOS)	1.86	1.70		ug/Kg		92	68 - 136	8	30
Perfluorodecanesulfonic acid (PFDS)	1.93	1.89		ug/Kg		98	59 - 134	4	30
Perfluorooctanesulfonamide (FOSA)	2.00	2.32		ug/Kg		116	67 - 137	7	30
NEtFOSAA	2.00	1.89		ug/Kg		94	61 - 139	1	30
NMeFOSAA	2.00	2.01		ug/Kg		100	63 - 144	3	30
4:2 FTS	1.87	1.75		ug/Kg		94	62 - 145	4	30
6:2 FTS	1.90	1.77		ug/Kg		93	64 - 140	4	30
8:2 FTS	1.92	1.83		ug/Kg		95	65 - 137	3	30

Isotope Dilution	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
13C4 PFBA	*53*		*50 - 150*
13C5 PFPeA	*94*		*50 - 150*
13C2 PFHxA	*78*		*50 - 150*
13C4 PFHpA	*81*		*50 - 150*
13C4 PFOA	*80*		*50 - 150*
13C5 PFNA	*75*		*50 - 150*
13C2 PFDA	*73*		*50 - 150*
13C2 PFUnA	*77*		*50 - 150*
13C2 PFDoA	*72*		*50 - 150*
13C2 PFTeDA	*72*		*50 - 150*
13C3 PFBS	*92*		*50 - 150*
18O2 PFHxS	*71*		*50 - 150*
13C4 PFOS	*72*		*50 - 150*
13C8 FOSA	*63*		*50 - 150*
M2-4:2 FTS	*70*		*50 - 150*
M2-6:2 FTS	*79*		*50 - 150*
M2-8:2 FTS	*72*		*50 - 150*
d5-NEtFOSAA	*84*		*50 - 150*
d3-NMeFOSAA	*79*		*50 - 150*

Lab Sample ID: MB 320-552650/1-A
Matrix: Water
Analysis Batch: 553581

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 552650

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		5.0	2.4	ng/L		12/21/21 04:24	12/24/21 07:37	1
Perfluoropentanoic acid (PFPeA)	ND		2.0	0.49	ng/L		12/21/21 04:24	12/24/21 07:37	1
Perfluorohexanoic acid (PFHxA)	ND		2.0	0.58	ng/L		12/21/21 04:24	12/24/21 07:37	1
Perfluoroheptanoic acid (PFHpA)	ND		2.0	0.25	ng/L		12/21/21 04:24	12/24/21 07:37	1
Perfluorooctanoic acid (PFOA)	ND		2.0	0.85	ng/L		12/21/21 04:24	12/24/21 07:37	1
Perfluorononanoic acid (PFNA)	ND		2.0	0.27	ng/L		12/21/21 04:24	12/24/21 07:37	1
Perfluorodecanoic acid (PFDA)	ND		2.0	0.31	ng/L		12/21/21 04:24	12/24/21 07:37	1
Perfluoroundecanoic acid (PFUnA)	ND		2.0	1.1	ng/L		12/21/21 04:24	12/24/21 07:37	1

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15 (Continued)

Lab Sample ID: MB 320-552650/1-A
Client Sample ID: Method Blank
Matrix: Water
Prep Type: Total/NA
Analysis Batch: 553581
Prep Batch: 552650

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorododecanoic acid (PFDoA)	ND		2.0	0.55	ng/L		12/21/21 04:24	12/24/21 07:37	1
Perfluorotridecanoic acid (PFTrDA)	ND		2.0	1.3	ng/L		12/21/21 04:24	12/24/21 07:37	1
Perfluorotetradecanoic acid (PFTeA)	ND		2.0	0.73	ng/L		12/21/21 04:24	12/24/21 07:37	1
Perfluorobutanesulfonic acid (PFBS)	ND		2.0	0.20	ng/L		12/21/21 04:24	12/24/21 07:37	1
Perfluoropentanesulfonic acid (PFPeS)	ND		2.0	0.30	ng/L		12/21/21 04:24	12/24/21 07:37	1
Perfluorohexanesulfonic acid (PFHxS)	ND		2.0	0.57	ng/L		12/21/21 04:24	12/24/21 07:37	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		2.0	0.19	ng/L		12/21/21 04:24	12/24/21 07:37	1
Perfluorooctanesulfonic acid (PFOS)	ND		2.0	0.54	ng/L		12/21/21 04:24	12/24/21 07:37	1
Perfluorodecanesulfonic acid (PFDS)	ND		2.0	0.32	ng/L		12/21/21 04:24	12/24/21 07:37	1
Perfluorooctanesulfonamide (FOSA)	ND		2.0	0.98	ng/L		12/21/21 04:24	12/24/21 07:37	1
NEtFOSAA	ND		5.0	1.3	ng/L		12/21/21 04:24	12/24/21 07:37	1
NMeFOSAA	ND		5.0	1.2	ng/L		12/21/21 04:24	12/24/21 07:37	1
4:2 FTS	ND		2.0	0.24	ng/L		12/21/21 04:24	12/24/21 07:37	1
6:2 FTS	ND		5.0	2.5	ng/L		12/21/21 04:24	12/24/21 07:37	1
8:2 FTS	ND		2.0	0.46	ng/L		12/21/21 04:24	12/24/21 07:37	1

Isotope Dilution	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*79*		*50 - 150*	*12/21/21 04:24*	*12/24/21 07:37*	*1*
13C5 PFPeA	*97*		*50 - 150*	*12/21/21 04:24*	*12/24/21 07:37*	*1*
13C2 PFHxA	*80*		*50 - 150*	*12/21/21 04:24*	*12/24/21 07:37*	*1*
13C4 PFHpA	*80*		*50 - 150*	*12/21/21 04:24*	*12/24/21 07:37*	*1*
13C4 PFOA	*81*		*50 - 150*	*12/21/21 04:24*	*12/24/21 07:37*	*1*
13C5 PFNA	*74*		*50 - 150*	*12/21/21 04:24*	*12/24/21 07:37*	*1*
13C2 PFDA	*74*		*50 - 150*	*12/21/21 04:24*	*12/24/21 07:37*	*1*
13C2 PFUnA	*82*		*50 - 150*	*12/21/21 04:24*	*12/24/21 07:37*	*1*
13C2 PFDoA	*70*		*50 - 150*	*12/21/21 04:24*	*12/24/21 07:37*	*1*
13C2 PFTeDA	*78*		*50 - 150*	*12/21/21 04:24*	*12/24/21 07:37*	*1*
13C3 PFBS	*93*		*50 - 150*	*12/21/21 04:24*	*12/24/21 07:37*	*1*
18O2 PFHxS	*72*		*50 - 150*	*12/21/21 04:24*	*12/24/21 07:37*	*1*
13C4 PFOS	*75*		*50 - 150*	*12/21/21 04:24*	*12/24/21 07:37*	*1*
13C8 FOSA	*61*		*50 - 150*	*12/21/21 04:24*	*12/24/21 07:37*	*1*
M2-4:2 FTS	*76*		*50 - 150*	*12/21/21 04:24*	*12/24/21 07:37*	*1*
M2-6:2 FTS	*80*		*50 - 150*	*12/21/21 04:24*	*12/24/21 07:37*	*1*
M2-8:2 FTS	*79*		*50 - 150*	*12/21/21 04:24*	*12/24/21 07:37*	*1*
d5-NEtFOSAA	*91*		*50 - 150*	*12/21/21 04:24*	*12/24/21 07:37*	*1*
d3-NMeFOSAA	*87*		*50 - 150*	*12/21/21 04:24*	*12/24/21 07:37*	*1*

Lab Sample ID: LCS 320-552650/2-A
Client Sample ID: Lab Control Sample
Matrix: Water
Prep Type: Total/NA
Analysis Batch: 553581
Prep Batch: 552650

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Perfluorobutanoic acid (PFBA)	40.0	38.5		ng/L		96	73 - 129
Perfluoropentanoic acid (PFPeA)	40.0	37.9		ng/L		95	72 - 129
Perfluorohexanoic acid (PFHxA)	40.0	39.7		ng/L		99	72 - 129
Perfluoroheptanoic acid (PFHpA)	40.0	37.8		ng/L		94	72 - 130
Perfluorooctanoic acid (PFOA)	40.0	33.6		ng/L		84	71 - 133

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15 (Continued)

Lab Sample ID: LCS 320-552650/2-A
Matrix: Water
Analysis Batch: 553581

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 552650

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Perfluorononanoic acid (PFNA)	40.0	38.8		ng/L		97	69 - 130
Perfluorodecanoic acid (PFDA)	40.0	33.8		ng/L		85	71 - 129
Perfluoroundecanoic acid (PFUnA)	40.0	34.3		ng/L		86	69 - 133
Perfluorododecanoic acid (PFDoA)	40.0	35.4		ng/L		88	72 - 134
Perfluorotridecanoic acid (PFTrDA)	40.0	36.1		ng/L		90	65 - 144
Perfluorotetradecanoic acid (PFTeA)	40.0	34.9		ng/L		87	71 - 132
Perfluorobutanesulfonic acid (PFBS)	35.4	29.3		ng/L		83	72 - 130
Perfluoropentanesulfonic acid (PFPeS)	37.5	28.7		ng/L		76	71 - 127
Perfluorohexanesulfonic acid (PFHxS)	36.4	32.4		ng/L		89	68 - 131
Perfluoroheptanesulfonic Acid (PFHpS)	38.1	36.4		ng/L		96	69 - 134
Perfluorooctanesulfonic acid (PFOS)	37.1	35.4		ng/L		95	65 - 140
Perfluorodecanesulfonic acid (PFDS)	38.6	38.5		ng/L		100	53 - 142
Perfluorooctanesulfonamide (FOSA)	40.0	48.9		ng/L		122	67 - 137
NEtFOSAA	40.0	37.3		ng/L		93	61 - 135
NMeFOSAA	40.0	36.6		ng/L		91	65 - 136
4:2 FTS	37.4	34.4		ng/L		92	63 - 143
6:2 FTS	37.9	38.0		ng/L		100	64 - 140
8:2 FTS	38.3	36.7		ng/L		96	67 - 138

Isotope Dilution	*LCS %Recovery*	*LCS Qualifier*	*Limits*
13C4 PFBA	*72*		*50 - 150*
13C5 PFPeA	*82*		*50 - 150*
13C2 PFHxA	*74*		*50 - 150*
13C4 PFHpA	*76*		*50 - 150*
13C4 PFOA	*75*		*50 - 150*
13C5 PFNA	*68*		*50 - 150*
13C2 PFDA	*72*		*50 - 150*
13C2 PFUnA	*78*		*50 - 150*
13C2 PFDoA	*74*		*50 - 150*
13C2 PFTeDA	*72*		*50 - 150*
13C3 PFBS	*87*		*50 - 150*
18O2 PFHxS	*67*		*50 - 150*
13C4 PFOS	*67*		*50 - 150*
13C8 FOSA	*55*		*50 - 150*
M2-4:2 FTS	*72*		*50 - 150*
M2-6:2 FTS	*70*		*50 - 150*
M2-8:2 FTS	*68*		*50 - 150*
d5-NEtFOSAA	*82*		*50 - 150*
d3-NMeFOSAA	*81*		*50 - 150*

QC Sample Results

Client: Woodard & Curran, Inc.
Project/Site: SJC PFAS Phase 2

Job ID: 320-82764-1

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15 (Continued)

Lab Sample ID: LCSD 320-552650/3-A
Matrix: Water
Analysis Batch: 553581

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 552650

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Perfluorobutanoic acid (PFBA)			40.0	39.2		ng/L		98	73 - 129	2	30
Perfluoropentanoic acid (PFPeA)			40.0	34.9		ng/L		87	72 - 129	8	30
Perfluorohexanoic acid (PFHxA)			40.0	38.7		ng/L		97	72 - 129	3	30
Perfluoroheptanoic acid (PFHpA)			40.0	40.1		ng/L		100	72 - 130	6	30
Perfluorooctanoic acid (PFOA)			40.0	35.4		ng/L		89	71 - 133	5	30
Perfluorononanoic acid (PFNA)			40.0	36.6		ng/L		91	69 - 130	6	30
Perfluorodecanoic acid (PFDA)			40.0	32.3		ng/L		81	71 - 129	5	30
Perfluoroundecanoic acid (PFUnA)			40.0	37.1		ng/L		93	69 - 133	8	30
Perfluorododecanoic acid (PFDoA)			40.0	42.4		ng/L		106	72 - 134	18	30
Perfluorotridecanoic acid (PFTrDA)			40.0	36.0		ng/L		90	65 - 144	0	30
Perfluorotetradecanoic acid (PFTeA)			40.0	39.8		ng/L		99	71 - 132	13	30
Perfluorobutanesulfonic acid (PFBS)			35.4	29.1		ng/L		82	72 - 130	1	30
Perfluoropentanesulfonic acid (PFPeS)			37.5	27.8		ng/L		74	71 - 127	3	30
Perfluorohexanesulfonic acid (PFHxS)			36.4	36.0		ng/L		99	68 - 131	10	30
Perfluoroheptanesulfonic Acid (PFHpS)			38.1	34.6		ng/L		91	69 - 134	5	30
Perfluorooctanesulfonic acid (PFOS)			37.1	34.5		ng/L		93	65 - 140	3	30
Perfluorodecanesulfonic acid (PFDS)			38.6	38.0		ng/L		99	53 - 142	1	30
Perfluorooctanesulfonamide (FOSA)			40.0	47.9		ng/L		120	67 - 137	2	30
NEtFOSAA			40.0	39.2		ng/L		98	61 - 135	5	30
NMeFOSAA			40.0	36.4		ng/L		91	65 - 136	1	30
4:2 FTS			37.4	34.4		ng/L		92	63 - 143	0	30
6:2 FTS			37.9	34.9		ng/L		92	64 - 140	9	30
8:2 FTS			38.3	37.2		ng/L		97	67 - 138	1	30

Isotope Dilution	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
13C4 PFBA	*89*		*50 - 150*
13C5 PFPeA	*107*		*50 - 150*
13C2 PFHxA	*91*		*50 - 150*
13C4 PFHpA	*91*		*50 - 150*
13C4 PFOA	*94*		*50 - 150*
13C5 PFNA	*89*		*50 - 150*
13C2 PFDA	*91*		*50 - 150*
13C2 PFUnA	*93*		*50 - 150*
13C2 PFDoA	*86*		*50 - 150*
13C2 PFTeDA	*81*		*50 - 150*
13C3 PFBS	*109*		*50 - 150*
18O2 PFHxS	*80*		*50 - 150*
13C4 PFOS	*83*		*50 - 150*
13C8 FOSA	*70*		*50 - 150*
M2-4:2 FTS	*97*		*50 - 150*

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15 (Continued)

Lab Sample ID: LCSD 320-552650/3-A
Matrix: Water
Analysis Batch: 553581

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 552650

Isotope Dilution	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
M2-6:2 FTS	*93*		*50 - 150*
M2-8:2 FTS	*83*		*50 - 150*
d5-NEtFOSAA	*100*		*50 - 150*
d3-NMeFOSAA	*100*		*50 - 150*

Lab Sample ID: MB 320-552651/1-A
Matrix: Water
Analysis Batch: 554176

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 552651

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		5.0	2.4	ng/L		12/21/21 04:34	12/27/21 14:11	1
Perfluoropentanoic acid (PFPeA)	ND		2.0	0.49	ng/L		12/21/21 04:34	12/27/21 14:11	1
Perfluorohexanoic acid (PFHxA)	ND		2.0	0.58	ng/L		12/21/21 04:34	12/27/21 14:11	1
Perfluoroheptanoic acid (PFHpA)	ND		2.0	0.25	ng/L		12/21/21 04:34	12/27/21 14:11	1
Perfluorooctanoic acid (PFOA)	ND		2.0	0.85	ng/L		12/21/21 04:34	12/27/21 14:11	1
Perfluorononanoic acid (PFNA)	ND		2.0	0.27	ng/L		12/21/21 04:34	12/27/21 14:11	1
Perfluorodecanoic acid (PFDA)	ND		2.0	0.31	ng/L		12/21/21 04:34	12/27/21 14:11	1
Perfluoroundecanoic acid (PFUnA)	ND		2.0	1.1	ng/L		12/21/21 04:34	12/27/21 14:11	1
Perfluorododecanoic acid (PFDoA)	ND		2.0	0.55	ng/L		12/21/21 04:34	12/27/21 14:11	1
Perfluorotridecanoic acid (PFTrDA)	ND		2.0	1.3	ng/L		12/21/21 04:34	12/27/21 14:11	1
Perfluorotetradecanoic acid (PFTeA)	ND		2.0	0.73	ng/L		12/21/21 04:34	12/27/21 14:11	1
Perfluorobutanesulfonic acid (PFBS)	ND		2.0	0.20	ng/L		12/21/21 04:34	12/27/21 14:11	1
Perfluoropentanesulfonic acid (PFPeS)	ND		2.0	0.30	ng/L		12/21/21 04:34	12/27/21 14:11	1
Perfluorohexanesulfonic acid (PFHxS)	ND		2.0	0.57	ng/L		12/21/21 04:34	12/27/21 14:11	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		2.0	0.19	ng/L		12/21/21 04:34	12/27/21 14:11	1
Perfluorooctanesulfonic acid (PFOS)	ND		2.0	0.54	ng/L		12/21/21 04:34	12/27/21 14:11	1
Perfluorodecanesulfonic acid (PFDS)	ND		2.0	0.32	ng/L		12/21/21 04:34	12/27/21 14:11	1
Perfluorooctanesulfonamide (FOSA)	ND		2.0	0.98	ng/L		12/21/21 04:34	12/27/21 14:11	1
NEtFOSAA	ND		5.0	1.3	ng/L		12/21/21 04:34	12/27/21 14:11	1
NMeFOSAA	ND		5.0	1.2	ng/L		12/21/21 04:34	12/27/21 14:11	1
4:2 FTS	ND		2.0	0.24	ng/L		12/21/21 04:34	12/27/21 14:11	1
6:2 FTS	ND		5.0	2.5	ng/L		12/21/21 04:34	12/27/21 14:11	1
8:2 FTS	ND		2.0	0.46	ng/L		12/21/21 04:34	12/27/21 14:11	1

Isotope Dilution	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*82*		*50 - 150*	*12/21/21 04:34*	*12/27/21 14:11*	*1*
13C5 PFPeA	*84*		*50 - 150*	*12/21/21 04:34*	*12/27/21 14:11*	*1*
13C2 PFHxA	*79*		*50 - 150*	*12/21/21 04:34*	*12/27/21 14:11*	*1*
13C4 PFHpA	*84*		*50 - 150*	*12/21/21 04:34*	*12/27/21 14:11*	*1*
13C4 PFOA	*87*		*50 - 150*	*12/21/21 04:34*	*12/27/21 14:11*	*1*
13C5 PFNA	*83*		*50 - 150*	*12/21/21 04:34*	*12/27/21 14:11*	*1*
13C2 PFDA	*82*		*50 - 150*	*12/21/21 04:34*	*12/27/21 14:11*	*1*
13C2 PFUnA	*87*		*50 - 150*	*12/21/21 04:34*	*12/27/21 14:11*	*1*
13C2 PFDoA	*88*		*50 - 150*	*12/21/21 04:34*	*12/27/21 14:11*	*1*
13C2 PFTeDA	*85*		*50 - 150*	*12/21/21 04:34*	*12/27/21 14:11*	*1*
13C3 PFBS	*80*		*50 - 150*	*12/21/21 04:34*	*12/27/21 14:11*	*1*
18O2 PFHxS	*78*		*50 - 150*	*12/21/21 04:34*	*12/27/21 14:11*	*1*

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15 (Continued)

Lab Sample ID: MB 320-552651/1-A
Matrix: Water
Analysis Batch: 554176

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 552651

Isotope Dilution	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFOS	*79*		*50 - 150*	*12/21/21 04:34*	*12/27/21 14:11*	*1*
13C8 FOSA	*62*		*50 - 150*	*12/21/21 04:34*	*12/27/21 14:11*	*1*
M2-4:2 FTS	*85*		*50 - 150*	*12/21/21 04:34*	*12/27/21 14:11*	*1*
M2-6:2 FTS	*92*		*50 - 150*	*12/21/21 04:34*	*12/27/21 14:11*	*1*
M2-8:2 FTS	*79*		*50 - 150*	*12/21/21 04:34*	*12/27/21 14:11*	*1*
d5-NEtFOSAA	*89*		*50 - 150*	*12/21/21 04:34*	*12/27/21 14:11*	*1*
d3-NMeFOSAA	*88*		*50 - 150*	*12/21/21 04:34*	*12/27/21 14:11*	*1*

Lab Sample ID: LCS 320-552651/2-A
Matrix: Water
Analysis Batch: 554176

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 552651

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Perfluorobutanoic acid (PFBA)	40.0	36.3		ng/L		91	73 - 129
Perfluoropentanoic acid (PFPeA)	40.0	32.9		ng/L		82	72 - 129
Perfluorohexanoic acid (PFHxA)	40.0	36.2		ng/L		90	72 - 129
Perfluoroheptanoic acid (PFHpA)	40.0	38.3		ng/L		96	72 - 130
Perfluorooctanoic acid (PFOA)	40.0	35.2		ng/L		88	71 - 133
Perfluorononanoic acid (PFNA)	40.0	37.0		ng/L		93	69 - 130
Perfluorodecanoic acid (PFDA)	40.0	37.8		ng/L		95	71 - 129
Perfluoroundecanoic acid (PFUnA)	40.0	39.5		ng/L		99	69 - 133
Perfluorododecanoic acid (PFDoA)	40.0	39.5		ng/L		99	72 - 134
Perfluorotridecanoic acid (PFTrDA)	40.0	39.7		ng/L		99	65 - 144
Perfluorotetradecanoic acid (PFTeA)	40.0	35.1		ng/L		88	71 - 132
Perfluorobutanesulfonic acid (PFBS)	35.4	28.6		ng/L		81	72 - 130
Perfluoropentanesulfonic acid (PFPeS)	37.5	32.9		ng/L		88	71 - 127
Perfluorohexanesulfonic acid (PFHxS)	36.4	32.8		ng/L		90	68 - 131
Perfluoroheptanesulfonic Acid (PFHpS)	38.1	35.1		ng/L		92	69 - 134
Perfluorooctanesulfonic acid (PFOS)	37.1	34.2		ng/L		92	65 - 140
Perfluorodecanesulfonic acid (PFDS)	38.6	36.2		ng/L		94	53 - 142
Perfluorooctanesulfonamide (FOSA)	40.0	45.8		ng/L		115	67 - 137
NEtFOSAA	40.0	35.4		ng/L		88	61 - 135
NMeFOSAA	40.0	36.1		ng/L		90	65 - 136
4:2 FTS	37.4	38.7		ng/L		103	63 - 143
6:2 FTS	37.9	37.5		ng/L		99	64 - 140
8:2 FTS	38.3	36.2		ng/L		94	67 - 138

Isotope Dilution	*LCS %Recovery*	*LCS Qualifier*	*Limits*
13C4 PFBA	*92*		*50 - 150*
13C5 PFPeA	*90*		*50 - 150*
13C2 PFHxA	*90*		*50 - 150*

QC Sample Results

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15 (Continued)

Lab Sample ID: LCS 320-552651/2-A
Matrix: Water
Analysis Batch: 554176

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 552651

Isotope Dilution	*LCS %Recovery*	*LCS Qualifier*	*Limits*
13C4 PFHpA	*90*		*50 - 150*
13C4 PFOA	*98*		*50 - 150*
13C5 PFNA	*87*		*50 - 150*
13C2 PFDA	*89*		*50 - 150*
13C2 PFUnA	*95*		*50 - 150*
13C2 PFDoA	*89*		*50 - 150*
13C2 PFTeDA	*94*		*50 - 150*
13C3 PFBS	*91*		*50 - 150*
18O2 PFHxS	*91*		*50 - 150*
13C4 PFOS	*88*		*50 - 150*
13C8 FOSA	*69*		*50 - 150*
M2-4:2 FTS	*84*		*50 - 150*
M2-6:2 FTS	*84*		*50 - 150*
M2-8:2 FTS	*88*		*50 - 150*
d5-NEtFOSAA	*94*		*50 - 150*
d3-NMeFOSAA	*93*		*50 - 150*

Lab Sample ID: LCSD 320-552651/3-A
Matrix: Water
Analysis Batch: 554176

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 552651

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Perfluorobutanoic acid (PFBA)	40.0	40.1		ng/L		100	73 - 129	10	30
Perfluoropentanoic acid (PFPeA)	40.0	35.4		ng/L		88	72 - 129	7	30
Perfluorohexanoic acid (PFHxA)	40.0	35.9		ng/L		90	72 - 129	1	30
Perfluoroheptanoic acid (PFHpA)	40.0	38.2		ng/L		96	72 - 130	0	30
Perfluorooctanoic acid (PFOA)	40.0	36.4		ng/L		91	71 - 133	3	30
Perfluorononanoic acid (PFNA)	40.0	36.2		ng/L		90	69 - 130	2	30
Perfluorodecanoic acid (PFDA)	40.0	38.3		ng/L		96	71 - 129	1	30
Perfluoroundecanoic acid (PFUnA)	40.0	36.6		ng/L		92	69 - 133	8	30
Perfluorododecanoic acid (PFDoA)	40.0	38.2		ng/L		95	72 - 134	3	30
Perfluorotridecanoic acid (PFTrDA)	40.0	38.1		ng/L		95	65 - 144	4	30
Perfluorotetradecanoic acid (PFTeA)	40.0	35.7		ng/L		89	71 - 132	2	30
Perfluorobutanesulfonic acid (PFBS)	35.4	30.7		ng/L		87	72 - 130	7	30
Perfluoropentanesulfonic acid (PFPeS)	37.5	34.7		ng/L		92	71 - 127	5	30
Perfluorohexanesulfonic acid (PFHxS)	36.4	33.4		ng/L		92	68 - 131	2	30
Perfluoroheptanesulfonic Acid (PFHpS)	38.1	33.0		ng/L		87	69 - 134	6	30
Perfluorooctanesulfonic acid (PFOS)	37.1	33.3		ng/L		90	65 - 140	3	30
Perfluorodecanesulfonic acid (PFDS)	38.6	35.3		ng/L		92	53 - 142	2	30
Perfluorooctanesulfonamide (FOSA)	40.0	47.1		ng/L		118	67 - 137	3	30
NEtFOSAA	40.0	40.1		ng/L		100	61 - 135	13	30

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15 (Continued)

Lab Sample ID: LCSD 320-552651/3-A
Client Sample ID: Lab Control Sample Dup
Matrix: Water
Prep Type: Total/NA
Analysis Batch: 554176
Prep Batch: 552651

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
NMeFOSAA			40.0	38.5		ng/L		96	65 - 136	6	30
4:2 FTS			37.4	34.8		ng/L		93	63 - 143	10	30
6:2 FTS			37.9	39.4		ng/L		104	64 - 140	5	30
8:2 FTS			38.3	32.7		ng/L		85	67 - 138	10	30

Isotope Dilution	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
13C4 PFBA	*90*		*50 - 150*
13C5 PFPeA	*94*		*50 - 150*
13C2 PFHxA	*97*		*50 - 150*
13C4 PFHpA	*97*		*50 - 150*
13C4 PFOA	*102*		*50 - 150*
13C5 PFNA	*95*		*50 - 150*
13C2 PFDA	*90*		*50 - 150*
13C2 PFUnA	*98*		*50 - 150*
13C2 PFDoA	*99*		*50 - 150*
13C2 PFTeDA	*101*		*50 - 150*
13C3 PFBS	*94*		*50 - 150*
18O2 PFHxS	*95*		*50 - 150*
13C4 PFOS	*96*		*50 - 150*
13C8 FOSA	*73*		*50 - 150*
M2-4:2 FTS	*93*		*50 - 150*
M2-6:2 FTS	*96*		*50 - 150*
M2-8:2 FTS	*98*		*50 - 150*
d5-NEtFOSAA	*99*		*50 - 150*
d3-NMeFOSAA	*95*		*50 - 150*

Method: D 2216 - Percent Moisture

Lab Sample ID: 320-82764-1 DU
Client Sample ID: L1/2-1-1
Matrix: Solid
Prep Type: Total/NA
Analysis Batch: 552529

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Percent Moisture	16.8			16.4		%				2	20
Percent Solids	83.2			83.6		%				0.5	20

LCMS

Prep Batch: 551851

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-82764-12	FB-2-120721	Total/NA	Water	3535	
320-82764-13	EB-1-120721	Total/NA	Water	3535	
320-82764-15	FB-3-120821	Total/NA	Water	3535	
320-82764-20	EB-2-120921	Total/NA	Water	3535	
320-82764-21	FB-4-120921	Total/NA	Water	3535	
MB 320-551851/1-A	Method Blank	Total/NA	Water	3535	
LCS 320-551851/2-A	Lab Control Sample	Total/NA	Water	3535	
LCSD 320-551851/3-A	Lab Control Sample Dup	Total/NA	Water	3535	

Prep Batch: 552643

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-82764-1	L1/2-1-1	Total/NA	Solid	SHAKE	
320-82764-1 - DL	L1/2-1-1	Total/NA	Solid	SHAKE	
320-82764-2	L1/2-1-5	Total/NA	Solid	SHAKE	
320-82764-3	L1/2-1-10	Total/NA	Solid	SHAKE	
320-82764-4	L1/2-2-1	Total/NA	Solid	SHAKE	
320-82764-4 - DL	L1/2-2-1	Total/NA	Solid	SHAKE	
320-82764-5	L1/2-2-5	Total/NA	Solid	SHAKE	
320-82764-5 - DL	L1/2-2-5	Total/NA	Solid	SHAKE	
320-82764-6	L1/2-2-10	Total/NA	Solid	SHAKE	
MB 320-552643/1-A	Method Blank	Total/NA	Solid	SHAKE	
LCS 320-552643/2-A	Lab Control Sample	Total/NA	Solid	SHAKE	
LCSD 320-552643/3-A	Lab Control Sample Dup	Total/NA	Solid	SHAKE	

Prep Batch: 552650

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-82764-7	FB-1-120621	Total/NA	Water	3535	
320-82764-8	L8/9-9-GW	Total/NA	Water	3535	
320-82764-9	L8/9-8-GW	Total/NA	Water	3535	
320-82764-10	L8/9-7-GW	Total/NA	Water	3535	
320-82764-11	L8/9-6-GW	Total/NA	Water	3535	
320-82764-14	L8/9-70-GW	Total/NA	Water	3535	
320-82764-16	L10-7-GW	Total/NA	Water	3535	
320-82764-17	L10-8-GW	Total/NA	Water	3535	
320-82764-18	L3-7-GW	Total/NA	Water	3535	
320-82764-19	L3-70-GW	Total/NA	Water	3535	
320-82764-22	L3-5-GW	Total/NA	Water	3535	
MB 320-552650/1-A	Method Blank	Total/NA	Water	3535	
LCS 320-552650/2-A	Lab Control Sample	Total/NA	Water	3535	
LCSD 320-552650/3-A	Lab Control Sample Dup	Total/NA	Water	3535	

Prep Batch: 552651

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-82764-23	L3-6-GW	Total/NA	Water	3535	
320-82764-24	L3-4-GW	Total/NA	Water	3535	
MB 320-552651/1-A	Method Blank	Total/NA	Water	3535	
LCS 320-552651/2-A	Lab Control Sample	Total/NA	Water	3535	
LCSD 320-552651/3-A	Lab Control Sample Dup	Total/NA	Water	3535	

LCMS

Analysis Batch: 552904

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-82764-12	FB-2-120721	Total/NA	Water	EPA 537(Mod)	551851
320-82764-13	EB-1-120721	Total/NA	Water	EPA 537(Mod)	551851
320-82764-15	FB-3-120821	Total/NA	Water	EPA 537(Mod)	551851
320-82764-20	EB-2-120921	Total/NA	Water	EPA 537(Mod)	551851
320-82764-21	FB-4-120921	Total/NA	Water	EPA 537(Mod)	551851
MB 320-551851/1-A	Method Blank	Total/NA	Water	EPA 537(Mod)	551851
LCS 320-551851/2-A	Lab Control Sample	Total/NA	Water	EPA 537(Mod)	551851
LCSD 320-551851/3-A	Lab Control Sample Dup	Total/NA	Water	EPA 537(Mod)	551851

Analysis Batch: 553496

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-82764-1	L1/2-1-1	Total/NA	Solid	EPA 537(Mod)	552643
320-82764-2	L1/2-1-5	Total/NA	Solid	EPA 537(Mod)	552643
320-82764-3	L1/2-1-10	Total/NA	Solid	EPA 537(Mod)	552643
320-82764-4	L1/2-2-1	Total/NA	Solid	EPA 537(Mod)	552643
320-82764-5	L1/2-2-5	Total/NA	Solid	EPA 537(Mod)	552643
320-82764-6	L1/2-2-10	Total/NA	Solid	EPA 537(Mod)	552643
MB 320-552643/1-A	Method Blank	Total/NA	Solid	EPA 537(Mod)	552643
LCS 320-552643/2-A	Lab Control Sample	Total/NA	Solid	EPA 537(Mod)	552643
LCSD 320-552643/3-A	Lab Control Sample Dup	Total/NA	Solid	EPA 537(Mod)	552643

Analysis Batch: 553581

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-82764-7	FB-1-120621	Total/NA	Water	EPA 537(Mod)	552650
MB 320-552650/1-A	Method Blank	Total/NA	Water	EPA 537(Mod)	552650
LCS 320-552650/2-A	Lab Control Sample	Total/NA	Water	EPA 537(Mod)	552650
LCSD 320-552650/3-A	Lab Control Sample Dup	Total/NA	Water	EPA 537(Mod)	552650

Analysis Batch: 553914

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-82764-1 - DL	L1/2-1-1	Total/NA	Solid	EPA 537(Mod)	552643
320-82764-4 - DL	L1/2-2-1	Total/NA	Solid	EPA 537(Mod)	552643
320-82764-5 - DL	L1/2-2-5	Total/NA	Solid	EPA 537(Mod)	552643

Analysis Batch: 554176

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-82764-23	L3-6-GW	Total/NA	Water	EPA 537(Mod)	552651
320-82764-24	L3-4-GW	Total/NA	Water	EPA 537(Mod)	552651
MB 320-552651/1-A	Method Blank	Total/NA	Water	EPA 537(Mod)	552651
LCS 320-552651/2-A	Lab Control Sample	Total/NA	Water	EPA 537(Mod)	552651
LCSD 320-552651/3-A	Lab Control Sample Dup	Total/NA	Water	EPA 537(Mod)	552651

Analysis Batch: 554529

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-82764-8	L8/9-9-GW	Total/NA	Water	EPA 537(Mod)	552650
320-82764-9	L8/9-8-GW	Total/NA	Water	EPA 537(Mod)	552650
320-82764-10	L8/9-7-GW	Total/NA	Water	EPA 537(Mod)	552650
320-82764-11	L8/9-6-GW	Total/NA	Water	EPA 537(Mod)	552650
320-82764-14	L8/9-70-GW	Total/NA	Water	EPA 537(Mod)	552650
320-82764-16	L10-7-GW	Total/NA	Water	EPA 537(Mod)	552650
320-82764-17	L10-8-GW	Total/NA	Water	EPA 537(Mod)	552650

LCMS (Continued)

Analysis Batch: 554529 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-82764-18	L3-7-GW	Total/NA	Water	EPA 537(Mod)	552650
320-82764-19	L3-70-GW	Total/NA	Water	EPA 537(Mod)	552650
320-82764-22	L3-5-GW	Total/NA	Water	EPA 537(Mod)	552650

General Chemistry

Analysis Batch: 552529

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-82764-1	L1/2-1-1	Total/NA	Solid	D 2216	
320-82764-2	L1/2-1-5	Total/NA	Solid	D 2216	
320-82764-3	L1/2-1-10	Total/NA	Solid	D 2216	
320-82764-4	L1/2-2-1	Total/NA	Solid	D 2216	
320-82764-5	L1/2-2-5	Total/NA	Solid	D 2216	
320-82764-6	L1/2-2-10	Total/NA	Solid	D 2216	
320-82764-1 DU	L1/2-1-1	Total/NA	Solid	D 2216	

Lab Chronicle

Client: Woodard & Curran, Inc.
Project/Site: SJC PFAS Phase 2

Job ID: 320-82764-1

Client Sample ID: L1/2-1-1
Date Collected: 12/06/21 10:19
Date Received: 12/09/21 16:57

Lab Sample ID: 320-82764-1
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1			552529	12/20/21 14:17	TCS	TAL SAC

Client Sample ID: L1/2-1-1
Date Collected: 12/06/21 10:19
Date Received: 12/09/21 16:57

Lab Sample ID: 320-82764-1
Matrix: Solid
Percent Solids: 83.2

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			5.49 g	10.0 mL	552643	12/20/21 19:22	PV	TAL SAC
Total/NA	Analysis	EPA 537(Mod)		1			553496	12/23/21 21:09	RS1	TAL SAC
Total/NA	Prep	SHAKE	DL		5.49 g	10.0 mL	552643	12/20/21 19:22	PV	TAL SAC
Total/NA	Analysis	EPA 537(Mod)	DL	20			553914	12/26/21 20:21	AF	TAL SAC

Client Sample ID: L1/2-1-5
Date Collected: 12/06/21 10:40
Date Received: 12/09/21 16:57

Lab Sample ID: 320-82764-2
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1			552529	12/20/21 14:17	TCS	TAL SAC

Client Sample ID: L1/2-1-5
Date Collected: 12/06/21 10:40
Date Received: 12/09/21 16:57

Lab Sample ID: 320-82764-2
Matrix: Solid
Percent Solids: 76.4

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			5.39 g	10.0 mL	552643	12/20/21 19:22	PV	TAL SAC
Total/NA	Analysis	EPA 537(Mod)		1			553496	12/23/21 21:19	RS1	TAL SAC

Client Sample ID: L1/2-1-10
Date Collected: 12/06/21 10:45
Date Received: 12/09/21 16:57

Lab Sample ID: 320-82764-3
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1			552529	12/20/21 14:17	TCS	TAL SAC

Client Sample ID: L1/2-1-10
Date Collected: 12/06/21 10:45
Date Received: 12/09/21 16:57

Lab Sample ID: 320-82764-3
Matrix: Solid
Percent Solids: 79.5

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			5.46 g	10.0 mL	552643	12/20/21 19:22	PV	TAL SAC
Total/NA	Analysis	EPA 537(Mod)		1			553496	12/23/21 21:29	RS1	TAL SAC

Lab Chronicle

Client Sample ID: L1/2-2-1
Lab Sample ID: 320-82764-4
Date Collected: 12/06/21 12:00
Matrix: Solid
Date Received: 12/09/21 16:57

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1			552529	12/20/21 14:17	TCS	TAL SAC

Client Sample ID: L1/2-2-1
Lab Sample ID: 320-82764-4
Date Collected: 12/06/21 12:00
Matrix: Solid
Date Received: 12/09/21 16:57
Percent Solids: 89.1

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			5.00 g	10.0 mL	552643	12/20/21 19:22	PV	TAL SAC
Total/NA	Analysis	EPA 537(Mod)		1			553496	12/23/21 21:39	RS1	TAL SAC
Total/NA	Prep	SHAKE	DL		5.00 g	10.0 mL	552643	12/20/21 19:22	PV	TAL SAC
Total/NA	Analysis	EPA 537(Mod)	DL	10			553914	12/26/21 20:00	AF	TAL SAC

Client Sample ID: L1/2-2-5
Lab Sample ID: 320-82764-5
Date Collected: 12/06/21 12:05
Matrix: Solid
Date Received: 12/09/21 16:57

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1			552529	12/20/21 14:17	TCS	TAL SAC

Client Sample ID: L1/2-2-5
Lab Sample ID: 320-82764-5
Date Collected: 12/06/21 12:05
Matrix: Solid
Date Received: 12/09/21 16:57
Percent Solids: 77.5

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			5.12 g	10.0 mL	552643	12/20/21 19:22	PV	TAL SAC
Total/NA	Analysis	EPA 537(Mod)		1			553496	12/23/21 21:49	RS1	TAL SAC
Total/NA	Prep	SHAKE	DL		5.12 g	10.0 mL	552643	12/20/21 19:22	PV	TAL SAC
Total/NA	Analysis	EPA 537(Mod)	DL	10			553914	12/26/21 20:11	AF	TAL SAC

Client Sample ID: L1/2-2-10
Lab Sample ID: 320-82764-6
Date Collected: 12/06/21 12:15
Matrix: Solid
Date Received: 12/09/21 16:57

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1			552529	12/20/21 14:17	TCS	TAL SAC

Client Sample ID: L1/2-2-10
Lab Sample ID: 320-82764-6
Date Collected: 12/06/21 12:15
Matrix: Solid
Date Received: 12/09/21 16:57
Percent Solids: 76.8

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			5.25 g	10.0 mL	552643	12/20/21 19:22	PV	TAL SAC
Total/NA	Analysis	EPA 537(Mod)		1			553496	12/23/21 21:59	RS1	TAL SAC

Lab Chronicle

Client: Woodard & Curran, Inc. Job ID: 320-82764-1
Project/Site: SJC PFAS Phase 2

Client Sample ID: FB-1-120621 Lab Sample ID: 320-82764-7

Date Collected: 12/06/21 12:20 **Matrix: Water**
Date Received: 12/09/21 16:57

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			269.4 mL	10.0 mL	552650	12/21/21 04:24	EG	TAL SAC
Total/NA	Analysis	EPA 537(Mod)		1			553581	12/24/21 08:07	S1M	TAL SAC

Client Sample ID: L8/9-9-GW Lab Sample ID: 320-82764-8

Date Collected: 12/07/21 14:45 **Matrix: Water**
Date Received: 12/09/21 16:57

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			267.1 mL	10.0 mL	552650	12/21/21 04:24	EG	TAL SAC
Total/NA	Analysis	EPA 537(Mod)		1			554529	12/29/21 05:08	JY1	TAL SAC

Client Sample ID: L8/9-8-GW Lab Sample ID: 320-82764-9

Date Collected: 12/08/21 10:30 **Matrix: Water**
Date Received: 12/09/21 16:57

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			264.4 mL	10.0 mL	552650	12/21/21 04:24	EG	TAL SAC
Total/NA	Analysis	EPA 537(Mod)		1			554529	12/29/21 05:18	JY1	TAL SAC

Client Sample ID: L8/9-7-GW Lab Sample ID: 320-82764-10

Date Collected: 12/08/21 09:10 **Matrix: Water**
Date Received: 12/09/21 16:57

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			263.4 mL	10.0 mL	552650	12/21/21 04:24	EG	TAL SAC
Total/NA	Analysis	EPA 537(Mod)		1			554529	12/29/21 05:29	JY1	TAL SAC

Client Sample ID: L8/9-6-GW Lab Sample ID: 320-82764-11

Date Collected: 12/08/21 09:45 **Matrix: Water**
Date Received: 12/09/21 16:57

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			255.1 mL	10.0 mL	552650	12/21/21 04:24	EG	TAL SAC
Total/NA	Analysis	EPA 537(Mod)		5			554529	12/29/21 06:21	JY1	TAL SAC

Client Sample ID: FB-2-120721 Lab Sample ID: 320-82764-12

Date Collected: 12/07/21 11:10 **Matrix: Water**
Date Received: 12/09/21 16:57

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			264.8 mL	10.0 mL	551851	12/17/21 12:51	DVC	TAL SAC
Total/NA	Analysis	EPA 537(Mod)		1			552904	12/21/21 23:30	RS1	TAL SAC

Client Sample ID: EB-1-120721 Lab Sample ID: 320-82764-13

Date Collected: 12/07/21 11:00 **Matrix: Water**
Date Received: 12/09/21 16:57

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			266.2 mL	10.0 mL	551851	12/17/21 12:51	DVC	TAL SAC
Total/NA	Analysis	EPA 537(Mod)		1			552904	12/21/21 23:40	RS1	TAL SAC

Client Sample ID: L8/9-70-GW Lab Sample ID: 320-82764-14

Date Collected: 12/08/21 09:10 **Matrix: Water**
Date Received: 12/09/21 16:57

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			261.7 mL	10.0 mL	552650	12/21/21 04:24	EG	TAL SAC
Total/NA	Analysis	EPA 537(Mod)		1			554529	12/29/21 05:39	JY1	TAL SAC

Client Sample ID: FB-3-120821 Lab Sample ID: 320-82764-15

Date Collected: 12/08/21 10:40 **Matrix: Water**
Date Received: 12/09/21 16:57

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			269.2 mL	10.0 mL	551851	12/17/21 12:51	DVC	TAL SAC
Total/NA	Analysis	EPA 537(Mod)		1			552904	12/21/21 23:51	RS1	TAL SAC

Client Sample ID: L10-7-GW Lab Sample ID: 320-82764-16

Date Collected: 12/08/21 14:50 **Matrix: Water**
Date Received: 12/09/21 16:57

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			257.5 mL	10.0 mL	552650	12/21/21 04:24	EG	TAL SAC
Total/NA	Analysis	EPA 537(Mod)		100			554529	12/29/21 06:42	JY1	TAL SAC

Client Sample ID: L10-8-GW Lab Sample ID: 320-82764-17

Date Collected: 12/09/21 07:30 **Matrix: Water**
Date Received: 12/09/21 16:57

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			258.9 mL	10.0 mL	552650	12/21/21 04:24	EG	TAL SAC
Total/NA	Analysis	EPA 537(Mod)		5			554529	12/29/21 06:31	JY1	TAL SAC

Client Sample ID: L3-7-GW Lab Sample ID: 320-82764-18

Date Collected: 12/09/21 11:23 **Matrix: Water**
Date Received: 12/09/21 16:57

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			268.8 mL	10.0 mL	552650	12/21/21 04:24	EG	TAL SAC
Total/NA	Analysis	EPA 537(Mod)		1			554529	12/29/21 05:50	JY1	TAL SAC

Client Sample ID: L3-70-GW **Lab Sample ID: 320-82764-19**
Date Collected: 12/09/21 11:23 **Matrix: Water**
Date Received: 12/09/21 16:57

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			266.8 mL	10.0 mL	552650	12/21/21 04:24	EG	TAL SAC
Total/NA	Analysis	EPA 537(Mod)		1			554529	12/29/21 06:00	JY1	TAL SAC

Client Sample ID: EB-2-120921 **Lab Sample ID: 320-82764-20**
Date Collected: 12/09/21 10:30 **Matrix: Water**
Date Received: 12/09/21 16:57

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			265.8 mL	10.0 mL	551851	12/17/21 12:51	DVC	TAL SAC
Total/NA	Analysis	EPA 537(Mod)		1			552904	12/22/21 00:01	RS1	TAL SAC

Client Sample ID: FB-4-120921 **Lab Sample ID: 320-82764-21**
Date Collected: 12/09/21 11:25 **Matrix: Water**
Date Received: 12/09/21 16:57

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			276.6 mL	10.0 mL	551851	12/17/21 12:51	DVC	TAL SAC
Total/NA	Analysis	EPA 537(Mod)		1			552904	12/22/21 00:11	RS1	TAL SAC

Client Sample ID: L3-5-GW **Lab Sample ID: 320-82764-22**
Date Collected: 12/09/21 13:10 **Matrix: Water**
Date Received: 12/09/21 16:57

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			243.3 mL	10.0 mL	552650	12/21/21 04:24	EG	TAL SAC
Total/NA	Analysis	EPA 537(Mod)		2			554529	12/29/21 06:11	JY1	TAL SAC

Client Sample ID: L3-6-GW **Lab Sample ID: 320-82764-23**
Date Collected: 12/09/21 14:45 **Matrix: Water**
Date Received: 12/09/21 16:57

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			267 mL	10.0 mL	552651	12/21/21 04:34	EG	TAL SAC
Total/NA	Analysis	EPA 537(Mod)		1			554176	12/27/21 14:42	K1S	TAL SAC

Client Sample ID: L3-4-GW **Lab Sample ID: 320-82764-24**
Date Collected: 12/09/21 16:15 **Matrix: Water**
Date Received: 12/09/21 16:57

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			255.6 mL	10.0 mL	552651	12/21/21 04:34	EG	TAL SAC
Total/NA	Analysis	EPA 537(Mod)		1			554176	12/27/21 14:52	K1S	TAL SAC

Laboratory References:

TAL SAC = Eurofins TestAmerica, Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600

Accreditation/Certification Summary

Laboratory: Eurofins TestAmerica, Sacramento

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
California	State	2897	01-31-22

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
D 2216		Solid	Percent Moisture
D 2216		Solid	Percent Solids

Method Summary

Client: Woodard & Curran, Inc.
Project/Site: SJC PFAS Phase 2

Job ID: 320-82764-1

Method	Method Description	Protocol	Laboratory
EPA 537(Mod)	PFAS for QSM 5.3, Table B-15	EPA	TAL SAC
D 2216	Percent Moisture	ASTM	TAL SAC
3535	Solid-Phase Extraction (SPE)	SW846	TAL SAC
SHAKE	Shake Extraction with Ultrasonic Bath Extraction	SW846	TAL SAC

Protocol References:

ASTM = ASTM International

EPA = US Environmental Protection Agency

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL SAC = Eurofins TestAmerica, Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600

Sample Summary

Client: Woodard & Curran, Inc.
Project/Site: SJC PFAS Phase 2

Job ID: 320-82764-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
320-82764-1	L1/2-1-1	Solid	12/06/21 10:19	12/09/21 16:57
320-82764-2	L1/2-1-5	Solid	12/06/21 10:40	12/09/21 16:57
320-82764-3	L1/2-1-10	Solid	12/06/21 10:45	12/09/21 16:57
320-82764-4	L1/2-2-1	Solid	12/06/21 12:00	12/09/21 16:57
320-82764-5	L1/2-2-5	Solid	12/06/21 12:05	12/09/21 16:57
320-82764-6	L1/2-2-10	Solid	12/06/21 12:15	12/09/21 16:57
320-82764-7	FB-1-120621	Water	12/06/21 12:20	12/09/21 16:57
320-82764-8	L8/9-9-GW	Water	12/07/21 14:45	12/09/21 16:57
320-82764-9	L8/9-8-GW	Water	12/08/21 10:30	12/09/21 16:57
320-82764-10	L8/9-7-GW	Water	12/08/21 09:10	12/09/21 16:57
320-82764-11	L8/9-6-GW	Water	12/08/21 09:45	12/09/21 16:57
320-82764-12	FB-2-120721	Water	12/07/21 11:10	12/09/21 16:57
320-82764-13	EB-1-120721	Water	12/07/21 11:00	12/09/21 16:57
320-82764-14	L8/9-70-GW	Water	12/08/21 09:10	12/09/21 16:57
320-82764-15	FB-3-120821	Water	12/08/21 10:40	12/09/21 16:57
320-82764-16	L10-7-GW	Water	12/08/21 14:50	12/09/21 16:57
320-82764-17	L10-8-GW	Water	12/09/21 07:30	12/09/21 16:57
320-82764-18	L3-7-GW	Water	12/09/21 11:23	12/09/21 16:57
320-82764-19	L3-70-GW	Water	12/09/21 11:23	12/09/21 16:57
320-82764-20	EB-2-120921	Water	12/09/21 10:30	12/09/21 16:57
320-82764-21	FB-4-120921	Water	12/09/21 11:25	12/09/21 16:57
320-82764-22	L3-5-GW	Water	12/09/21 13:10	12/09/21 16:57
320-82764-23	L3-6-GW	Water	12/09/21 14:45	12/09/21 16:57
320-82764-24	L3-4-GW	Water	12/09/21 16:15	12/09/21 16:57

Address: Eurofins TestAmerica West Sacramento
880 Riverside Pkwy
West Sacramento, CA 95605

Chain of Custody Record

574607 eurofins | Environment Testing TestAmerica

320-82764

TAL-8210 WA

Regulatory Program ☐ DW ☐ NPDES ☐ RCRA ☐ Other

Client Contact	Project Manager: Jim Strandberg	Site Contact: Kevin Almestad	Date: 12/9/2021
Company Name: Woodard & Curran	Tel/Email: Jstrandberg@woodardcurran.com	Lab Contact: Linda Laver	Carrier: Drop off
Address: 2175 N. California Blvd, Ste 315	**Analysis Turnaround Time**		COC No: 1 of 2
City/State/Zip: Walnut Creek, CA 94596	☐ CALENDAR DAYS ☒ WORKING DAYS		1 of 2 COCs
Phone: (925)-627-4100	TAT if different from Below ____		Sampler:
Fax: (925)-627-4101	☒ 2 weeks		**For Lab Use Only:**
Project Name: SJC PFAS Phase 2	☐ 1 week		Walk-in Client:
Site: San Jose Airport	☐ 2 days		Lab Sampling
PO # 0232401.07	☐ 1 day		Job / SDG No

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y / N)	Perform MS / MSD (Y / N)	PFAS (23)	Sample Specific Notes.
L1/2-1-1	12/6/21	1019	G	S	1			X	
L1/2-1-5	↓	1040	G	S	1			↓	
L1/2-1-10	↓	1045	G	S	1			↓	
L1/2-2-1	↓	1200	G	S	1			↓	
L1/2-2-5	↓	1205	G	S	1			↓	
L1/2-2-10	↓	1215	G	S	1			↓	
FB-1-120621	↓	1220	G	W	2			↓	
L8/9-9-GW	12/7/21	1445	G	W	2			↓	Turbid sample second poly partially filled
L8/9-8-GW	12/8/21	1030	G	W	2			↓	↓
L8/9-7-GW	↓	0910	G	W	2			↓	↓
L8/9-6-GW	↓	0945	G	W	2			↓	↓
FB-2-120721	12/7/21	1110	G	W	2			↓	

320-82764 Chain of Custody

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH 6= Other ____

Possible Hazard Identification
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☒ Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return to Client ☒ Disposal by Lab ☐ Archive for ____ Months

5 7°C

Special Instructions/QC Requirements & Comments Samples generally turbid L8/9-8-GW only one container with a 1 Ltr extra volume in second container. Standard TAT.

Custody Seals Intact: ☐ Yes ☐ No | Custody Seal No. | Cooler Temp. (°C): Obs'd: ____ Corr'd ____ | Therm ID No. ____

Relinquished by:	Company: Woodard&Curran	Date/Time: 12-9-21 1657	Received by:	Company: ETASC	Date/Time: 12-9-21 1657
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company:	Date/Time:

Chain of Custody Record

574604 eurofins | Environment Testing TestAmerica

320-82764

TAL-8210

Address Eurofins TestAmerica West Sacramento
880 Riverside Pkwy
West Sacramento, CA 95605

Regulatory Program ☐ DW ☐ NPDES ☐ RCRA ☐ Other

Client Contact
Company Name: Woodard & Curran
Address: 2175 N California Blvd, Ste 315
City/State/Zip: Walnut Creek, CA 94596
Phone: (925)-627-4100
Fax: (925)-627-4101
Project Name: SJC PFAS Phase 2
Site: San Jose Airport
P O #: 023240107

Project Manager: Jim Strandberg
Tel/Email: Jstrandberg@woodardcurran.com
Site Contact: Kevin Alnestad
Lab Contact: Linda Laver
Date: 12/9/2021
Carrier: Drop off
COC No: 2 of 2 COCs
Sampler:

For Lab Use Only:
Walk-in Client:
Lab Sampling:
Job / SDG No

Analysis Turnaround Time
☐ CALENDAR DAYS ☒ WORKING DAYS
TAT if different from Below ____
☒ 2 weeks
☐ 1 week
☐ 2 days
☐ 1 day

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y / N)	Perform MS / MSD (Y / N)	PFAS (23)	Sample Specific Notes.
EB-1-120721	12/7/21	1100	G	W	2			X	
L8/9-70-GW	12/8/21	0910	G	W	2				Turbid Sample
FB-3-120821	12/8/21	1040	G	W	2				
L10-7-GW	12/8/21	1450	G	W	2				
L10-8-GW	12/9/21	0730	G	W	2				Turbid Sample
L3-7-GW		1123	G	W	2				slightly turbid sample
L3-70-GW		1123	G	W	2				
FB-2-120921		1030	G	W	2				
FB-4-120921		1125	G	W	2				
L3-5-GW		1310	G	W	2				
L3-6-GW		1445	G	W	2				
L3-4-GW		1615	G	W	2				Turbid Sample

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH 6= Other ______

Possible Hazard Identification
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☒ Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return to Client ☒ Disposal by Lab ☐ Archive for ______ Months

Special Instructions/QC Requirements & Comments L8/9-70-GW, L10-8-GW & L3-7-GW & L3-4-GW are turbid samples
Standard TAT

Custody Seals Intact: ☐ Yes ☐ No
Custody Seal No.
Cooler Temp. (°C): Obs'd: ______ Corr'd ______ Therm ID No.______

Relinquished by:	Company: Woodard & Curran	Date/Time: 12-9-21 1657	Received by:	Company: ETA SJ	Date/Time: 12-9-21 1657
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company:	Date/Time:

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15

Eurofins TestAmerica, Sacramento
880 Riverside Parkway
West Sacramento, CA 95605
Phone: 916-373-5600 Fax: 916-372-1059

Chain of Custody Record

eurofins | Environment Testing America

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Laver, Linda C.	Carrier Tracking No(s):	COC No: 320-252804.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: Linda.Laver@Eurofinset.com	State of Origin: California	Page: Page 1 of 3
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): State - California		Job #: 320-82764-1
Address: 880 Riverside Parkway,	Due Date Requested: 12/22/2021			
City: West Sacramento	TAT Requested (days):			
State, Zip: CA, 95605				
Phone: 916-373-5600(Tel) 916-372-1059(Fax)	PO #:			
Email:	WO #:			
Project Name: SJC PFAS Phase 2	Project #: 32019160			
Site:	SSOW#:			

Analysis Requested

Preservation Codes:
A - HCL
B - NaOH
C - Zn Acetate
D - Nitric Acid
E - NaHSO4
F - MeOH
G - Amchlor
H - Ascorbic Acid
I - Ice
J - DI Water
K - EDTA
L - EDA
M - Hexane
N - None
O - AsNaO2
P - Na2O4S
Q - Na2SO3
R - Na2S2O3
S - H2SO4
T - TSP Dodecahydrate
U - Acetone
V - MCAA
W - pH 4-5
Z - other (specify)
Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	PFC_IDA_B15/Shake_Bath_14D CA-DWQ 23 Required	Moisture	PFC_IDA_B16/3535_PFC CA-DWQ 23 Required	Total Number of containers	Special Instructions/Note:
			Preservation Code:								
L1/2-1-1 (320-82764-1)	12/6/21	10:19 Pacific		Solid			X	X		1	
L1/2-1-5 (320-82764-2)	12/6/21	10:40 Pacific		Solid			X	X		1	
L1/2-1-10 (320-82764-3)	12/6/21	10:45 Pacific		Solid			X	X		1	
L1/2-2-1 (320-82764-4)	12/6/21	12:00 Pacific		Solid			X	X		1	
L1/2-2-5 (320-82764-5)	12/6/21	12:05 Pacific		Solid			X	X		1	
L1/2-2-10 (320-82764-6)	12/6/21	12:15 Pacific		Solid			X	X		1	
FB-1-120621 (320-82764-7)	12/6/21	12:20 Pacific		Water					X	2	
L8/9-9-GW (320-82764-8)	12/7/21	14:45 Pacific		Water					X	2	
L8/9-8-GW (320-82764-9)	12/8/21	10:30 Pacific		Water					X	2	

Note: Since laboratory accreditations are subject to change, Eurofins TestAmerica places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins TestAmerica attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said complicance to Eurofins TestAmerica.

Possible Hazard Identification
Unconfirmed

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ *Return To Client* ☐ *Disposal By Lab* ☐ *Archive For* ______ *Months*

Deliverable Requested: I, II, III, IV, Other (specify)
Primary Deliverable Rank: 2
Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:		Time:	Method of Shipment:	
Relinquished by:	Date/Time: 12-10-21 / 600	Company SJ	Received by:	Date/Time: 12/10/21 1915	Company EETA
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Custody Seals Intact: △ Yes △ No	Custody Seal No.:		Cooler Temperature(s) °C and Other Remarks: 3.2c		

Ver: 06/08/2021

Eurofins TestAmerica, Sacramento
880 Riverside Parkway
West Sacramento, CA 95605
Phone: 916-373-5600 Fax: 916-372-1059

Chain of Custody Record

eurofins Environment Testing America

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Laver, Linda C.	Carrier Tracking No(s):	COC No: 320-252804.2
Client Contact: Shipping/Receiving	Phone:	E-Mail: Linda.Laver@Eurofinset.com	State of Origin: California	Page: Page 2 of 3
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): State - California		Job #: 320-82764-1
Address: 880 Riverside Parkway,	**Due Date Requested:** 12/22/2021			
City: West Sacramento	**TAT Requested (days):**			
State, Zip: CA, 95605				
Phone: 916-373-5600(Tel) 916-372-1059(Fax)	PO #:			
Email:	WO #:			
Project Name: SJC PFAS Phase 2	Project #: 32019160			
Site:	SSOW#:			

Preservation Codes:
A - HCL
B - NaOH
C - Zn Acetate
D - Nitric Acid
E - NaHSO4
F - MeOH
G - Amchlor
H - Ascorbic Acid
I - Ice
J - DI Water
K - EDTA
L - EDA
M - Hexane
N - None
O - AsNaO2
P - Na2O4S
Q - Na2SO3
R - Na2S2O3
S - H2SO4
T - TSP Dodecahydrate
U - Acetone
V - MCAA
W - pH 4-5
Z - other (specify)
Other:

Analysis Requested

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	PFC_IDA_B16/Shake_Bath_14D CA-DWQ 23 Required	Moisture	PFC_IDA_B16/3535_PFC CA-DWQ 23 Required	Total Number of containers	Special Instructions/Note:
				Preservation Code:							
L8/9-7-GW (320-82764-10)	12/8/21	09:10 Pacific		Water					X	2	
L8/9-6-GW (320-82764-11)	12/8/21	09:45 Pacific		Water					X	2	
FB-2-120721 (320-82764-12)	12/7/21	11:10 Pacific		Water					X	2	
EB-1-120721 (320-82764-13)	12/7/21	11:00 Pacific		Water					X	2	
L8/9-70-GW (320-82764-14)	12/8/21	09:10 Pacific		Water					X	2	
FB-3-120821 (320-82764-15)	12/8/21	10:40 Pacific		Water					X	2	
L10-7-GW (320-82764-16)	12/8/21	14:50 Pacific		Water					X	2	
L10-8-GW (320-82764-17)	12/9/21	07:30 Pacific		Water					X	2	
L3-7-GW (320-82764-18)	12/9/21	11:23 Pacific		Water					X	2	

Note: Since laboratory accreditations are subject to change, Eurofins TestAmerica places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins TestAmerica attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins TestAmerica.

Possible Hazard Identification
Unconfirmed

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ *Return To Client* ☐ *Disposal By Lab* ☐ *Archive For* ____ *Months*

Deliverable Requested: I, II, III, IV, Other (specify)
Primary Deliverable Rank: 2
Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:		Time:	Method of Shipment:	
Relinquished by:	Date/Time: 12-10-21 1600	Company ST	Received by:	Date/Time: 12/10/21 1915	Company EETA
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:		Cooler Temperature(s) °C and Other Remarks: 3.2		

Ver: 06/08/2021

Eurofins TestAmerica, Sacramento
880 Riverside Parkway
West Sacramento, CA 95605
Phone: 916-373-5600 Fax: 916-372-1059

Chain of Custody Record

eurofins | Environment Testing America

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Laver, Linda C.	Carrier Tracking No(s):	COC No: 320-252804.3
Client Contact: Shipping/Receiving	Phone:	E-Mail: Linda.Laver@Eurofinset.com	State of Origin: California	Page: Page 3 of 3
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): State - California		Job #: 320-82764-1
Address: 880 Riverside Parkway,	Due Date Requested: 12/22/2021			
City: West Sacramento	TAT Requested (days):			
State, Zip: CA, 95605				
Phone: 916-373-5600(Tel) 916-372-1059(Fax)	PO #:			
Email:	WO #:			
Project Name: SJC PFAS Phase 2	Project #: 32019160			
Site:	SSOW#:			

Analysis Requested

Preservation Codes:
A - HCL
B - NaOH
C - Zn Acetate
D - Nitric Acid
E - NaHSO4
F - MeOH
G - Amchlor
H - Ascorbic Acid
I - Ice
J - DI Water
K - EDTA
L - EDA
M - Hexane
N - None
O - AsNaO2
P - Na2O4S
Q - Na2SO3
R - Na2S2O3
S - H2SO4
T - TSP Dodecahydrate
U - Acetone
V - MCAA
W - pH 4-5
Z - other (specify)
Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	PFC_IDA_B16/Shake_Bath_14D CA-DWQ 23 Required	Moisture	PFC_IDA_B16/3535_PFC CA-DWQ 23 Required	Total Number of containers	Special Instructions/Note:
			Preservation Code:								
L3-70-GW (320-82764-19)	12/9/21	11:23 Pacific		Water					X	2	
EB-2-120921 (320-82764-20)	12/9/21	10:30 Pacific		Water					X	2	
FB-4-120921 (320-82764-21)	12/9/21	11:25 Pacific		Water					X	2	
L3-5-GW (320-82764-22)	12/9/21	13:10 Pacific		Water					X	2	
L3-6-GW (320-82764-23)	12/9/21	14:45 Pacific		Water					X	2	
L3-4-GW (320-82764-24)	12/9/21	16:15 Pacific		Water					X	2	

Note: Since laboratory accreditations are subject to change, Eurofins TestAmerica places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins TestAmerica attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said complicance to Eurofins TestAmerica.

Possible Hazard Identification
Unconfirmed

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ *Return To Client* ☐ *Disposal By Lab* ☐ *Archive For* ______ *Months*

Deliverable Requested: I, II, III, IV, Other (specify)
Primary Deliverable Rank: 2
Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:		Time:	Method of Shipment:	
Relinquished by:	Date/Time: 12-10-21 1600	Company: SJ	Received by:	Date/Time: 12/11/21 1915	Company: EETA
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:		Cooler Temperature(s) °C and Other Remarks: 3.2		

Ver: 06/08/2021

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15

Login Sample Receipt Checklist

Client: Woodard & Curran, Inc.

Job Number: 320-82764-1

Login Number: 82764
List Number: 1
Creator: Mullen, Joan

List Source: Eurofins TestAmerica, Sacramento

Question	**Answer**	**Comment**
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	N/A	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: Woodard & Curran, Inc.

Job Number: 320-82764-1

Login Number: 82764
List Number: 2
Creator: Cahill, Nicholas P

List Source: Eurofins TestAmerica, Sacramento

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	N/A	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	3.2c
COC is present.	False	Samples sent to Sac with no ICOC
COC is filled out in ink and legible.	False	Refer to Job Narrative for details.
COC is filled out with all pertinent information.	False	Refer to Job Narrative for details.
Is the Field Sampler's name present on COC?	False	Refer to Job Narrative for details.
There are no discrepancies between the containers received and the COC.	False	Refer to Job Narrative for details.
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

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Environment Testing
America

ANALYTICAL REPORT

Eurofins TestAmerica, Sacramento
880 Riverside Parkway
West Sacramento, CA 95605
Tel: (916)373-5600

Laboratory Job ID: 320-82778-1
Client Project/Site: SJC PFAS Phase 2

For:
Woodard & Curran, Inc.
2175 North California Blvd.
Suite 315
Walnut Creek, California 94596

Attn: Kevin Almestad

Linda C. Laver

Authorized for release by:
12/28/2021 3:50:38 PM

Linda C. Laver, Senior Project Manager
(916)374-4362
Linda.Laver@Eurofinset.com

Table of Contents

Qualifiers

LCMS

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Job ID: 320-82778-1

Laboratory: Eurofins TestAmerica, Sacramento

Narrative

Job Narrative
320-82778-1

Comments
No additional comments.

Receipt
The samples were received on 12/10/2021 2:20 PM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 5.2º C.

LCMS
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Organic Prep
Method 3535: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 320-551851.

Method 3535: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 320-552651.

Method 3535: The following samples contained a thin layer of sediment at the bottom of the bottle prior to extraction: UG-2-GW (320-82778-1), UG-20-GW (320-82778-2) and UG-1-GW (320-82778-4).
preparation batch 320-552651

Method 3535: During the solid phase extraction process, the following samples contain non-settable particulates which clogged the solid phase extraction column: UG-2-GW (320-82778-1) and UG-20-GW (320-82778-2).
preparation batch 320-552651

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Detection Summary

Client: Woodard & Curran, Inc.
Project/Site: SJC PFAS Phase 2

Job ID: 320-82778-1

Client Sample ID: UG-2-GW

Lab Sample ID: 320-82778-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	5.4		4.8	2.3	ng/L	1		EPA 537(Mod)	Total/NA
Perfluoropentanoic acid (PFPeA)	2.1		1.9	0.47	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorohexanoic acid (PFHxA)	1.3	J	1.9	0.56	ng/L	1		EPA 537(Mod)	Total/NA
Perfluoroheptanoic acid (PFHpA)	0.52	J	1.9	0.24	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorooctanoic acid (PFOA)	1.1	J	1.9	0.81	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	1.8	J	1.9	0.19	ng/L	1		EPA 537(Mod)	Total/NA
Perfluoropentanesulfonic acid (PFPeS)	0.83	J	1.9	0.29	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	2.6		1.9	0.55	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	1.2	J	1.9	0.52	ng/L	1		EPA 537(Mod)	Total/NA

Client Sample ID: UG-20-GW

Lab Sample ID: 320-82778-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	5.4		4.8	2.3	ng/L	1		EPA 537(Mod)	Total/NA
Perfluoropentanoic acid (PFPeA)	1.7	J	1.9	0.47	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorohexanoic acid (PFHxA)	1.4	J	1.9	0.55	ng/L	1		EPA 537(Mod)	Total/NA
Perfluoroheptanoic acid (PFHpA)	0.52	J	1.9	0.24	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorooctanoic acid (PFOA)	1.1	J	1.9	0.81	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	2.1		1.9	0.19	ng/L	1		EPA 537(Mod)	Total/NA
Perfluoropentanesulfonic acid (PFPeS)	0.79	J	1.9	0.29	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	2.3		1.9	0.54	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	1.3	J	1.9	0.52	ng/L	1		EPA 537(Mod)	Total/NA

Client Sample ID: FB-5-121021

Lab Sample ID: 320-82778-3

No Detections.

Client Sample ID: UG-1-GW

Lab Sample ID: 320-82778-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanesulfonic acid (PFBS)	3.5		1.9	0.19	ng/L	1		EPA 537(Mod)	Total/NA
Perfluoropentanesulfonic acid (PFPeS)	1.3	J	1.9	0.29	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	3.3		1.9	0.56	ng/L	1		EPA 537(Mod)	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample Results

Client Sample ID: UG-2-GW

Lab Sample ID: 320-82778-1

Date Collected: 12/10/21 11:30

Matrix: Water

Date Received: 12/10/21 14:20

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**5.4**		4.8	2.3	ng/L		12/21/21 04:34	12/27/21 15:03	1
Perfluoropentanoic acid (PFPeA)	**2.1**		1.9	0.47	ng/L		12/21/21 04:34	12/27/21 15:03	1
Perfluorohexanoic acid (PFHxA)	**1.3**	**J**	1.9	0.56	ng/L		12/21/21 04:34	12/27/21 15:03	1
Perfluoroheptanoic acid (PFHpA)	**0.52**	**J**	1.9	0.24	ng/L		12/21/21 04:34	12/27/21 15:03	1
Perfluorooctanoic acid (PFOA)	**1.1**	**J**	1.9	0.81	ng/L		12/21/21 04:34	12/27/21 15:03	1
Perfluorononanoic acid (PFNA)	ND		1.9	0.26	ng/L		12/21/21 04:34	12/27/21 15:03	1
Perfluorodecanoic acid (PFDA)	ND		1.9	0.30	ng/L		12/21/21 04:34	12/27/21 15:03	1
Perfluoroundecanoic acid (PFUnA)	ND		1.9	1.1	ng/L		12/21/21 04:34	12/27/21 15:03	1
Perfluorododecanoic acid (PFDoA)	ND		1.9	0.53	ng/L		12/21/21 04:34	12/27/21 15:03	1
Perfluorotridecanoic acid (PFTrDA)	ND		1.9	1.2	ng/L		12/21/21 04:34	12/27/21 15:03	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.9	0.70	ng/L		12/21/21 04:34	12/27/21 15:03	1
Perfluorobutanesulfonic acid (PFBS)	**1.8**	**J**	1.9	0.19	ng/L		12/21/21 04:34	12/27/21 15:03	1
Perfluoropentanesulfonic acid (PFPeS)	**0.83**	**J**	1.9	0.29	ng/L		12/21/21 04:34	12/27/21 15:03	1
Perfluorohexanesulfonic acid (PFHxS)	**2.6**		1.9	0.55	ng/L		12/21/21 04:34	12/27/21 15:03	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		1.9	0.18	ng/L		12/21/21 04:34	12/27/21 15:03	1
Perfluorooctanesulfonic acid (PFOS)	**1.2**	**J**	1.9	0.52	ng/L		12/21/21 04:34	12/27/21 15:03	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.9	0.31	ng/L		12/21/21 04:34	12/27/21 15:03	1
Perfluorooctanesulfonamide (FOSA)	ND		1.9	0.94	ng/L		12/21/21 04:34	12/27/21 15:03	1
NEtFOSAA	ND		4.8	1.2	ng/L		12/21/21 04:34	12/27/21 15:03	1
NMeFOSAA	ND		4.8	1.1	ng/L		12/21/21 04:34	12/27/21 15:03	1
4:2 FTS	ND		1.9	0.23	ng/L		12/21/21 04:34	12/27/21 15:03	1
6:2 FTS	ND		4.8	2.4	ng/L		12/21/21 04:34	12/27/21 15:03	1
8:2 FTS	ND		1.9	0.44	ng/L		12/21/21 04:34	12/27/21 15:03	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*67*		*50 - 150*	*12/21/21 04:34*	*12/27/21 15:03*	*1*
13C5 PFPeA	*72*		*50 - 150*	*12/21/21 04:34*	*12/27/21 15:03*	*1*
13C2 PFHxA	*68*		*50 - 150*	*12/21/21 04:34*	*12/27/21 15:03*	*1*
13C4 PFHpA	*76*		*50 - 150*	*12/21/21 04:34*	*12/27/21 15:03*	*1*
13C4 PFOA	*80*		*50 - 150*	*12/21/21 04:34*	*12/27/21 15:03*	*1*
13C5 PFNA	*69*		*50 - 150*	*12/21/21 04:34*	*12/27/21 15:03*	*1*
13C2 PFDA	*67*		*50 - 150*	*12/21/21 04:34*	*12/27/21 15:03*	*1*
13C2 PFUnA	*63*		*50 - 150*	*12/21/21 04:34*	*12/27/21 15:03*	*1*
13C2 PFDoA	*60*		*50 - 150*	*12/21/21 04:34*	*12/27/21 15:03*	*1*
13C2 PFTeDA	*54*		*50 - 150*	*12/21/21 04:34*	*12/27/21 15:03*	*1*
13C3 PFBS	*68*		*50 - 150*	*12/21/21 04:34*	*12/27/21 15:03*	*1*
18O2 PFHxS	*71*		*50 - 150*	*12/21/21 04:34*	*12/27/21 15:03*	*1*
13C4 PFOS	*69*		*50 - 150*	*12/21/21 04:34*	*12/27/21 15:03*	*1*
13C8 FOSA	*54*		*50 - 150*	*12/21/21 04:34*	*12/27/21 15:03*	*1*
M2-4:2 FTS	*70*		*50 - 150*	*12/21/21 04:34*	*12/27/21 15:03*	*1*
M2-6:2 FTS	*70*		*50 - 150*	*12/21/21 04:34*	*12/27/21 15:03*	*1*
M2-8:2 FTS	*66*		*50 - 150*	*12/21/21 04:34*	*12/27/21 15:03*	*1*
d5-NEtFOSAA	*64*		*50 - 150*	*12/21/21 04:34*	*12/27/21 15:03*	*1*
d3-NMeFOSAA	*61*		*50 - 150*	*12/21/21 04:34*	*12/27/21 15:03*	*1*

Client Sample Results

Client: Woodard & Curran, Inc.
Project/Site: SJC PFAS Phase 2

Job ID: 320-82778-1

Client Sample ID: UG-20-GW

Date Collected: 12/10/21 11:30
Date Received: 12/10/21 14:20

Lab Sample ID: 320-82778-2

Matrix: Water

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**5.4**		4.8	2.3	ng/L		12/21/21 04:34	12/27/21 15:13	1
Perfluoropentanoic acid (PFPeA)	**1.7**	**J**	1.9	0.47	ng/L		12/21/21 04:34	12/27/21 15:13	1
Perfluorohexanoic acid (PFHxA)	**1.4**	**J**	1.9	0.55	ng/L		12/21/21 04:34	12/27/21 15:13	1
Perfluoroheptanoic acid (PFHpA)	**0.52**	**J**	1.9	0.24	ng/L		12/21/21 04:34	12/27/21 15:13	1
Perfluorooctanoic acid (PFOA)	**1.1**	**J**	1.9	0.81	ng/L		12/21/21 04:34	12/27/21 15:13	1
Perfluorononanoic acid (PFNA)	ND		1.9	0.26	ng/L		12/21/21 04:34	12/27/21 15:13	1
Perfluorodecanoic acid (PFDA)	ND		1.9	0.30	ng/L		12/21/21 04:34	12/27/21 15:13	1
Perfluoroundecanoic acid (PFUnA)	ND		1.9	1.0	ng/L		12/21/21 04:34	12/27/21 15:13	1
Perfluorododecanoic acid (PFDoA)	ND		1.9	0.52	ng/L		12/21/21 04:34	12/27/21 15:13	1
Perfluorotridecanoic acid (PFTrDA)	ND		1.9	1.2	ng/L		12/21/21 04:34	12/27/21 15:13	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.9	0.70	ng/L		12/21/21 04:34	12/27/21 15:13	1
Perfluorobutanesulfonic acid (PFBS)	**2.1**		1.9	0.19	ng/L		12/21/21 04:34	12/27/21 15:13	1
Perfluoropentanesulfonic acid (PFPeS)	**0.79**	**J**	1.9	0.29	ng/L		12/21/21 04:34	12/27/21 15:13	1
Perfluorohexanesulfonic acid (PFHxS)	**2.3**		1.9	0.54	ng/L		12/21/21 04:34	12/27/21 15:13	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		1.9	0.18	ng/L		12/21/21 04:34	12/27/21 15:13	1
Perfluorooctanesulfonic acid (PFOS)	**1.3**	**J**	1.9	0.52	ng/L		12/21/21 04:34	12/27/21 15:13	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.9	0.31	ng/L		12/21/21 04:34	12/27/21 15:13	1
Perfluorooctanesulfonamide (FOSA)	ND		1.9	0.93	ng/L		12/21/21 04:34	12/27/21 15:13	1
NEtFOSAA	ND		4.8	1.2	ng/L		12/21/21 04:34	12/27/21 15:13	1
NMeFOSAA	ND		4.8	1.1	ng/L		12/21/21 04:34	12/27/21 15:13	1
4:2 FTS	ND		1.9	0.23	ng/L		12/21/21 04:34	12/27/21 15:13	1
6:2 FTS	ND		4.8	2.4	ng/L		12/21/21 04:34	12/27/21 15:13	1
8:2 FTS	ND		1.9	0.44	ng/L		12/21/21 04:34	12/27/21 15:13	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*73*		*50 - 150*	*12/21/21 04:34*	*12/27/21 15:13*	*1*
13C5 PFPeA	*74*		*50 - 150*	*12/21/21 04:34*	*12/27/21 15:13*	*1*
13C2 PFHxA	*70*		*50 - 150*	*12/21/21 04:34*	*12/27/21 15:13*	*1*
13C4 PFHpA	*78*		*50 - 150*	*12/21/21 04:34*	*12/27/21 15:13*	*1*
13C4 PFOA	*80*		*50 - 150*	*12/21/21 04:34*	*12/27/21 15:13*	*1*
13C5 PFNA	*76*		*50 - 150*	*12/21/21 04:34*	*12/27/21 15:13*	*1*
13C2 PFDA	*69*		*50 - 150*	*12/21/21 04:34*	*12/27/21 15:13*	*1*
13C2 PFUnA	*67*		*50 - 150*	*12/21/21 04:34*	*12/27/21 15:13*	*1*
13C2 PFDoA	*63*		*50 - 150*	*12/21/21 04:34*	*12/27/21 15:13*	*1*
13C2 PFTeDA	*52*		*50 - 150*	*12/21/21 04:34*	*12/27/21 15:13*	*1*
13C3 PFBS	*72*		*50 - 150*	*12/21/21 04:34*	*12/27/21 15:13*	*1*
18O2 PFHxS	*75*		*50 - 150*	*12/21/21 04:34*	*12/27/21 15:13*	*1*
13C4 PFOS	*72*		*50 - 150*	*12/21/21 04:34*	*12/27/21 15:13*	*1*
13C8 FOSA	*54*		*50 - 150*	*12/21/21 04:34*	*12/27/21 15:13*	*1*
M2-4:2 FTS	*69*		*50 - 150*	*12/21/21 04:34*	*12/27/21 15:13*	*1*
M2-6:2 FTS	*81*		*50 - 150*	*12/21/21 04:34*	*12/27/21 15:13*	*1*
M2-8:2 FTS	*68*		*50 - 150*	*12/21/21 04:34*	*12/27/21 15:13*	*1*
d5-NEtFOSAA	*61*		*50 - 150*	*12/21/21 04:34*	*12/27/21 15:13*	*1*
d3-NMeFOSAA	*62*		*50 - 150*	*12/21/21 04:34*	*12/27/21 15:13*	*1*

Client Sample Results

Client: Woodard & Curran, Inc.
Project/Site: SJC PFAS Phase 2

Job ID: 320-82778-1

Client Sample ID: FB-5-121021

Date Collected: 12/10/21 12:00
Date Received: 12/10/21 14:20

Lab Sample ID: 320-82778-3

Matrix: Water

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		4.6	2.2	ng/L		12/17/21 12:51	12/22/21 00:22	1
Perfluoropentanoic acid (PFPeA)	ND		1.8	0.45	ng/L		12/17/21 12:51	12/22/21 00:22	1
Perfluorohexanoic acid (PFHxA)	ND		1.8	0.54	ng/L		12/17/21 12:51	12/22/21 00:22	1
Perfluoroheptanoic acid (PFHpA)	ND		1.8	0.23	ng/L		12/17/21 12:51	12/22/21 00:22	1
Perfluorooctanoic acid (PFOA)	ND		1.8	0.79	ng/L		12/17/21 12:51	12/22/21 00:22	1
Perfluorononanoic acid (PFNA)	ND		1.8	0.25	ng/L		12/17/21 12:51	12/22/21 00:22	1
Perfluorodecanoic acid (PFDA)	ND		1.8	0.29	ng/L		12/17/21 12:51	12/22/21 00:22	1
Perfluoroundecanoic acid (PFUnA)	ND		1.8	1.0	ng/L		12/17/21 12:51	12/22/21 00:22	1
Perfluorododecanoic acid (PFDoA)	ND		1.8	0.51	ng/L		12/17/21 12:51	12/22/21 00:22	1
Perfluorotridecanoic acid (PFTrDA)	ND		1.8	1.2	ng/L		12/17/21 12:51	12/22/21 00:22	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.8	0.67	ng/L		12/17/21 12:51	12/22/21 00:22	1
Perfluorobutanesulfonic acid (PFBS)	ND		1.8	0.18	ng/L		12/17/21 12:51	12/22/21 00:22	1
Perfluoropentanesulfonic acid (PFPeS)	ND		1.8	0.28	ng/L		12/17/21 12:51	12/22/21 00:22	1
Perfluorohexanesulfonic acid (PFHxS)	ND		1.8	0.53	ng/L		12/17/21 12:51	12/22/21 00:22	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		1.8	0.18	ng/L		12/17/21 12:51	12/22/21 00:22	1
Perfluorooctanesulfonic acid (PFOS)	ND		1.8	0.50	ng/L		12/17/21 12:51	12/22/21 00:22	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.8	0.30	ng/L		12/17/21 12:51	12/22/21 00:22	1
Perfluorooctanesulfonamide (FOSA)	ND		1.8	0.91	ng/L		12/17/21 12:51	12/22/21 00:22	1
NEtFOSAA	ND		4.6	1.2	ng/L		12/17/21 12:51	12/22/21 00:22	1
NMeFOSAA	ND		4.6	1.1	ng/L		12/17/21 12:51	12/22/21 00:22	1
4:2 FTS	ND		1.8	0.22	ng/L		12/17/21 12:51	12/22/21 00:22	1
6:2 FTS	ND		4.6	2.3	ng/L		12/17/21 12:51	12/22/21 00:22	1
8:2 FTS	ND		1.8	0.43	ng/L		12/17/21 12:51	12/22/21 00:22	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*93*		*50 - 150*	*12/17/21 12:51*	*12/22/21 00:22*	*1*
13C5 PFPeA	*105*		*50 - 150*	*12/17/21 12:51*	*12/22/21 00:22*	*1*
13C2 PFHxA	*93*		*50 - 150*	*12/17/21 12:51*	*12/22/21 00:22*	*1*
13C4 PFHpA	*107*		*50 - 150*	*12/17/21 12:51*	*12/22/21 00:22*	*1*
13C4 PFOA	*101*		*50 - 150*	*12/17/21 12:51*	*12/22/21 00:22*	*1*
13C5 PFNA	*90*		*50 - 150*	*12/17/21 12:51*	*12/22/21 00:22*	*1*
13C2 PFDA	*88*		*50 - 150*	*12/17/21 12:51*	*12/22/21 00:22*	*1*
13C2 PFUnA	*101*		*50 - 150*	*12/17/21 12:51*	*12/22/21 00:22*	*1*
13C2 PFDoA	*93*		*50 - 150*	*12/17/21 12:51*	*12/22/21 00:22*	*1*
13C2 PFTeDA	*86*		*50 - 150*	*12/17/21 12:51*	*12/22/21 00:22*	*1*
13C3 PFBS	*98*		*50 - 150*	*12/17/21 12:51*	*12/22/21 00:22*	*1*
18O2 PFHxS	*106*		*50 - 150*	*12/17/21 12:51*	*12/22/21 00:22*	*1*
13C4 PFOS	*102*		*50 - 150*	*12/17/21 12:51*	*12/22/21 00:22*	*1*
13C8 FOSA	*72*		*50 - 150*	*12/17/21 12:51*	*12/22/21 00:22*	*1*
M2-4:2 FTS	*99*		*50 - 150*	*12/17/21 12:51*	*12/22/21 00:22*	*1*
M2-6:2 FTS	*97*		*50 - 150*	*12/17/21 12:51*	*12/22/21 00:22*	*1*
M2-8:2 FTS	*101*		*50 - 150*	*12/17/21 12:51*	*12/22/21 00:22*	*1*
d5-NEtFOSAA	*91*		*50 - 150*	*12/17/21 12:51*	*12/22/21 00:22*	*1*
d3-NMeFOSAA	*96*		*50 - 150*	*12/17/21 12:51*	*12/22/21 00:22*	*1*

Client Sample Results

Client: Woodard & Curran, Inc.
Project/Site: SJC PFAS Phase 2

Job ID: 320-82778-1

Client Sample ID: UG-1-GW

Date Collected: 12/10/21 13:35
Date Received: 12/10/21 14:20

Lab Sample ID: 320-82778-4
Matrix: Water

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		4.9	2.3	ng/L		12/21/21 04:34	12/27/21 15:23	1
Perfluoropentanoic acid (PFPeA)	ND		1.9	0.48	ng/L		12/21/21 04:34	12/27/21 15:23	1
Perfluorohexanoic acid (PFHxA)	ND		1.9	0.57	ng/L		12/21/21 04:34	12/27/21 15:23	1
Perfluoroheptanoic acid (PFHpA)	ND		1.9	0.24	ng/L		12/21/21 04:34	12/27/21 15:23	1
Perfluorooctanoic acid (PFOA)	ND		1.9	0.83	ng/L		12/21/21 04:34	12/27/21 15:23	1
Perfluorononanoic acid (PFNA)	ND		1.9	0.26	ng/L		12/21/21 04:34	12/27/21 15:23	1
Perfluorodecanoic acid (PFDA)	ND		1.9	0.30	ng/L		12/21/21 04:34	12/27/21 15:23	1
Perfluoroundecanoic acid (PFUnA)	ND		1.9	1.1	ng/L		12/21/21 04:34	12/27/21 15:23	1
Perfluorododecanoic acid (PFDoA)	ND		1.9	0.54	ng/L		12/21/21 04:34	12/27/21 15:23	1
Perfluorotridecanoic acid (PFTrDA)	ND		1.9	1.3	ng/L		12/21/21 04:34	12/27/21 15:23	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.9	0.71	ng/L		12/21/21 04:34	12/27/21 15:23	1
Perfluorobutanesulfonic acid (PFBS)	**3.5**		1.9	0.19	ng/L		12/21/21 04:34	12/27/21 15:23	1
Perfluoropentanesulfonic acid (PFPeS)	**1.3**	**J**	1.9	0.29	ng/L		12/21/21 04:34	12/27/21 15:23	1
Perfluorohexanesulfonic acid (PFHxS)	**3.3**		1.9	0.56	ng/L		12/21/21 04:34	12/27/21 15:23	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		1.9	0.19	ng/L		12/21/21 04:34	12/27/21 15:23	1
Perfluorooctanesulfonic acid (PFOS)	ND		1.9	0.53	ng/L		12/21/21 04:34	12/27/21 15:23	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.9	0.31	ng/L		12/21/21 04:34	12/27/21 15:23	1
Perfluorooctanesulfonamide (FOSA)	ND		1.9	0.96	ng/L		12/21/21 04:34	12/27/21 15:23	1
NEtFOSAA	ND		4.9	1.3	ng/L		12/21/21 04:34	12/27/21 15:23	1
NMeFOSAA	ND		4.9	1.2	ng/L		12/21/21 04:34	12/27/21 15:23	1
4:2 FTS	ND		1.9	0.23	ng/L		12/21/21 04:34	12/27/21 15:23	1
6:2 FTS	ND		4.9	2.4	ng/L		12/21/21 04:34	12/27/21 15:23	1
8:2 FTS	ND		1.9	0.45	ng/L		12/21/21 04:34	12/27/21 15:23	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*82*		*50 - 150*	*12/21/21 04:34*	*12/27/21 15:23*	*1*
13C5 PFPeA	*85*		*50 - 150*	*12/21/21 04:34*	*12/27/21 15:23*	*1*
13C2 PFHxA	*81*		*50 - 150*	*12/21/21 04:34*	*12/27/21 15:23*	*1*
13C4 PFHpA	*95*		*50 - 150*	*12/21/21 04:34*	*12/27/21 15:23*	*1*
13C4 PFOA	*93*		*50 - 150*	*12/21/21 04:34*	*12/27/21 15:23*	*1*
13C5 PFNA	*90*		*50 - 150*	*12/21/21 04:34*	*12/27/21 15:23*	*1*
13C2 PFDA	*87*		*50 - 150*	*12/21/21 04:34*	*12/27/21 15:23*	*1*
13C2 PFUnA	*82*		*50 - 150*	*12/21/21 04:34*	*12/27/21 15:23*	*1*
13C2 PFDoA	*90*		*50 - 150*	*12/21/21 04:34*	*12/27/21 15:23*	*1*
13C2 PFTeDA	*83*		*50 - 150*	*12/21/21 04:34*	*12/27/21 15:23*	*1*
13C3 PFBS	*82*		*50 - 150*	*12/21/21 04:34*	*12/27/21 15:23*	*1*
18O2 PFHxS	*87*		*50 - 150*	*12/21/21 04:34*	*12/27/21 15:23*	*1*
13C4 PFOS	*81*		*50 - 150*	*12/21/21 04:34*	*12/27/21 15:23*	*1*
13C8 FOSA	*70*		*50 - 150*	*12/21/21 04:34*	*12/27/21 15:23*	*1*
M2-4:2 FTS	*81*		*50 - 150*	*12/21/21 04:34*	*12/27/21 15:23*	*1*
M2-6:2 FTS	*89*		*50 - 150*	*12/21/21 04:34*	*12/27/21 15:23*	*1*
M2-8:2 FTS	*88*		*50 - 150*	*12/21/21 04:34*	*12/27/21 15:23*	*1*
d5-NEtFOSAA	*85*		*50 - 150*	*12/21/21 04:34*	*12/27/21 15:23*	*1*
d3-NMeFOSAA	*84*		*50 - 150*	*12/21/21 04:34*	*12/27/21 15:23*	*1*

Isotope Dilution Summary

Client: Woodard & Curran, Inc.
Project/Site: SJC PFAS Phase 2

Job ID: 320-82778-1

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

Matrix: Water

Prep Type: Total/NA

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	**Client Sample ID**	**PFBA (50-150)**	**PFPeA (50-150)**	**PFHxA (50-150)**	**C4PFHA (50-150)**	**PFOA (50-150)**	**PFNA (50-150)**	**PFDA (50-150)**	**PFUnA (50-150)**
320-82778-1	UG-2-GW	67	72	68	76	80	69	67	63
320-82778-2	UG-20-GW	73	74	70	78	80	76	69	67
320-82778-3	FB-5-121021	93	105	93	107	101	90	88	101
320-82778-4	UG-1-GW	82	85	81	95	93	90	87	82
LCS 320-551851/2-A	Lab Control Sample	94	111	99	103	102	96	96	103
LCS 320-552651/2-A	Lab Control Sample	92	90	90	90	98	87	89	95
LCSD 320-551851/3-A	Lab Control Sample Dup	88	99	94	101	95	92	90	94
LCSD 320-552651/3-A	Lab Control Sample Dup	90	94	97	97	102	95	90	98
MB 320-551851/1-A	Method Blank	85	96	90	105	102	97	91	98
MB 320-552651/1-A	Method Blank	82	84	79	84	87	83	82	87

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	**Client Sample ID**	**PFDoA (50-150)**	**PFTDA (50-150)**	**C3PFBS (50-150)**	**PFHxS (50-150)**	**PFOS (50-150)**	**PFOSA (50-150)**	**M242FTS (50-150)**	**M262FTS (50-150)**
320-82778-1	UG-2-GW	60	54	68	71	69	54	70	70
320-82778-2	UG-20-GW	63	52	72	75	72	54	69	81
320-82778-3	FB-5-121021	93	86	98	106	102	72	99	97
320-82778-4	UG-1-GW	90	83	82	87	81	70	81	89
LCS 320-551851/2-A	Lab Control Sample	91	87	98	100	98	75	92	96
LCS 320-552651/2-A	Lab Control Sample	89	94	91	91	88	69	84	84
LCSD 320-551851/3-A	Lab Control Sample Dup	88	79	103	94	93	70	99	101
LCSD 320-552651/3-A	Lab Control Sample Dup	99	101	94	95	96	73	93	96
MB 320-551851/1-A	Method Blank	90	84	94	100	98	75	111	102
MB 320-552651/1-A	Method Blank	88	85	80	78	79	62	85	92

		Percent Isotope Dilution Recovery (Acceptance Limits)		
Lab Sample ID	**Client Sample ID**	**M282FTS (50-150)**	**d5NEFOS (50-150)**	**d3NMFOS (50-150)**
320-82778-1	UG-2-GW	66	64	61
320-82778-2	UG-20-GW	68	61	62
320-82778-3	FB-5-121021	101	91	96
320-82778-4	UG-1-GW	88	85	84
LCS 320-551851/2-A	Lab Control Sample	98	104	98
LCS 320-552651/2-A	Lab Control Sample	88	94	93
LCSD 320-551851/3-A	Lab Control Sample Dup	95	89	95
LCSD 320-552651/3-A	Lab Control Sample Dup	98	99	95
MB 320-551851/1-A	Method Blank	97	97	95
MB 320-552651/1-A	Method Blank	79	89	88

Surrogate Legend

PFBA = 13C4 PFBA
PFPeA = 13C5 PFPeA
PFHxA = 13C2 PFHxA
C4PFHA = 13C4 PFHpA
PFOA = 13C4 PFOA
PFNA = 13C5 PFNA
PFDA = 13C2 PFDA
PFUnA = 13C2 PFUnA
PFDoA = 13C2 PFDoA
PFTDA = 13C2 PFTeDA
C3PFBS = 13C3 PFBS

PFHxS = 18O2 PFHxS

PFOS = 13C4 PFOS

PFOSA = 13C8 FOSA

M242FTS = M2-4:2 FTS

M262FTS = M2-6:2 FTS

M282FTS = M2-8:2 FTS

d5NEFOS = d5-NEtFOSAA

d3NMFOS = d3-NMeFOSAA

QC Sample Results

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

Lab Sample ID: MB 320-551851/1-A
Matrix: Water
Analysis Batch: 552904

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 551851

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		5.0	2.4	ng/L		12/17/21 12:51	12/21/21 22:58	1
Perfluoropentanoic acid (PFPeA)	ND		2.0	0.49	ng/L		12/17/21 12:51	12/21/21 22:58	1
Perfluorohexanoic acid (PFHxA)	ND		2.0	0.58	ng/L		12/17/21 12:51	12/21/21 22:58	1
Perfluoroheptanoic acid (PFHpA)	ND		2.0	0.25	ng/L		12/17/21 12:51	12/21/21 22:58	1
Perfluorooctanoic acid (PFOA)	ND		2.0	0.85	ng/L		12/17/21 12:51	12/21/21 22:58	1
Perfluorononanoic acid (PFNA)	ND		2.0	0.27	ng/L		12/17/21 12:51	12/21/21 22:58	1
Perfluorodecanoic acid (PFDA)	ND		2.0	0.31	ng/L		12/17/21 12:51	12/21/21 22:58	1
Perfluoroundecanoic acid (PFUnA)	ND		2.0	1.1	ng/L		12/17/21 12:51	12/21/21 22:58	1
Perfluorododecanoic acid (PFDoA)	ND		2.0	0.55	ng/L		12/17/21 12:51	12/21/21 22:58	1
Perfluorotridecanoic acid (PFTrDA)	ND		2.0	1.3	ng/L		12/17/21 12:51	12/21/21 22:58	1
Perfluorotetradecanoic acid (PFTeA)	ND		2.0	0.73	ng/L		12/17/21 12:51	12/21/21 22:58	1
Perfluorobutanesulfonic acid (PFBS)	ND		2.0	0.20	ng/L		12/17/21 12:51	12/21/21 22:58	1
Perfluoropentanesulfonic acid (PFPeS)	ND		2.0	0.30	ng/L		12/17/21 12:51	12/21/21 22:58	1
Perfluorohexanesulfonic acid (PFHxS)	ND		2.0	0.57	ng/L		12/17/21 12:51	12/21/21 22:58	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		2.0	0.19	ng/L		12/17/21 12:51	12/21/21 22:58	1
Perfluorooctanesulfonic acid (PFOS)	ND		2.0	0.54	ng/L		12/17/21 12:51	12/21/21 22:58	1
Perfluorodecanesulfonic acid (PFDS)	ND		2.0	0.32	ng/L		12/17/21 12:51	12/21/21 22:58	1
Perfluorooctanesulfonamide (FOSA)	ND		2.0	0.98	ng/L		12/17/21 12:51	12/21/21 22:58	1
NEtFOSAA	ND		5.0	1.3	ng/L		12/17/21 12:51	12/21/21 22:58	1
NMeFOSAA	ND		5.0	1.2	ng/L		12/17/21 12:51	12/21/21 22:58	1
4:2 FTS	ND		2.0	0.24	ng/L		12/17/21 12:51	12/21/21 22:58	1
6:2 FTS	ND		5.0	2.5	ng/L		12/17/21 12:51	12/21/21 22:58	1
8:2 FTS	ND		2.0	0.46	ng/L		12/17/21 12:51	12/21/21 22:58	1

Isotope Dilution	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*85*		*50 - 150*	*12/17/21 12:51*	*12/21/21 22:58*	*1*
13C5 PFPeA	*96*		*50 - 150*	*12/17/21 12:51*	*12/21/21 22:58*	*1*
13C2 PFHxA	*90*		*50 - 150*	*12/17/21 12:51*	*12/21/21 22:58*	*1*
13C4 PFHpA	*105*		*50 - 150*	*12/17/21 12:51*	*12/21/21 22:58*	*1*
13C4 PFOA	*102*		*50 - 150*	*12/17/21 12:51*	*12/21/21 22:58*	*1*
13C5 PFNA	*97*		*50 - 150*	*12/17/21 12:51*	*12/21/21 22:58*	*1*
13C2 PFDA	*91*		*50 - 150*	*12/17/21 12:51*	*12/21/21 22:58*	*1*
13C2 PFUnA	*98*		*50 - 150*	*12/17/21 12:51*	*12/21/21 22:58*	*1*
13C2 PFDoA	*90*		*50 - 150*	*12/17/21 12:51*	*12/21/21 22:58*	*1*
13C2 PFTeDA	*84*		*50 - 150*	*12/17/21 12:51*	*12/21/21 22:58*	*1*
13C3 PFBS	*94*		*50 - 150*	*12/17/21 12:51*	*12/21/21 22:58*	*1*
18O2 PFHxS	*100*		*50 - 150*	*12/17/21 12:51*	*12/21/21 22:58*	*1*
13C4 PFOS	*98*		*50 - 150*	*12/17/21 12:51*	*12/21/21 22:58*	*1*
13C8 FOSA	*75*		*50 - 150*	*12/17/21 12:51*	*12/21/21 22:58*	*1*
M2-4:2 FTS	*111*		*50 - 150*	*12/17/21 12:51*	*12/21/21 22:58*	*1*
M2-6:2 FTS	*102*		*50 - 150*	*12/17/21 12:51*	*12/21/21 22:58*	*1*
M2-8:2 FTS	*97*		*50 - 150*	*12/17/21 12:51*	*12/21/21 22:58*	*1*
d5-NEtFOSAA	*97*		*50 - 150*	*12/17/21 12:51*	*12/21/21 22:58*	*1*
d3-NMeFOSAA	*95*		*50 - 150*	*12/17/21 12:51*	*12/21/21 22:58*	*1*

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15 (Continued)

Lab Sample ID: LCS 320-551851/2-A
Matrix: Water
Analysis Batch: 552904

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 551851

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Perfluorobutanoic acid (PFBA)	40.0	38.9		ng/L		97	73 - 129
Perfluoropentanoic acid (PFPeA)	40.0	32.0		ng/L		80	72 - 129
Perfluorohexanoic acid (PFHxA)	40.0	38.8		ng/L		97	72 - 129
Perfluoroheptanoic acid (PFHpA)	40.0	37.2		ng/L		93	72 - 130
Perfluorooctanoic acid (PFOA)	40.0	38.6		ng/L		97	71 - 133
Perfluorononanoic acid (PFNA)	40.0	40.7		ng/L		102	69 - 130
Perfluorodecanoic acid (PFDA)	40.0	35.9		ng/L		90	71 - 129
Perfluoroundecanoic acid (PFUnA)	40.0	36.8		ng/L		92	69 - 133
Perfluorododecanoic acid (PFDoA)	40.0	38.2		ng/L		95	72 - 134
Perfluorotridecanoic acid (PFTrDA)	40.0	40.0		ng/L		100	65 - 144
Perfluorotetradecanoic acid (PFTeA)	40.0	38.3		ng/L		96	71 - 132
Perfluorobutanesulfonic acid (PFBS)	35.4	34.0		ng/L		96	72 - 130
Perfluoropentanesulfonic acid (PFPeS)	37.5	39.0		ng/L		104	71 - 127
Perfluorohexanesulfonic acid (PFHxS)	36.4	33.5		ng/L		92	68 - 131
Perfluoroheptanesulfonic Acid (PFHpS)	38.1	34.8		ng/L		91	69 - 134
Perfluorooctanesulfonic acid (PFOS)	37.1	34.1		ng/L		92	65 - 140
Perfluorodecanesulfonic acid (PFDS)	38.6	36.2		ng/L		94	53 - 142
Perfluorooctanesulfonamide (FOSA)	40.0	45.8		ng/L		115	67 - 137
NEtFOSAA	40.0	35.1		ng/L		88	61 - 135
NMeFOSAA	40.0	35.6		ng/L		89	65 - 136
4:2 FTS	37.4	38.8		ng/L		104	63 - 143
6:2 FTS	37.9	39.0		ng/L		103	64 - 140
8:2 FTS	38.3	36.1		ng/L		94	67 - 138

Isotope Dilution	*LCS %Recovery*	*LCS Qualifier*	*Limits*
13C4 PFBA	*94*		*50 - 150*
13C5 PFPeA	*111*		*50 - 150*
13C2 PFHxA	*99*		*50 - 150*
13C4 PFHpA	*103*		*50 - 150*
13C4 PFOA	*102*		*50 - 150*
13C5 PFNA	*96*		*50 - 150*
13C2 PFDA	*96*		*50 - 150*
13C2 PFUnA	*103*		*50 - 150*
13C2 PFDoA	*91*		*50 - 150*
13C2 PFTeDA	*87*		*50 - 150*
13C3 PFBS	*98*		*50 - 150*
18O2 PFHxS	*100*		*50 - 150*
13C4 PFOS	*98*		*50 - 150*
13C8 FOSA	*75*		*50 - 150*
M2-4:2 FTS	*92*		*50 - 150*

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15 (Continued)

Lab Sample ID: LCS 320-551851/2-A
Matrix: Water
Analysis Batch: 552904

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 551851

Isotope Dilution	*LCS %Recovery*	*LCS Qualifier*	*Limits*
M2-6:2 FTS	*96*		*50 - 150*
M2-8:2 FTS	*98*		*50 - 150*
d5-NEtFOSAA	*104*		*50 - 150*
d3-NMeFOSAA	*98*		*50 - 150*

Lab Sample ID: LCSD 320-551851/3-A
Matrix: Water
Analysis Batch: 552904

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 551851

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Perfluorobutanoic acid (PFBA)			40.0	40.7		ng/L		102	73 - 129	4	30
Perfluoropentanoic acid (PFPeA)			40.0	35.2		ng/L		88	72 - 129	9	30
Perfluorohexanoic acid (PFHxA)			40.0	40.0		ng/L		100	72 - 129	3	30
Perfluoroheptanoic acid (PFHpA)			40.0	39.3		ng/L		98	72 - 130	6	30
Perfluorooctanoic acid (PFOA)			40.0	41.3		ng/L		103	71 - 133	7	30
Perfluorononanoic acid (PFNA)			40.0	42.6		ng/L		106	69 - 130	4	30
Perfluorodecanoic acid (PFDA)			40.0	38.9		ng/L		97	71 - 129	8	30
Perfluoroundecanoic acid (PFUnA)			40.0	38.0		ng/L		95	69 - 133	3	30
Perfluorododecanoic acid (PFDoA)			40.0	36.5		ng/L		91	72 - 134	5	30
Perfluorotridecanoic acid (PFTrDA)			40.0	36.0		ng/L		90	65 - 144	11	30
Perfluorotetradecanoic acid (PFTeA)			40.0	39.5		ng/L		99	71 - 132	3	30
Perfluorobutanesulfonic acid (PFBS)			35.4	29.3		ng/L		83	72 - 130	15	30
Perfluoropentanesulfonic acid (PFPeS)			37.5	36.3		ng/L		97	71 - 127	7	30
Perfluorohexanesulfonic acid (PFHxS)			36.4	34.6		ng/L		95	68 - 131	3	30
Perfluoroheptanesulfonic Acid (PFHpS)			38.1	35.8		ng/L		94	69 - 134	3	30
Perfluorooctanesulfonic acid (PFOS)			37.1	37.0		ng/L		100	65 - 140	8	30
Perfluorodecanesulfonic acid (PFDS)			38.6	40.5		ng/L		105	53 - 142	11	30
Perfluorooctanesulfonamide (FOSA)			40.0	48.2		ng/L		120	67 - 137	5	30
NEtFOSAA			40.0	41.7		ng/L		104	61 - 135	17	30
NMeFOSAA			40.0	36.8		ng/L		92	65 - 136	3	30
4:2 FTS			37.4	36.1		ng/L		97	63 - 143	7	30
6:2 FTS			37.9	40.0		ng/L		105	64 - 140	2	30
8:2 FTS			38.3	36.5		ng/L		95	67 - 138	1	30

Isotope Dilution	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
13C4 PFBA	*88*		*50 - 150*
13C5 PFPeA	*99*		*50 - 150*
13C2 PFHxA	*94*		*50 - 150*
13C4 PFHpA	*101*		*50 - 150*
13C4 PFOA	*95*		*50 - 150*
13C5 PFNA	*92*		*50 - 150*

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15 (Continued)

Lab Sample ID: LCSD 320-551851/3-A
Matrix: Water
Analysis Batch: 552904

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 551851

Isotope Dilution	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
13C2 PFDA	*90*		*50 - 150*
13C2 PFUnA	*94*		*50 - 150*
13C2 PFDoA	*88*		*50 - 150*
13C2 PFTeDA	*79*		*50 - 150*
13C3 PFBS	*103*		*50 - 150*
18O2 PFHxS	*94*		*50 - 150*
13C4 PFOS	*93*		*50 - 150*
13C8 FOSA	*70*		*50 - 150*
M2-4:2 FTS	*99*		*50 - 150*
M2-6:2 FTS	*101*		*50 - 150*
M2-8:2 FTS	*95*		*50 - 150*
d5-NEtFOSAA	*89*		*50 - 150*
d3-NMeFOSAA	*95*		*50 - 150*

Lab Sample ID: MB 320-552651/1-A
Matrix: Water
Analysis Batch: 554176

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 552651

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		5.0	2.4	ng/L		12/21/21 04:34	12/27/21 14:11	1
Perfluoropentanoic acid (PFPeA)	ND		2.0	0.49	ng/L		12/21/21 04:34	12/27/21 14:11	1
Perfluorohexanoic acid (PFHxA)	ND		2.0	0.58	ng/L		12/21/21 04:34	12/27/21 14:11	1
Perfluoroheptanoic acid (PFHpA)	ND		2.0	0.25	ng/L		12/21/21 04:34	12/27/21 14:11	1
Perfluorooctanoic acid (PFOA)	ND		2.0	0.85	ng/L		12/21/21 04:34	12/27/21 14:11	1
Perfluorononanoic acid (PFNA)	ND		2.0	0.27	ng/L		12/21/21 04:34	12/27/21 14:11	1
Perfluorodecanoic acid (PFDA)	ND		2.0	0.31	ng/L		12/21/21 04:34	12/27/21 14:11	1
Perfluoroundecanoic acid (PFUnA)	ND		2.0	1.1	ng/L		12/21/21 04:34	12/27/21 14:11	1
Perfluorododecanoic acid (PFDoA)	ND		2.0	0.55	ng/L		12/21/21 04:34	12/27/21 14:11	1
Perfluorotridecanoic acid (PFTrDA)	ND		2.0	1.3	ng/L		12/21/21 04:34	12/27/21 14:11	1
Perfluorotetradecanoic acid (PFTeA)	ND		2.0	0.73	ng/L		12/21/21 04:34	12/27/21 14:11	1
Perfluorobutanesulfonic acid (PFBS)	ND		2.0	0.20	ng/L		12/21/21 04:34	12/27/21 14:11	1
Perfluoropentanesulfonic acid (PFPeS)	ND		2.0	0.30	ng/L		12/21/21 04:34	12/27/21 14:11	1
Perfluorohexanesulfonic acid (PFHxS)	ND		2.0	0.57	ng/L		12/21/21 04:34	12/27/21 14:11	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		2.0	0.19	ng/L		12/21/21 04:34	12/27/21 14:11	1
Perfluorooctanesulfonic acid (PFOS)	ND		2.0	0.54	ng/L		12/21/21 04:34	12/27/21 14:11	1
Perfluorodecanesulfonic acid (PFDS)	ND		2.0	0.32	ng/L		12/21/21 04:34	12/27/21 14:11	1
Perfluorooctanesulfonamide (FOSA)	ND		2.0	0.98	ng/L		12/21/21 04:34	12/27/21 14:11	1
NEtFOSAA	ND		5.0	1.3	ng/L		12/21/21 04:34	12/27/21 14:11	1
NMeFOSAA	ND		5.0	1.2	ng/L		12/21/21 04:34	12/27/21 14:11	1
4:2 FTS	ND		2.0	0.24	ng/L		12/21/21 04:34	12/27/21 14:11	1
6:2 FTS	ND		5.0	2.5	ng/L		12/21/21 04:34	12/27/21 14:11	1
8:2 FTS	ND		2.0	0.46	ng/L		12/21/21 04:34	12/27/21 14:11	1

Isotope Dilution	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*82*		*50 - 150*	*12/21/21 04:34*	*12/27/21 14:11*	*1*
13C5 PFPeA	*84*		*50 - 150*	*12/21/21 04:34*	*12/27/21 14:11*	*1*
13C2 PFHxA	*79*		*50 - 150*	*12/21/21 04:34*	*12/27/21 14:11*	*1*

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15 (Continued)

Lab Sample ID: MB 320-552651/1-A
Matrix: Water
Analysis Batch: 554176

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 552651

Isotope Dilution	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFHpA	*84*		*50 - 150*	*12/21/21 04:34*	*12/27/21 14:11*	*1*
13C4 PFOA	*87*		*50 - 150*	*12/21/21 04:34*	*12/27/21 14:11*	*1*
13C5 PFNA	*83*		*50 - 150*	*12/21/21 04:34*	*12/27/21 14:11*	*1*
13C2 PFDA	*82*		*50 - 150*	*12/21/21 04:34*	*12/27/21 14:11*	*1*
13C2 PFUnA	*87*		*50 - 150*	*12/21/21 04:34*	*12/27/21 14:11*	*1*
13C2 PFDoA	*88*		*50 - 150*	*12/21/21 04:34*	*12/27/21 14:11*	*1*
13C2 PFTeDA	*85*		*50 - 150*	*12/21/21 04:34*	*12/27/21 14:11*	*1*
13C3 PFBS	*80*		*50 - 150*	*12/21/21 04:34*	*12/27/21 14:11*	*1*
18O2 PFHxS	*78*		*50 - 150*	*12/21/21 04:34*	*12/27/21 14:11*	*1*
13C4 PFOS	*79*		*50 - 150*	*12/21/21 04:34*	*12/27/21 14:11*	*1*
13C8 FOSA	*62*		*50 - 150*	*12/21/21 04:34*	*12/27/21 14:11*	*1*
M2-4:2 FTS	*85*		*50 - 150*	*12/21/21 04:34*	*12/27/21 14:11*	*1*
M2-6:2 FTS	*92*		*50 - 150*	*12/21/21 04:34*	*12/27/21 14:11*	*1*
M2-8:2 FTS	*79*		*50 - 150*	*12/21/21 04:34*	*12/27/21 14:11*	*1*
d5-NEtFOSAA	*89*		*50 - 150*	*12/21/21 04:34*	*12/27/21 14:11*	*1*
d3-NMeFOSAA	*88*		*50 - 150*	*12/21/21 04:34*	*12/27/21 14:11*	*1*

Lab Sample ID: LCS 320-552651/2-A
Matrix: Water
Analysis Batch: 554176

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 552651

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Perfluorobutanoic acid (PFBA)	40.0	36.3		ng/L		91	73 - 129
Perfluoropentanoic acid (PFPeA)	40.0	32.9		ng/L		82	72 - 129
Perfluorohexanoic acid (PFHxA)	40.0	36.2		ng/L		90	72 - 129
Perfluoroheptanoic acid (PFHpA)	40.0	38.3		ng/L		96	72 - 130
Perfluorooctanoic acid (PFOA)	40.0	35.2		ng/L		88	71 - 133
Perfluorononanoic acid (PFNA)	40.0	37.0		ng/L		93	69 - 130
Perfluorodecanoic acid (PFDA)	40.0	37.8		ng/L		95	71 - 129
Perfluoroundecanoic acid (PFUnA)	40.0	39.5		ng/L		99	69 - 133
Perfluorododecanoic acid (PFDoA)	40.0	39.5		ng/L		99	72 - 134
Perfluorotridecanoic acid (PFTrDA)	40.0	39.7		ng/L		99	65 - 144
Perfluorotetradecanoic acid (PFTeA)	40.0	35.1		ng/L		88	71 - 132
Perfluorobutanesulfonic acid (PFBS)	35.4	28.6		ng/L		81	72 - 130
Perfluoropentanesulfonic acid (PFPeS)	37.5	32.9		ng/L		88	71 - 127
Perfluorohexanesulfonic acid (PFHxS)	36.4	32.8		ng/L		90	68 - 131
Perfluoroheptanesulfonic Acid (PFHpS)	38.1	35.1		ng/L		92	69 - 134
Perfluorooctanesulfonic acid (PFOS)	37.1	34.2		ng/L		92	65 - 140
Perfluorodecanesulfonic acid (PFDS)	38.6	36.2		ng/L		94	53 - 142
Perfluorooctanesulfonamide (FOSA)	40.0	45.8		ng/L		115	67 - 137
NEtFOSAA	40.0	35.4		ng/L		88	61 - 135

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Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15 (Continued)

Lab Sample ID: LCS 320-552651/2-A
Matrix: Water
Analysis Batch: 554176

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 552651

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
NMeFOSAA	40.0	36.1		ng/L		90	65 - 136
4:2 FTS	37.4	38.7		ng/L		103	63 - 143
6:2 FTS	37.9	37.5		ng/L		99	64 - 140
8:2 FTS	38.3	36.2		ng/L		94	67 - 138

Isotope Dilution	*LCS %Recovery*	*LCS Qualifier*	*Limits*
13C4 PFBA	*92*		*50 - 150*
13C5 PFPeA	*90*		*50 - 150*
13C2 PFHxA	*90*		*50 - 150*
13C4 PFHpA	*90*		*50 - 150*
13C4 PFOA	*98*		*50 - 150*
13C5 PFNA	*87*		*50 - 150*
13C2 PFDA	*89*		*50 - 150*
13C2 PFUnA	*95*		*50 - 150*
13C2 PFDoA	*89*		*50 - 150*
13C2 PFTeDA	*94*		*50 - 150*
13C3 PFBS	*91*		*50 - 150*
18O2 PFHxS	*91*		*50 - 150*
13C4 PFOS	*88*		*50 - 150*
13C8 FOSA	*69*		*50 - 150*
M2-4:2 FTS	*84*		*50 - 150*
M2-6:2 FTS	*84*		*50 - 150*
M2-8:2 FTS	*88*		*50 - 150*
d5-NEtFOSAA	*94*		*50 - 150*
d3-NMeFOSAA	*93*		*50 - 150*

Lab Sample ID: LCSD 320-552651/3-A
Matrix: Water
Analysis Batch: 554176

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 552651

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Perfluorobutanoic acid (PFBA)	40.0	40.1		ng/L		100	73 - 129	10	30
Perfluoropentanoic acid (PFPeA)	40.0	35.4		ng/L		88	72 - 129	7	30
Perfluorohexanoic acid (PFHxA)	40.0	35.9		ng/L		90	72 - 129	1	30
Perfluoroheptanoic acid (PFHpA)	40.0	38.2		ng/L		96	72 - 130	0	30
Perfluorooctanoic acid (PFOA)	40.0	36.4		ng/L		91	71 - 133	3	30
Perfluorononanoic acid (PFNA)	40.0	36.2		ng/L		90	69 - 130	2	30
Perfluorodecanoic acid (PFDA)	40.0	38.3		ng/L		96	71 - 129	1	30
Perfluoroundecanoic acid (PFUnA)	40.0	36.6		ng/L		92	69 - 133	8	30
Perfluorododecanoic acid (PFDoA)	40.0	38.2		ng/L		95	72 - 134	3	30
Perfluorotridecanoic acid (PFTrDA)	40.0	38.1		ng/L		95	65 - 144	4	30
Perfluorotetradecanoic acid (PFTeA)	40.0	35.7		ng/L		89	71 - 132	2	30
Perfluorobutanesulfonic acid (PFBS)	35.4	30.7		ng/L		87	72 - 130	7	30
Perfluoropentanesulfonic acid (PFPeS)	37.5	34.7		ng/L		92	71 - 127	5	30

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15 (Continued)

Lab Sample ID: LCSD 320-552651/3-A
Matrix: Water
Analysis Batch: 554176

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 552651

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Perfluorohexanesulfonic acid (PFHxS)	36.4	33.4		ng/L		92	68 - 131	2	30
Perfluoroheptanesulfonic Acid (PFHpS)	38.1	33.0		ng/L		87	69 - 134	6	30
Perfluorooctanesulfonic acid (PFOS)	37.1	33.3		ng/L		90	65 - 140	3	30
Perfluorodecanesulfonic acid (PFDS)	38.6	35.3		ng/L		92	53 - 142	2	30
Perfluorooctanesulfonamide (FOSA)	40.0	47.1		ng/L		118	67 - 137	3	30
NEtFOSAA	40.0	40.1		ng/L		100	61 - 135	13	30
NMeFOSAA	40.0	38.5		ng/L		96	65 - 136	6	30
4:2 FTS	37.4	34.8		ng/L		93	63 - 143	10	30
6:2 FTS	37.9	39.4		ng/L		104	64 - 140	5	30
8:2 FTS	38.3	32.7		ng/L		85	67 - 138	10	30

Isotope Dilution	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
13C4 PFBA	*90*		*50 - 150*
13C5 PFPeA	*94*		*50 - 150*
13C2 PFHxA	*97*		*50 - 150*
13C4 PFHpA	*97*		*50 - 150*
13C4 PFOA	*102*		*50 - 150*
13C5 PFNA	*95*		*50 - 150*
13C2 PFDA	*90*		*50 - 150*
13C2 PFUnA	*98*		*50 - 150*
13C2 PFDoA	*99*		*50 - 150*
13C2 PFTeDA	*101*		*50 - 150*
13C3 PFBS	*94*		*50 - 150*
18O2 PFHxS	*95*		*50 - 150*
13C4 PFOS	*96*		*50 - 150*
13C8 FOSA	*73*		*50 - 150*
M2-4:2 FTS	*93*		*50 - 150*
M2-6:2 FTS	*96*		*50 - 150*
M2-8:2 FTS	*98*		*50 - 150*
d5-NEtFOSAA	*99*		*50 - 150*
d3-NMeFOSAA	*95*		*50 - 150*

QC Association Summary

Client: Woodard & Curran, Inc.
Project/Site: SJC PFAS Phase 2

Job ID: 320-82778-1

LCMS

Prep Batch: 551851

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-82778-3	FB-5-121021	Total/NA	Water	3535	
MB 320-551851/1-A	Method Blank	Total/NA	Water	3535	
LCS 320-551851/2-A	Lab Control Sample	Total/NA	Water	3535	
LCSD 320-551851/3-A	Lab Control Sample Dup	Total/NA	Water	3535	

Prep Batch: 552651

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-82778-1	UG-2-GW	Total/NA	Water	3535	
320-82778-2	UG-20-GW	Total/NA	Water	3535	
320-82778-4	UG-1-GW	Total/NA	Water	3535	
MB 320-552651/1-A	Method Blank	Total/NA	Water	3535	
LCS 320-552651/2-A	Lab Control Sample	Total/NA	Water	3535	
LCSD 320-552651/3-A	Lab Control Sample Dup	Total/NA	Water	3535	

Analysis Batch: 552904

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-82778-3	FB-5-121021	Total/NA	Water	EPA 537(Mod)	551851
MB 320-551851/1-A	Method Blank	Total/NA	Water	EPA 537(Mod)	551851
LCS 320-551851/2-A	Lab Control Sample	Total/NA	Water	EPA 537(Mod)	551851
LCSD 320-551851/3-A	Lab Control Sample Dup	Total/NA	Water	EPA 537(Mod)	551851

Analysis Batch: 554176

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-82778-1	UG-2-GW	Total/NA	Water	EPA 537(Mod)	552651
320-82778-2	UG-20-GW	Total/NA	Water	EPA 537(Mod)	552651
320-82778-4	UG-1-GW	Total/NA	Water	EPA 537(Mod)	552651
MB 320-552651/1-A	Method Blank	Total/NA	Water	EPA 537(Mod)	552651
LCS 320-552651/2-A	Lab Control Sample	Total/NA	Water	EPA 537(Mod)	552651
LCSD 320-552651/3-A	Lab Control Sample Dup	Total/NA	Water	EPA 537(Mod)	552651

Lab Chronicle

Client: Woodard & Curran, Inc. Job ID: 320-82778-1
Project/Site: SJC PFAS Phase 2

Client Sample ID: UG-2-GW Lab Sample ID: 320-82778-1

Date Collected: 12/10/21 11:30 **Matrix: Water**
Date Received: 12/10/21 14:20

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			261.2 mL	10.0 mL	552651	12/21/21 04:34	EG	TAL SAC
Total/NA	Analysis	EPA 537(Mod)		1			554176	12/27/21 15:03	K1S	TAL SAC

Client Sample ID: UG-20-GW Lab Sample ID: 320-82778-2

Date Collected: 12/10/21 11:30 **Matrix: Water**
Date Received: 12/10/21 14:20

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			262.1 mL	10.0 mL	552651	12/21/21 04:34	EG	TAL SAC
Total/NA	Analysis	EPA 537(Mod)		1			554176	12/27/21 15:13	K1S	TAL SAC

Client Sample ID: FB-5-121021 Lab Sample ID: 320-82778-3

Date Collected: 12/10/21 12:00 **Matrix: Water**
Date Received: 12/10/21 14:20

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			270.4 mL	10.0 mL	551851	12/17/21 12:51	DVC	TAL SAC
Total/NA	Analysis	EPA 537(Mod)		1			552904	12/22/21 00:22	RS1	TAL SAC

Client Sample ID: UG-1-GW Lab Sample ID: 320-82778-4

Date Collected: 12/10/21 13:35 **Matrix: Water**
Date Received: 12/10/21 14:20

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			256.5 mL	10.0 mL	552651	12/21/21 04:34	EG	TAL SAC
Total/NA	Analysis	EPA 537(Mod)		1			554176	12/27/21 15:23	K1S	TAL SAC

Laboratory References:

TAL SAC = Eurofins TestAmerica, Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600

Accreditation/Certification Summary

Client: Woodard & Curran, Inc.
Project/Site: SJC PFAS Phase 2

Job ID: 320-82778-1

Laboratory: Eurofins TestAmerica, Sacramento

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	Expiration Date
California	State	2897	01-31-22

Method Summary

Client: Woodard & Curran, Inc.
Project/Site: SJC PFAS Phase 2

Job ID: 320-82778-1

Method	Method Description	Protocol	Laboratory
EPA 537(Mod)	PFAS for QSM 5.3, Table B-15	EPA	TAL SAC
3535	Solid-Phase Extraction (SPE)	SW846	TAL SAC

Protocol References:

EPA = US Environmental Protection Agency

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL SAC = Eurofins TestAmerica, Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600

Sample Summary

Client: Woodard & Curran, Inc.
Project/Site: SJC PFAS Phase 2

Job ID: 320-82778-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
320-82778-1	UG-2-GW	Water	12/10/21 11:30	12/10/21 14:20
320-82778-2	UG-20-GW	Water	12/10/21 11:30	12/10/21 14:20
320-82778-3	FB-5-121021	Water	12/10/21 12:00	12/10/21 14:20
320-82778-4	UG-1-GW	Water	12/10/21 13:35	12/10/21 14:20

Address Eurofins TestAmerica West Sacramento
880 Riverside Pkwy
West Sacramento, CA 95576

Chain of Custody Record

574605 eurofins | Environment Testing TestAmerica

320-82778

Regulatory Program ☐ DW ☐ NPDES ☐ RCRA ☐ Other

TAL-8210

Client Contact	Project Manager: Jim Strandberg	Site Contact: Kevin Almestad	Date 12/10/2021	COC No:	
Company Name Woodard & Curran	Tel/Email Jstrandberg@woodardcurran.com	Lab Contact: Linda Laver	Carrier: Drop off	1 of 1 COCs	
Address: 2175 N California Blvd, ste 315	**Analysis Turnaround Time**			Sampler:	
City/State/Zip: Walnut Creek, CA 94596	☐ CALENDAR DAYS ☒ WORKING DAYS			**For Lab Use Only**	
Phone (925)-627-4100	TAT if different from Below ______			Walk-in Client:	
Fax. (925)-627-4101	☒ 2 weeks			Lab Sampling	
Project Name SSC PFAS Phase 2	☐ 1 week				
Site: San Jose Airport	☐ 2 days			Job / SDG No	
PO# 0232401 07	☐ 1 day				

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y / N)	Perform MS / MSD (Y / N)	PFAS (23)	Sample Specific Notes
UG-2-GW	12/10/2021	1130	G	W	2			X	Slightly turbid
UG-20-GW	↓	1130	↓	↓	↓			↓	Slightly turbid
FB-5-121021	↓	1200	↓	↓	↓			↓	
UG-1-GW	↓	1335	↓	↓	↓			↓	

320-82778 Chain of Custody

Preservation Used: 1= Ice, 2= HCl 3= H2SO4; 4=HNO3, 5=NaOH, 6= Other ______

Possible Hazard Identification
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample

☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☒ Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

☐ Return to Client ☒ Disposal by Lab ☐ Archive for ______ Months

5 2ºC

Special Instructions/QC Requirements & Comments Standard TAT

Custody Seals Intact: ☐ Yes ☐ No	Custody Seal No		Cooler Temp. (°C): Obs'd ______ Corr'd ______		Therm ID No. ______
Relinquished by:	Company: Woodard & Curran	Date/Time: 12/10/21 1420	Received by: John Muller	Company: ETA ST	Date/Time: 12-10-21 1420
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company:	Date/Time:

Eurofins TestAmerica, Sacramento
880 Riverside Parkway
West Sacramento, CA 95605
Phone: 916-373-5600 Fax: 916-372-1059

Chain of Custody Record

eurofins Environment Testing America

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Laver, Linda C.	Carrier Tracking No(s):	COC No: 320-252607.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: Linda.Laver@Eurofinset.com	State of Origin: California	Page: Page 1 of 1
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): State - California		Job #: 320-82778-1

Address: 880 Riverside Parkway, ,	**Due Date Requested:** 12/23/2021
City: West Sacramento	**TAT Requested (days):**
State, Zip: CA, 95605	
Phone: 916-373-5600(Tel) 916-372-1059(Fax)	PO #:
Email:	WO #:
Project Name: PFAS, San Jose Airport	Project #: 32019160
Site:	SSOW#:

Preservation Codes:

A - HCL
B - NaOH
C - Zn Acetate
D - Nitric Acid
E - NaHSO4
F - MeOH
G - Amchlor
H - Ascorbic Acid
I - Ice
J - DI Water
K - EDTA
L - EDA
M - Hexane
N - None
O - AsNaO2
P - Na2O4S
Q - Na2SO3
R - Na2S2O3
S - H2SO4
T - TSP Dodecahydrate
U - Acetone
V - MCAA
W - pH 4-5
Z - other (specify)

Other:

Analysis Requested

Sample Identification - Client ID (Lab ID)	**Sample Date**	**Sample Time**	**Sample Type (C=comp, G=grab)**	**Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)**	**Field Filtered Sample (Yes or No)**	**Perform MS/MSD (Yes or No)**	**PFC_IDA_B15/3535_PFC CA-DWQ 23 Required**	**Total Number of containers**	**Special Instructions/Note:**
			Preservation Code:						
UG-2-GW (320-82778-1)	12/10/21	11:30 Pacific		Water			X	2	
UG-20-GW (320-82778-2)	12/10/21	11:30 Pacific		Water			X	2	
FB-5-121021 (320-82778-3)	12/10/21	12:00 Pacific		Water			X	2	
UG-1-GW (320-82778-4)	12/10/21	13:35 Pacific		Water			X	2	

Note: Since laboratory accreditations are subject to change, Eurofins TestAmerica places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins TestAmerica attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said complicance to Eurofins TestAmerica.

Possible Hazard Identification *Unconfirmed*	***Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)*** ☐ *Return To Client* ☐ *Disposal By Lab* ☐ *Archive For* ______ *Months*
Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2	Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time: 12-10-21	Company SJ	Received by:	Date/Time: 12-10-21 16:00	Company DCS
Relinquished by:	Date/Time: 12-10-21 19.15	Company DCS	Received by:	Date/Time: 12-10-21 / 19:15	Company EETSAC
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks: 0.6

Ver: 06/08/2021

Login Sample Receipt Checklist

Client: Woodard & Curran, Inc.

Job Number: 320-82778-1

Login Number: 82778
List Number: 1
Creator: Mullen, Joan

List Source: Eurofins TestAmerica, Sacramento

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	N/A	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: Woodard & Curran, Inc.

Job Number: 320-82778-1

Login Number: 82778

List Source: Eurofins TestAmerica, Sacramento

List Number: 2

Creator: Simmons, Jason C

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	N/A	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	0.6c
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	False	Received project as a subcontract.
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

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ANALYTICAL REPORT

Eurofins TestAmerica, Sacramento
880 Riverside Parkway
West Sacramento, CA 95605
Tel: (916)373-5600

Laboratory Job ID: 320-82845-1
Client Project/Site: SJC PFAS Phase 2

For:
Woodard & Curran, Inc.
2175 North California Blvd.
Suite 315
Walnut Creek, California 94596

Attn: Kevin Almestad

Linda C. Laver

Authorized for release by:
12/29/2021 1:51:28 PM

Linda C. Laver, Senior Project Manager
(916)374-4362
Linda.Laver@Eurofinset.com

The test results in this report meet all 2003 NELAC, 2009 TNI, and 2016 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

Table of Contents

Qualifiers

LCMS

Qualifier	Qualifier Description
*5-	Isotope dilution analyte is outside acceptance limits, low biased.
*5+	Isotope dilution analyte is outside acceptance limits, high biased.
I	Value is EMPC (estimated maximum possible concentration).
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Case Narrative

Job ID: 320-82845-1

Laboratory: Eurofins TestAmerica, Sacramento

Narrative

Job Narrative
320-82845-1

Receipt
The samples were received on 12/13/2021 1:35 PM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 6.0º C.

LCMS
Method EPA 537(Mod): Results for samples L8/9-SW (320-82845-1), L8/9-SW-1 (320-82845-2), L10-SW (320-82845-4) and L10-SED (320-82845-5) were reported from the analysis of a diluted extract due to high concentration of the target analyte in the analysis of the undiluted extract. The dilution factor was applied to the labeled internal standard area counts and these area counts were within acceptance limits

Method EPA 537(Mod): The "I" qualifier means the transition mass ratio for the indicated analyte was above the established ratio limits. The qualitative identification of the analyte has some degree of uncertainty, and the reported value may have some high bias. However, analyst judgment was used to positively identify the analyte. L8/9-SW (320-82845-1), L10-SW (320-82845-4)

Method EPA 537(Mod): Isotope Dilution Analyte (IDA) recovery is above the method recommended limit for the following samples: L8/9-SW (320-82845-1), L8/9-SW-1 (320-82845-2) and L10-SW (320-82845-4). Quantitation by isotope dilution generally precludes any adverse effect on data quality due to elevated IDA recoveries.

Method EPA 537(Mod): Isotope Dilution Analyte (IDA) recovery for M2 6:2 FTS is above the method recommended limit due to the high concentration of the target analyte 6:2 FTS present in the following sample even at a 50X dilution: L10-SW (320-82845-4-DL). This may result in a low bias result for 6:2 FTS in the sample. Client was notified and approved the data to be reported.

Method EPA 537(Mod): The Isotope Dilution Analyte (IDA) recovery is below the method recommended limit in the following sample: L10-SED (320-82845-5). Generally, data quality is not considered affected if the IDA signal-to-noise ratio is greater than 10:1, which is achieved for all IDA in the sample(s).

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

General Chemistry
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Organic Prep
Method 3535: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 320-551094.

Method 3535: The following samples were yellow and contained a thin layer of sediment at the bottom of the bottle prior to extraction, and were still yellow after extraction: L8/9-SW (320-82845-1), L8/9-SW-1 (320-82845-2) and L10-SW (320-82845-4).

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Detection Summary

Client: Woodard & Curran, Inc.
Project/Site: SJC PFAS Phase 2

Job ID: 320-82845-1

Client Sample ID: L8/9-SW — Lab Sample ID: 320-82845-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	210		91	44	ng/L	20		EPA 537(Mod)	Total/NA
Perfluoropentanoic acid (PFPeA)	670		37	9.0	ng/L	20		EPA 537(Mod)	Total/NA
Perfluorohexanoic acid (PFHxA)	650		37	11	ng/L	20		EPA 537(Mod)	Total/NA
Perfluoroheptanoic acid (PFHpA)	170		37	4.6	ng/L	20		EPA 537(Mod)	Total/NA
Perfluorooctanoic acid (PFOA)	73		37	16	ng/L	20		EPA 537(Mod)	Total/NA
Perfluorononanoic acid (PFNA)	28	J	37	4.9	ng/L	20		EPA 537(Mod)	Total/NA
Perfluorodecanoic acid (PFDA)	98		37	5.7	ng/L	20		EPA 537(Mod)	Total/NA
Perfluoroundecanoic acid (PFUnA)	58	I	37	20	ng/L	20		EPA 537(Mod)	Total/NA
Perfluorododecanoic acid (PFDoA)	43	I	37	10	ng/L	20		EPA 537(Mod)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	12	J	37	10	ng/L	20		EPA 537(Mod)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	100		37	9.9	ng/L	20		EPA 537(Mod)	Total/NA
6:2 FTS	3200		91	46	ng/L	20		EPA 537(Mod)	Total/NA
8:2 FTS	970		37	8.4	ng/L	20		EPA 537(Mod)	Total/NA

Client Sample ID: L8/9-SW-1 — Lab Sample ID: 320-82845-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	200		4.6	2.2	ng/L	1		EPA 537(Mod)	Total/NA
Perfluoroheptanoic acid (PFHpA)	150		1.8	0.23	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorooctanoic acid (PFOA)	68		1.8	0.78	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorononanoic acid (PFNA)	27		1.8	0.25	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorodecanoic acid (PFDA)	91		1.8	0.29	ng/L	1		EPA 537(Mod)	Total/NA
Perfluoroundecanoic acid (PFUnA)	49		1.8	1.0	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorododecanoic acid (PFDoA)	40		1.8	0.51	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorotridecanoic acid (PFTrDA)	9.5		1.8	1.2	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorotetradecanoic acid (PFTeA)	8.6		1.8	0.67	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	1.7	J	1.8	0.18	ng/L	1		EPA 537(Mod)	Total/NA
Perfluoropentanesulfonic acid (PFPeS)	1.5	J	1.8	0.28	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	15		1.8	0.53	ng/L	1		EPA 537(Mod)	Total/NA
Perfluoroheptanesulfonic Acid (PFHpS)	0.80	J	1.8	0.18	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	100		1.8	0.50	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorooctanesulfonamide (FOSA)	0.92	J	1.8	0.90	ng/L	1		EPA 537(Mod)	Total/NA
4:2 FTS	2.6		1.8	0.22	ng/L	1		EPA 537(Mod)	Total/NA
Perfluoropentanoic acid (PFPeA) - DL	750		37	9.0	ng/L	20		EPA 537(Mod)	Total/NA
Perfluorohexanoic acid (PFHxA) - DL	580		37	11	ng/L	20		EPA 537(Mod)	Total/NA
6:2 FTS - DL	4400		92	46	ng/L	20		EPA 537(Mod)	Total/NA
8:2 FTS - DL	1100		37	8.5	ng/L	20		EPA 537(Mod)	Total/NA

Client Sample ID: EB-1-SW — Lab Sample ID: 320-82845-3

No Detections.

Client Sample ID: L10-SW — Lab Sample ID: 320-82845-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluoroheptanoic acid (PFHpA)	180		1.9	0.23	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorooctanoic acid (PFOA)	240		1.9	0.79	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorononanoic acid (PFNA)	42		1.9	0.25	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorodecanoic acid (PFDA)	97		1.9	0.29	ng/L	1		EPA 537(Mod)	Total/NA
Perfluoroundecanoic acid (PFUnA)	15		1.9	1.0	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorododecanoic acid (PFDoA)	17		1.9	0.51	ng/L	1		EPA 537(Mod)	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: L10-SW (Continued) Lab Sample ID: 320-82845-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorotridecanoic acid (PFTrDA)	2.4		1.9	1.2	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorotetradecanoic acid (PFTeA)	2.8		1.9	0.68	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	43		1.9	0.19	ng/L	1		EPA 537(Mod)	Total/NA
Perfluoropentanesulfonic acid (PFPeS)	48		1.9	0.28	ng/L	1		EPA 537(Mod)	Total/NA
Perfluoroheptanesulfonic Acid (PFHpS)	24		1.9	0.18	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorodecanesulfonic acid (PFDS)	2.5		1.9	0.30	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorooctanesulfonamide (FOSA)	9.4		1.9	0.92	ng/L	1		EPA 537(Mod)	Total/NA
NMeFOSAA	1.6	J I	4.7	1.1	ng/L	1		EPA 537(Mod)	Total/NA
4:2 FTS	6.4		1.9	0.22	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorobutanoic acid (PFBA) - DL	480		230	110	ng/L	50		EPA 537(Mod)	Total/NA
Perfluoropentanoic acid (PFPeA) - DL	1300		93	23	ng/L	50		EPA 537(Mod)	Total/NA
Perfluorohexanoic acid (PFHxA) - DL	1200		93	27	ng/L	50		EPA 537(Mod)	Total/NA
Perfluorohexanesulfonic acid (PFHxS) - DL	510		93	27	ng/L	50		EPA 537(Mod)	Total/NA
Perfluorooctanesulfonic acid (PFOS) - DL	1900		93	25	ng/L	50		EPA 537(Mod)	Total/NA
6:2 FTS - DL	6400		230	120	ng/L	50		EPA 537(Mod)	Total/NA
8:2 FTS - DL	1500		93	21	ng/L	50		EPA 537(Mod)	Total/NA

Client Sample ID: L10-SED Lab Sample ID: 320-82845-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	0.23	J	0.24	0.055	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluoropentanoic acid (PFPeA)	0.48		0.24	0.049	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluorohexanoic acid (PFHxA)	1.1		0.24	0.037	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluoroheptanoic acid (PFHpA)	0.12	J	0.24	0.045	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluorooctanoic acid (PFOA)	0.51		0.24	0.063	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluorononanoic acid (PFNA)	0.21	J	0.24	0.026	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluorodecanoic acid (PFDA)	2.4		0.24	0.057	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluoroundecanoic acid (PFUnA)	1.5		0.24	0.050	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluorododecanoic acid (PFDoA)	7.8		0.24	0.036	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluorotridecanoic acid (PFTrDA)	3.0		0.24	0.025	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluorotetradecanoic acid (PFTeA)	6.1		0.24	0.044	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluoropentanesulfonic acid (PFPeS)	0.060	J	0.24	0.044	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	0.63		0.24	0.035	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	6.4		0.24	0.051	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluorodecanesulfonic acid (PFDS)	0.72		0.24	0.062	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluorooctanesulfonamide (FOSA)	0.44		0.24	0.039	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
NMeFOSAA	0.11	J	0.24	0.028	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
6:2 FTS	14		0.24	0.032	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
8:2 FTS - DL	34		2.4	0.42	ug/Kg	10	☼	EPA 537(Mod)	Total/NA

Client Sample Results

Client Sample ID: L8/9-SW

Lab Sample ID: 320-82845-1

Date Collected: 12/13/21 10:20

Matrix: Water

Date Received: 12/13/21 13:35

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**210**		91	44	ng/L		12/15/21 12:37	12/21/21 15:41	20
Perfluoropentanoic acid (PFPeA)	**670**		37	9.0	ng/L		12/15/21 12:37	12/21/21 15:41	20
Perfluorohexanoic acid (PFHxA)	**650**		37	11	ng/L		12/15/21 12:37	12/21/21 15:41	20
Perfluoroheptanoic acid (PFHpA)	**170**		37	4.6	ng/L		12/15/21 12:37	12/21/21 15:41	20
Perfluorooctanoic acid (PFOA)	**73**		37	16	ng/L		12/15/21 12:37	12/21/21 15:41	20
Perfluorononanoic acid (PFNA)	**28**	**J**	37	4.9	ng/L		12/15/21 12:37	12/21/21 15:41	20
Perfluorodecanoic acid (PFDA)	**98**		37	5.7	ng/L		12/15/21 12:37	12/21/21 15:41	20
Perfluoroundecanoic acid (PFUnA)	**58**	**I**	37	20	ng/L		12/15/21 12:37	12/21/21 15:41	20
Perfluorododecanoic acid (PFDoA)	**43**	**I**	37	10	ng/L		12/15/21 12:37	12/21/21 15:41	20
Perfluorotridecanoic acid (PFTrDA)	ND		37	24	ng/L		12/15/21 12:37	12/21/21 15:41	20
Perfluorotetradecanoic acid (PFTeA)	ND		37	13	ng/L		12/15/21 12:37	12/21/21 15:41	20
Perfluorobutanesulfonic acid (PFBS)	ND		37	3.7	ng/L		12/15/21 12:37	12/21/21 15:41	20
Perfluoropentanesulfonic acid (PFPeS)	ND		37	5.5	ng/L		12/15/21 12:37	12/21/21 15:41	20
Perfluorohexanesulfonic acid (PFHxS)	**12**	**J**	37	10	ng/L		12/15/21 12:37	12/21/21 15:41	20
Perfluoroheptanesulfonic Acid (PFHpS)	ND		37	3.5	ng/L		12/15/21 12:37	12/21/21 15:41	20
Perfluorooctanesulfonic acid (PFOS)	**100**		37	9.9	ng/L		12/15/21 12:37	12/21/21 15:41	20
Perfluorodecanesulfonic acid (PFDS)	ND		37	5.9	ng/L		12/15/21 12:37	12/21/21 15:41	20
Perfluorooctanesulfonamide (FOSA)	ND		37	18	ng/L		12/15/21 12:37	12/21/21 15:41	20
NEtFOSAA	ND		91	24	ng/L		12/15/21 12:37	12/21/21 15:41	20
NMeFOSAA	ND		91	22	ng/L		12/15/21 12:37	12/21/21 15:41	20
4:2 FTS	ND		37	4.4	ng/L		12/15/21 12:37	12/21/21 15:41	20
6:2 FTS	**3200**		91	46	ng/L		12/15/21 12:37	12/21/21 15:41	20
8:2 FTS	**970**		37	8.4	ng/L		12/15/21 12:37	12/21/21 15:41	20

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*98*		*50 - 150*	*12/15/21 12:37*	*12/21/21 15:41*	*20*
13C5 PFPeA	*108*		*50 - 150*	*12/15/21 12:37*	*12/21/21 15:41*	*20*
13C2 PFHxA	*103*		*50 - 150*	*12/15/21 12:37*	*12/21/21 15:41*	*20*
13C4 PFHpA	*109*		*50 - 150*	*12/15/21 12:37*	*12/21/21 15:41*	*20*
13C4 PFOA	*103*		*50 - 150*	*12/15/21 12:37*	*12/21/21 15:41*	*20*
13C5 PFNA	*117*		*50 - 150*	*12/15/21 12:37*	*12/21/21 15:41*	*20*
13C2 PFDA	*100*		*50 - 150*	*12/15/21 12:37*	*12/21/21 15:41*	*20*
13C2 PFUnA	*94*		*50 - 150*	*12/15/21 12:37*	*12/21/21 15:41*	*20*
13C2 PFDoA	*94*		*50 - 150*	*12/15/21 12:37*	*12/21/21 15:41*	*20*
13C2 PFTeDA	*70*		*50 - 150*	*12/15/21 12:37*	*12/21/21 15:41*	*20*
13C3 PFBS	*109*		*50 - 150*	*12/15/21 12:37*	*12/21/21 15:41*	*20*
18O2 PFHxS	*110*		*50 - 150*	*12/15/21 12:37*	*12/21/21 15:41*	*20*
13C4 PFOS	*117*		*50 - 150*	*12/15/21 12:37*	*12/21/21 15:41*	*20*
13C8 FOSA	*89*		*50 - 150*	*12/15/21 12:37*	*12/21/21 15:41*	*20*
M2-4:2 FTS	*95*		*50 - 150*	*12/15/21 12:37*	*12/21/21 15:41*	*20*
M2-6:2 FTS	*212*	**5+*	*50 - 150*	*12/15/21 12:37*	*12/21/21 15:41*	*20*
M2-8:2 FTS	*125*		*50 - 150*	*12/15/21 12:37*	*12/21/21 15:41*	*20*
d5-NEtFOSAA	*98*		*50 - 150*	*12/15/21 12:37*	*12/21/21 15:41*	*20*
d3-NMeFOSAA	*91*		*50 - 150*	*12/15/21 12:37*	*12/21/21 15:41*	*20*

Client Sample Results

Client: Woodard & Curran, Inc.
Project/Site: SJC PFAS Phase 2

Job ID: 320-82845-1

Client Sample ID: L8/9-SW-1

Date Collected: 12/13/21 10:20
Date Received: 12/13/21 13:35

Lab Sample ID: 320-82845-2
Matrix: Water

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**200**		4.6	2.2	ng/L		12/15/21 12:37	12/16/21 16:27	1
Perfluoroheptanoic acid (PFHpA)	**150**		1.8	0.23	ng/L		12/15/21 12:37	12/16/21 16:27	1
Perfluorooctanoic acid (PFOA)	**68**		1.8	0.78	ng/L		12/15/21 12:37	12/16/21 16:27	1
Perfluorononanoic acid (PFNA)	**27**		1.8	0.25	ng/L		12/15/21 12:37	12/16/21 16:27	1
Perfluorodecanoic acid (PFDA)	**91**		1.8	0.29	ng/L		12/15/21 12:37	12/16/21 16:27	1
Perfluoroundecanoic acid (PFUnA)	**49**		1.8	1.0	ng/L		12/15/21 12:37	12/16/21 16:27	1
Perfluorododecanoic acid (PFDoA)	**40**		1.8	0.51	ng/L		12/15/21 12:37	12/16/21 16:27	1
Perfluorotridecanoic acid (PFTrDA)	**9.5**		1.8	1.2	ng/L		12/15/21 12:37	12/16/21 16:27	1
Perfluorotetradecanoic acid (PFTeA)	**8.6**		1.8	0.67	ng/L		12/15/21 12:37	12/16/21 16:27	1
Perfluorobutanesulfonic acid (PFBS)	**1.7**	**J**	1.8	0.18	ng/L		12/15/21 12:37	12/16/21 16:27	1
Perfluoropentanesulfonic acid (PFPeS)	**1.5**	**J**	1.8	0.28	ng/L		12/15/21 12:37	12/16/21 16:27	1
Perfluorohexanesulfonic acid (PFHxS)	**15**		1.8	0.53	ng/L		12/15/21 12:37	12/16/21 16:27	1
Perfluoroheptanesulfonic Acid (PFHpS)	**0.80**	**J**	1.8	0.18	ng/L		12/15/21 12:37	12/16/21 16:27	1
Perfluorooctanesulfonic acid (PFOS)	**100**		1.8	0.50	ng/L		12/15/21 12:37	12/16/21 16:27	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.8	0.30	ng/L		12/15/21 12:37	12/16/21 16:27	1
Perfluorooctanesulfonamide (FOSA)	**0.92**	**J**	1.8	0.90	ng/L		12/15/21 12:37	12/16/21 16:27	1
NEtFOSAA	ND		4.6	1.2	ng/L		12/15/21 12:37	12/16/21 16:27	1
NMeFOSAA	ND		4.6	1.1	ng/L		12/15/21 12:37	12/16/21 16:27	1
4:2 FTS	**2.6**		1.8	0.22	ng/L		12/15/21 12:37	12/16/21 16:27	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*65*		*50 - 150*	*12/15/21 12:37*	*12/16/21 16:27*	*1*
13C4 PFHpA	*102*		*50 - 150*	*12/15/21 12:37*	*12/16/21 16:27*	*1*
13C4 PFOA	*104*		*50 - 150*	*12/15/21 12:37*	*12/16/21 16:27*	*1*
13C5 PFNA	*126*		*50 - 150*	*12/15/21 12:37*	*12/16/21 16:27*	*1*
13C2 PFDA	*115*		*50 - 150*	*12/15/21 12:37*	*12/16/21 16:27*	*1*
13C2 PFUnA	*118*		*50 - 150*	*12/15/21 12:37*	*12/16/21 16:27*	*1*
13C2 PFDoA	*104*		*50 - 150*	*12/15/21 12:37*	*12/16/21 16:27*	*1*
13C2 PFTeDA	*96*		*50 - 150*	*12/15/21 12:37*	*12/16/21 16:27*	*1*
13C3 PFBS	*114*		*50 - 150*	*12/15/21 12:37*	*12/16/21 16:27*	*1*
18O2 PFHxS	*101*		*50 - 150*	*12/15/21 12:37*	*12/16/21 16:27*	*1*
13C4 PFOS	*114*		*50 - 150*	*12/15/21 12:37*	*12/16/21 16:27*	*1*
13C8 FOSA	*95*		*50 - 150*	*12/15/21 12:37*	*12/16/21 16:27*	*1*
M2-4:2 FTS	*185*	**5+*	*50 - 150*	*12/15/21 12:37*	*12/16/21 16:27*	*1*
d5-NEtFOSAA	*122*		*50 - 150*	*12/15/21 12:37*	*12/16/21 16:27*	*1*
d3-NMeFOSAA	*111*		*50 - 150*	*12/15/21 12:37*	*12/16/21 16:27*	*1*

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15 - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluoropentanoic acid (PFPeA)	**750**		37	9.0	ng/L		12/15/21 12:37	12/21/21 15:51	20
Perfluorohexanoic acid (PFHxA)	**580**		37	11	ng/L		12/15/21 12:37	12/21/21 15:51	20
6:2 FTS	**4400**		92	46	ng/L		12/15/21 12:37	12/21/21 15:51	20
8:2 FTS	**1100**		37	8.5	ng/L		12/15/21 12:37	12/21/21 15:51	20

Client Sample ID: L8/9-SW-1
Lab Sample ID: 320-82845-2
Date Collected: 12/13/21 10:20
Matrix: Water
Date Received: 12/13/21 13:35

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C5 PFPeA	92		50 - 150	12/15/21 12:37	12/21/21 15:51	20
13C2 PFHxA	104		50 - 150	12/15/21 12:37	12/21/21 15:51	20
M2-6:2 FTS	147		50 - 150	12/15/21 12:37	12/21/21 15:51	20
M2-8:2 FTS	108		50 - 150	12/15/21 12:37	12/21/21 15:51	20

Client Sample ID: EB-1-SW **Lab Sample ID: 320-82845-3**
Date Collected: 12/13/21 10:10 **Matrix: Water**
Date Received: 12/13/21 13:35

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		4.5	2.1	ng/L		12/15/21 12:37	12/16/21 16:37	1
Perfluoropentanoic acid (PFPeA)	ND		1.8	0.44	ng/L		12/15/21 12:37	12/16/21 16:37	1
Perfluorohexanoic acid (PFHxA)	ND		1.8	0.52	ng/L		12/15/21 12:37	12/16/21 16:37	1
Perfluoroheptanoic acid (PFHpA)	ND		1.8	0.22	ng/L		12/15/21 12:37	12/16/21 16:37	1
Perfluorooctanoic acid (PFOA)	ND		1.8	0.76	ng/L		12/15/21 12:37	12/16/21 16:37	1
Perfluorononanoic acid (PFNA)	ND		1.8	0.24	ng/L		12/15/21 12:37	12/16/21 16:37	1
Perfluorodecanoic acid (PFDA)	ND		1.8	0.28	ng/L		12/15/21 12:37	12/16/21 16:37	1
Perfluoroundecanoic acid (PFUnA)	ND		1.8	0.98	ng/L		12/15/21 12:37	12/16/21 16:37	1
Perfluorododecanoic acid (PFDoA)	ND		1.8	0.49	ng/L		12/15/21 12:37	12/16/21 16:37	1
Perfluorotridecanoic acid (PFTrDA)	ND		1.8	1.2	ng/L		12/15/21 12:37	12/16/21 16:37	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.8	0.65	ng/L		12/15/21 12:37	12/16/21 16:37	1
Perfluorobutanesulfonic acid (PFBS)	ND		1.8	0.18	ng/L		12/15/21 12:37	12/16/21 16:37	1
Perfluoropentanesulfonic acid (PFPeS)	ND		1.8	0.27	ng/L		12/15/21 12:37	12/16/21 16:37	1
Perfluorohexanesulfonic acid (PFHxS)	ND		1.8	0.51	ng/L		12/15/21 12:37	12/16/21 16:37	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		1.8	0.17	ng/L		12/15/21 12:37	12/16/21 16:37	1
Perfluorooctanesulfonic acid (PFOS)	ND		1.8	0.48	ng/L		12/15/21 12:37	12/16/21 16:37	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.8	0.29	ng/L		12/15/21 12:37	12/16/21 16:37	1
Perfluorooctanesulfonamide (FOSA)	ND		1.8	0.88	ng/L		12/15/21 12:37	12/16/21 16:37	1
NEtFOSAA	ND		4.5	1.2	ng/L		12/15/21 12:37	12/16/21 16:37	1
NMeFOSAA	ND		4.5	1.1	ng/L		12/15/21 12:37	12/16/21 16:37	1
4:2 FTS	ND		1.8	0.21	ng/L		12/15/21 12:37	12/16/21 16:37	1
6:2 FTS	ND		4.5	2.2	ng/L		12/15/21 12:37	12/16/21 16:37	1
8:2 FTS	ND		1.8	0.41	ng/L		12/15/21 12:37	12/16/21 16:37	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*88*		*50 - 150*	*12/15/21 12:37*	*12/16/21 16:37*	*1*
13C5 PFPeA	*83*		*50 - 150*	*12/15/21 12:37*	*12/16/21 16:37*	*1*
13C2 PFHxA	*82*		*50 - 150*	*12/15/21 12:37*	*12/16/21 16:37*	*1*
13C4 PFHpA	*87*		*50 - 150*	*12/15/21 12:37*	*12/16/21 16:37*	*1*
13C4 PFOA	*97*		*50 - 150*	*12/15/21 12:37*	*12/16/21 16:37*	*1*
13C5 PFNA	*96*		*50 - 150*	*12/15/21 12:37*	*12/16/21 16:37*	*1*
13C2 PFDA	*94*		*50 - 150*	*12/15/21 12:37*	*12/16/21 16:37*	*1*
13C2 PFUnA	*93*		*50 - 150*	*12/15/21 12:37*	*12/16/21 16:37*	*1*
13C2 PFDoA	*96*		*50 - 150*	*12/15/21 12:37*	*12/16/21 16:37*	*1*
13C2 PFTeDA	*98*		*50 - 150*	*12/15/21 12:37*	*12/16/21 16:37*	*1*
13C3 PFBS	*90*		*50 - 150*	*12/15/21 12:37*	*12/16/21 16:37*	*1*
18O2 PFHxS	*86*		*50 - 150*	*12/15/21 12:37*	*12/16/21 16:37*	*1*
13C4 PFOS	*92*		*50 - 150*	*12/15/21 12:37*	*12/16/21 16:37*	*1*
13C8 FOSA	*84*		*50 - 150*	*12/15/21 12:37*	*12/16/21 16:37*	*1*
M2-4:2 FTS	*100*		*50 - 150*	*12/15/21 12:37*	*12/16/21 16:37*	*1*
M2-6:2 FTS	*94*		*50 - 150*	*12/15/21 12:37*	*12/16/21 16:37*	*1*
M2-8:2 FTS	*102*		*50 - 150*	*12/15/21 12:37*	*12/16/21 16:37*	*1*
d5-NEtFOSAA	*102*		*50 - 150*	*12/15/21 12:37*	*12/16/21 16:37*	*1*
d3-NMeFOSAA	*93*		*50 - 150*	*12/15/21 12:37*	*12/16/21 16:37*	*1*

Client Sample Results

Client Sample ID: L10-SW

Lab Sample ID: 320-82845-4

Date Collected: 12/13/21 10:50

Matrix: Water

Date Received: 12/13/21 13:35

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluoroheptanoic acid (PFHpA)	**180**		1.9	0.23	ng/L		12/15/21 12:37	12/16/21 16:48	1
Perfluorooctanoic acid (PFOA)	**240**		1.9	0.79	ng/L		12/15/21 12:37	12/16/21 16:48	1
Perfluorononanoic acid (PFNA)	**42**		1.9	0.25	ng/L		12/15/21 12:37	12/16/21 16:48	1
Perfluorodecanoic acid (PFDA)	**97**		1.9	0.29	ng/L		12/15/21 12:37	12/16/21 16:48	1
Perfluoroundecanoic acid (PFUnA)	**15**		1.9	1.0	ng/L		12/15/21 12:37	12/16/21 16:48	1
Perfluorododecanoic acid (PFDoA)	**17**		1.9	0.51	ng/L		12/15/21 12:37	12/16/21 16:48	1
Perfluorotridecanoic acid (PFTrDA)	**2.4**		1.9	1.2	ng/L		12/15/21 12:37	12/16/21 16:48	1
Perfluorotetradecanoic acid (PFTeA)	**2.8**		1.9	0.68	ng/L		12/15/21 12:37	12/16/21 16:48	1
Perfluorobutanesulfonic acid (PFBS)	**43**		1.9	0.19	ng/L		12/15/21 12:37	12/16/21 16:48	1
Perfluoropentanesulfonic acid (PFPeS)	**48**		1.9	0.28	ng/L		12/15/21 12:37	12/16/21 16:48	1
Perfluoroheptanesulfonic Acid (PFHpS)	**24**		1.9	0.18	ng/L		12/15/21 12:37	12/16/21 16:48	1
Perfluorodecanesulfonic acid (PFDS)	**2.5**		1.9	0.30	ng/L		12/15/21 12:37	12/16/21 16:48	1
Perfluorooctanesulfonamide (FOSA)	**9.4**		1.9	0.92	ng/L		12/15/21 12:37	12/16/21 16:48	1
NEtFOSAA	ND		4.7	1.2	ng/L		12/15/21 12:37	12/16/21 16:48	1
NMeFOSAA	**1.6**	**J I**	4.7	1.1	ng/L		12/15/21 12:37	12/16/21 16:48	1
4:2 FTS	**6.4**		1.9	0.22	ng/L		12/15/21 12:37	12/16/21 16:48	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFHpA	*107*		*50 - 150*	*12/15/21 12:37*	*12/16/21 16:48*	*1*
13C4 PFOA	*98*		*50 - 150*	*12/15/21 12:37*	*12/16/21 16:48*	*1*
13C5 PFNA	*123*		*50 - 150*	*12/15/21 12:37*	*12/16/21 16:48*	*1*
13C2 PFDA	*118*		*50 - 150*	*12/15/21 12:37*	*12/16/21 16:48*	*1*
13C2 PFUnA	*130*		*50 - 150*	*12/15/21 12:37*	*12/16/21 16:48*	*1*
13C2 PFDoA	*101*		*50 - 150*	*12/15/21 12:37*	*12/16/21 16:48*	*1*
13C2 PFTeDA	*92*		*50 - 150*	*12/15/21 12:37*	*12/16/21 16:48*	*1*
13C3 PFBS	*120*		*50 - 150*	*12/15/21 12:37*	*12/16/21 16:48*	*1*
13C4 PFOS	*117*		*50 - 150*	*12/15/21 12:37*	*12/16/21 16:48*	*1*
13C8 FOSA	*110*		*50 - 150*	*12/15/21 12:37*	*12/16/21 16:48*	*1*
M2-4:2 FTS	*179*	**5+*	*50 - 150*	*12/15/21 12:37*	*12/16/21 16:48*	*1*
d5-NEtFOSAA	*140*		*50 - 150*	*12/15/21 12:37*	*12/16/21 16:48*	*1*
d3-NMeFOSAA	*109*		*50 - 150*	*12/15/21 12:37*	*12/16/21 16:48*	*1*

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15 - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**480**		230	110	ng/L		12/15/21 12:37	12/21/21 16:02	50
Perfluoropentanoic acid (PFPeA)	**1300**		93	23	ng/L		12/15/21 12:37	12/21/21 16:02	50
Perfluorohexanoic acid (PFHxA)	**1200**		93	27	ng/L		12/15/21 12:37	12/21/21 16:02	50
Perfluorohexanesulfonic acid (PFHxS)	**510**		93	27	ng/L		12/15/21 12:37	12/21/21 16:02	50
Perfluorooctanesulfonic acid (PFOS)	**1900**		93	25	ng/L		12/15/21 12:37	12/21/21 16:02	50
6:2 FTS	**6400**		230	120	ng/L		12/15/21 12:37	12/21/21 16:02	50
8:2 FTS	**1500**		93	21	ng/L		12/15/21 12:37	12/21/21 16:02	50

Client Sample Results

Client Sample ID: L10-SW
Lab Sample ID: 320-82845-4
Date Collected: 12/13/21 10:50
Matrix: Water
Date Received: 12/13/21 13:35

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*105*		*50 - 150*	*12/15/21 12:37*	*12/21/21 16:02*	*50*
13C5 PFPeA	*104*		*50 - 150*	*12/15/21 12:37*	*12/21/21 16:02*	*50*
13C2 PFHxA	*124*		*50 - 150*	*12/15/21 12:37*	*12/21/21 16:02*	*50*
18O2 PFHxS	*102*		*50 - 150*	*12/15/21 12:37*	*12/21/21 16:02*	*50*
13C4 PFOS	*132*		*50 - 150*	*12/15/21 12:37*	*12/21/21 16:02*	*50*
M2-6:2 FTS	*307*	**5+*	*50 - 150*	*12/15/21 12:37*	*12/21/21 16:02*	*50*
M2-8:2 FTS	*175*	**5+*	*50 - 150*	*12/15/21 12:37*	*12/21/21 16:02*	*50*

Client Sample Results

Client Sample ID: L10-SED

Date Collected: 12/13/21 11:20
Date Received: 12/13/21 13:35

Lab Sample ID: 320-82845-5

Matrix: Solid
Percent Solids: 79.4

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**0.23**	**J**	0.24	0.055	ug/Kg	☼	12/15/21 04:36	12/18/21 19:00	1
Perfluoropentanoic acid (PFPeA)	**0.48**		0.24	0.049	ug/Kg	☼	12/15/21 04:36	12/18/21 19:00	1
Perfluorohexanoic acid (PFHxA)	**1.1**		0.24	0.037	ug/Kg	☼	12/15/21 04:36	12/18/21 19:00	1
Perfluoroheptanoic acid (PFHpA)	**0.12**	**J**	0.24	0.045	ug/Kg	☼	12/15/21 04:36	12/18/21 19:00	1
Perfluorooctanoic acid (PFOA)	**0.51**		0.24	0.063	ug/Kg	☼	12/15/21 04:36	12/18/21 19:00	1
Perfluorononanoic acid (PFNA)	**0.21**	**J**	0.24	0.026	ug/Kg	☼	12/15/21 04:36	12/18/21 19:00	1
Perfluorodecanoic acid (PFDA)	**2.4**		0.24	0.057	ug/Kg	☼	12/15/21 04:36	12/18/21 19:00	1
Perfluoroundecanoic acid (PFUnA)	**1.5**		0.24	0.050	ug/Kg	☼	12/15/21 04:36	12/18/21 19:00	1
Perfluorododecanoic acid (PFDoA)	**7.8**		0.24	0.036	ug/Kg	☼	12/15/21 04:36	12/18/21 19:00	1
Perfluorotridecanoic acid (PFTrDA)	**3.0**		0.24	0.025	ug/Kg	☼	12/15/21 04:36	12/18/21 19:00	1
Perfluorotetradecanoic acid (PFTeA)	**6.1**		0.24	0.044	ug/Kg	☼	12/15/21 04:36	12/18/21 19:00	1
Perfluorobutanesulfonic acid (PFBS)	ND		0.24	0.045	ug/Kg	☼	12/15/21 04:36	12/18/21 19:00	1
Perfluoropentanesulfonic acid (PFPeS)	**0.060**	**J**	0.24	0.044	ug/Kg	☼	12/15/21 04:36	12/18/21 19:00	1
Perfluorohexanesulfonic acid (PFHxS)	**0.63**		0.24	0.035	ug/Kg	☼	12/15/21 04:36	12/18/21 19:00	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		0.24	0.059	ug/Kg	☼	12/15/21 04:36	12/18/21 19:00	1
Perfluorooctanesulfonic acid (PFOS)	**6.4**		0.24	0.051	ug/Kg	☼	12/15/21 04:36	12/18/21 19:00	1
Perfluorodecanesulfonic acid (PFDS)	**0.72**		0.24	0.062	ug/Kg	☼	12/15/21 04:36	12/18/21 19:00	1
Perfluorooctanesulfonamide (FOSA)	**0.44**		0.24	0.039	ug/Kg	☼	12/15/21 04:36	12/18/21 19:00	1
NEtFOSAA	ND		0.24	0.057	ug/Kg	☼	12/15/21 04:36	12/18/21 19:00	1
NMeFOSAA	**0.11**	**J**	0.24	0.028	ug/Kg	☼	12/15/21 04:36	12/18/21 19:00	1
4:2 FTS	ND		0.24	0.061	ug/Kg	☼	12/15/21 04:36	12/18/21 19:00	1
6:2 FTS	**14**		0.24	0.032	ug/Kg	☼	12/15/21 04:36	12/18/21 19:00	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*80*		*50 - 150*	*12/15/21 04:36*	*12/18/21 19:00*	*1*
13C5 PFPeA	*89*		*50 - 150*	*12/15/21 04:36*	*12/18/21 19:00*	*1*
13C2 PFHxA	*90*		*50 - 150*	*12/15/21 04:36*	*12/18/21 19:00*	*1*
13C4 PFHpA	*99*		*50 - 150*	*12/15/21 04:36*	*12/18/21 19:00*	*1*
13C4 PFOA	*94*		*50 - 150*	*12/15/21 04:36*	*12/18/21 19:00*	*1*
13C5 PFNA	*94*		*50 - 150*	*12/15/21 04:36*	*12/18/21 19:00*	*1*
13C2 PFDA	*88*		*50 - 150*	*12/15/21 04:36*	*12/18/21 19:00*	*1*
13C2 PFUnA	*96*		*50 - 150*	*12/15/21 04:36*	*12/18/21 19:00*	*1*
13C2 PFDoA	*63*		*50 - 150*	*12/15/21 04:36*	*12/18/21 19:00*	*1*
13C2 PFTeDA	*43*	**5-*	*50 - 150*	*12/15/21 04:36*	*12/18/21 19:00*	*1*
13C3 PFBS	*89*		*50 - 150*	*12/15/21 04:36*	*12/18/21 19:00*	*1*
18O2 PFHxS	*78*		*50 - 150*	*12/15/21 04:36*	*12/18/21 19:00*	*1*
13C4 PFOS	*81*		*50 - 150*	*12/15/21 04:36*	*12/18/21 19:00*	*1*
13C8 FOSA	*83*		*50 - 150*	*12/15/21 04:36*	*12/18/21 19:00*	*1*
M2-4:2 FTS	*93*		*50 - 150*	*12/15/21 04:36*	*12/18/21 19:00*	*1*
M2-6:2 FTS	*85*		*50 - 150*	*12/15/21 04:36*	*12/18/21 19:00*	*1*
d5-NEtFOSAA	*84*		*50 - 150*	*12/15/21 04:36*	*12/18/21 19:00*	*1*
d3-NMeFOSAA	*80*		*50 - 150*	*12/15/21 04:36*	*12/18/21 19:00*	*1*

Client Sample ID: L10-SED

Lab Sample ID: 320-82845-5

Date Collected: 12/13/21 11:20

Matrix: Solid

Date Received: 12/13/21 13:35

Percent Solids: 79.4

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15 - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
8:2 FTS	**34**		2.4	0.42	ug/Kg	☼	12/15/21 04:36	12/19/21 21:25	10

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
M2-8:2 FTS	*73*		*50 - 150*	*12/15/21 04:36*	*12/19/21 21:25*	*10*

General Chemistry

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	**20.6**		0.1	0.1	%			12/14/21 16:06	1
Percent Solids	**79.4**		0.1	0.1	%			12/14/21 16:06	1

Isotope Dilution Summary

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

Matrix: Solid **Prep Type: Total/NA**

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	PFBA (50-150)	PFPeA (50-150)	PFHxA (50-150)	C4PFHA (50-150)	PFOA (50-150)	PFNA (50-150)	PFDA (50-150)	PFUnA (50-150)
320-82845-5	L10-SED	80	89	90	99	94	94	88	96
320-82845-5 - DL	L10-SED								
LCS 320-550957/2-A	Lab Control Sample	81	86	93	98	98	92	95	97
MB 320-550957/1-A	Method Blank	69	84	90	99	95	88	89	94

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	PFDoA (50-150)	PFTDA (50-150)	C3PFBS (50-150)	PFHxS (50-150)	PFOS (50-150)	PFOSA (50-150)	M242FTS (50-150)	M262FTS (50-150)
320-82845-5	L10-SED	63	43 *5-	89	78	81	83	93	85
320-82845-5 - DL	L10-SED								
LCS 320-550957/2-A	Lab Control Sample	90	83	93	78	82	87	77	75
MB 320-550957/1-A	Method Blank	88	85	84	76	79	82	72	72

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	M282FTS (50-150)	d5NEFOS (50-150)	d3NMFOS (50-150)
320-82845-5	L10-SED		84	80
320-82845-5 - DL	L10-SED	73		
LCS 320-550957/2-A	Lab Control Sample	77	86	82
MB 320-550957/1-A	Method Blank	74	93	83

Surrogate Legend

PFBA = 13C4 PFBA
PFPeA = 13C5 PFPeA
PFHxA = 13C2 PFHxA
C4PFHA = 13C4 PFHpA
PFOA = 13C4 PFOA
PFNA = 13C5 PFNA
PFDA = 13C2 PFDA
PFUnA = 13C2 PFUnA
PFDoA = 13C2 PFDoA
PFTDA = 13C2 PFTeDA
C3PFBS = 13C3 PFBS
PFHxS = 18O2 PFHxS
PFOS = 13C4 PFOS
PFOSA = 13C8 FOSA
M242FTS = M2-4:2 FTS
M262FTS = M2-6:2 FTS
M282FTS = M2-8:2 FTS
d5NEFOS = d5-NEtFOSAA
d3NMFOS = d3-NMeFOSAA

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

Matrix: Water **Prep Type: Total/NA**

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	PFBA (50-150)	PFPeA (50-150)	PFHxA (50-150)	C4PFHA (50-150)	PFOA (50-150)	PFNA (50-150)	PFDA (50-150)	PFUnA (50-150)
320-82845-1	L8/9-SW	98	108	103	109	103	117	100	94
320-82845-2	L8/9-SW-1	65			102	104	126	115	118
320-82845-2 - DL	L8/9-SW-1		92	104					
320-82845-3	EB-1-SW	88	83	82	87	97	96	94	93

Isotope Dilution Summary

Client: Woodard & Curran, Inc. Job ID: 320-82845-1
Project/Site: SJC PFAS Phase 2

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15 (Continued)

Matrix: Water **Prep Type: Total/NA**

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	**Client Sample ID**	**PFBA (50-150)**	**PFPeA (50-150)**	**PFHxA (50-150)**	**C4PFHA (50-150)**	**PFOA (50-150)**	**PFNA (50-150)**	**PFDA (50-150)**	**PFUnA (50-150)**
320-82845-4	L10-SW				107	98	123	118	130
320-82845-4 - DL	L10-SW	105	104	124					
LCS 320-551094/2-A	Lab Control Sample	91	88	90	98	101	107	102	109
LCS 320-551094/2-A	Lab Control Sample	91	91	92	104	100	95	91	100
LCSD 320-551094/3-A	Lab Control Sample Dup	88	95	87	89	107	102	104	107
LCSD 320-551094/3-A	Lab Control Sample Dup	93	99	97	97	104	98	95	99
MB 320-551094/1-A	Method Blank	94	91	90	100	105	103	99	102
MB 320-551094/1-A	Method Blank	96	95	104	101	107	101	100	107

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	**Client Sample ID**	**PFDoA (50-150)**	**PFTDA (50-150)**	**C3PFBS (50-150)**	**PFHxS (50-150)**	**PFOS (50-150)**	**PFOSA (50-150)**	**M242FTS (50-150)**	**M262FTS (50-150)**
320-82845-1	L8/9-SW	94	70	109	110	117	89	95	212 *5+
320-82845-2	L8/9-SW-1	104	96	114	101	114	95	185 *5+	
320-82845-2 - DL	L8/9-SW-1								147
320-82845-3	EB-1-SW	96	98	90	86	92	84	100	94
320-82845-4	L10-SW	101	92	120		117	110	179 *5+	
320-82845-4 - DL	L10-SW				102	132			307 *5+
LCS 320-551094/2-A	Lab Control Sample	112	110	95	91	101	93	89	101
LCS 320-551094/2-A	Lab Control Sample	85	76	98	95	98	88	109	93
LCSD 320-551094/3-A	Lab Control Sample Dup	103	106	94	87	99	90	97	101
LCSD 320-551094/3-A	Lab Control Sample Dup	91	79	98	94	101	90	99	106
MB 320-551094/1-A	Method Blank	111	112	94	95	100	92	100	99
MB 320-551094/1-A	Method Blank	94	88	106	103	105	92	108	104

		Percent Isotope Dilution Recovery (Acceptance Limits)		
Lab Sample ID	**Client Sample ID**	**M282FTS (50-150)**	**d5NEFOS (50-150)**	**d3NMFOS (50-150)**
320-82845-1	L8/9-SW	125	98	91
320-82845-2	L8/9-SW-1		122	111
320-82845-2 - DL	L8/9-SW-1	108		
320-82845-3	EB-1-SW	102	102	93
320-82845-4	L10-SW		140	109
320-82845-4 - DL	L10-SW	175 *5+		
LCS 320-551094/2-A	Lab Control Sample	107	120	106
LCS 320-551094/2-A	Lab Control Sample	91	95	91
LCSD 320-551094/3-A	Lab Control Sample Dup	115	110	111
LCSD 320-551094/3-A	Lab Control Sample Dup	104	89	96
MB 320-551094/1-A	Method Blank	115	115	108
MB 320-551094/1-A	Method Blank	110	98	101

Surrogate Legend

PFBA = 13C4 PFBA
PFPeA = 13C5 PFPeA
PFHxA = 13C2 PFHxA
C4PFHA = 13C4 PFHpA
PFOA = 13C4 PFOA
PFNA = 13C5 PFNA
PFDA = 13C2 PFDA
PFUnA = 13C2 PFUnA
PFDoA = 13C2 PFDoA
PFTDA = 13C2 PFTeDA

C3PFBS = 13C3 PFBS
PFHxS = 18O2 PFHxS
PFOS = 13C4 PFOS
PFOSA = 13C8 FOSA
M242FTS = M2-4:2 FTS
M262FTS = M2-6:2 FTS
M282FTS = M2-8:2 FTS
d5NEFOS = d5-NEtFOSAA
d3NMFOS = d3-NMeFOSAA

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

Lab Sample ID: MB 320-550957/1-A
Matrix: Solid
Analysis Batch: 552101

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 550957

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		0.20	0.046	ug/Kg		12/15/21 04:36	12/18/21 18:40	1
Perfluoropentanoic acid (PFPeA)	ND		0.20	0.041	ug/Kg		12/15/21 04:36	12/18/21 18:40	1
Perfluorohexanoic acid (PFHxA)	ND		0.20	0.031	ug/Kg		12/15/21 04:36	12/18/21 18:40	1
Perfluoroheptanoic acid (PFHpA)	ND		0.20	0.038	ug/Kg		12/15/21 04:36	12/18/21 18:40	1
Perfluorooctanoic acid (PFOA)	ND		0.20	0.053	ug/Kg		12/15/21 04:36	12/18/21 18:40	1
Perfluorononanoic acid (PFNA)	ND		0.20	0.022	ug/Kg		12/15/21 04:36	12/18/21 18:40	1
Perfluorodecanoic acid (PFDA)	ND		0.20	0.048	ug/Kg		12/15/21 04:36	12/18/21 18:40	1
Perfluoroundecanoic acid (PFUnA)	ND		0.20	0.042	ug/Kg		12/15/21 04:36	12/18/21 18:40	1
Perfluorododecanoic acid (PFDoA)	ND		0.20	0.030	ug/Kg		12/15/21 04:36	12/18/21 18:40	1
Perfluorotridecanoic acid (PFTrDA)	ND		0.20	0.021	ug/Kg		12/15/21 04:36	12/18/21 18:40	1
Perfluorotetradecanoic acid (PFTeA)	ND		0.20	0.037	ug/Kg		12/15/21 04:36	12/18/21 18:40	1
Perfluorobutanesulfonic acid (PFBS)	ND		0.20	0.038	ug/Kg		12/15/21 04:36	12/18/21 18:40	1
Perfluoropentanesulfonic acid (PFPeS)	ND		0.20	0.037	ug/Kg		12/15/21 04:36	12/18/21 18:40	1
Perfluorohexanesulfonic acid (PFHxS)	ND		0.20	0.029	ug/Kg		12/15/21 04:36	12/18/21 18:40	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		0.20	0.049	ug/Kg		12/15/21 04:36	12/18/21 18:40	1
Perfluorooctanesulfonic acid (PFOS)	ND		0.20	0.043	ug/Kg		12/15/21 04:36	12/18/21 18:40	1
Perfluorodecanesulfonic acid (PFDS)	ND		0.20	0.052	ug/Kg		12/15/21 04:36	12/18/21 18:40	1
Perfluorooctanesulfonamide (FOSA)	ND		0.20	0.033	ug/Kg		12/15/21 04:36	12/18/21 18:40	1
NEtFOSAA	ND		0.20	0.048	ug/Kg		12/15/21 04:36	12/18/21 18:40	1
NMeFOSAA	ND		0.20	0.023	ug/Kg		12/15/21 04:36	12/18/21 18:40	1
4:2 FTS	ND		0.20	0.051	ug/Kg		12/15/21 04:36	12/18/21 18:40	1
6:2 FTS	ND		0.20	0.027	ug/Kg		12/15/21 04:36	12/18/21 18:40	1
8:2 FTS	ND		0.20	0.035	ug/Kg		12/15/21 04:36	12/18/21 18:40	1

Isotope Dilution	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*69*		*50 - 150*	*12/15/21 04:36*	*12/18/21 18:40*	*1*
13C5 PFPeA	*84*		*50 - 150*	*12/15/21 04:36*	*12/18/21 18:40*	*1*
13C2 PFHxA	*90*		*50 - 150*	*12/15/21 04:36*	*12/18/21 18:40*	*1*
13C4 PFHpA	*99*		*50 - 150*	*12/15/21 04:36*	*12/18/21 18:40*	*1*
13C4 PFOA	*95*		*50 - 150*	*12/15/21 04:36*	*12/18/21 18:40*	*1*
13C5 PFNA	*88*		*50 - 150*	*12/15/21 04:36*	*12/18/21 18:40*	*1*
13C2 PFDA	*89*		*50 - 150*	*12/15/21 04:36*	*12/18/21 18:40*	*1*
13C2 PFUnA	*94*		*50 - 150*	*12/15/21 04:36*	*12/18/21 18:40*	*1*
13C2 PFDoA	*88*		*50 - 150*	*12/15/21 04:36*	*12/18/21 18:40*	*1*
13C2 PFTeDA	*85*		*50 - 150*	*12/15/21 04:36*	*12/18/21 18:40*	*1*
13C3 PFBS	*84*		*50 - 150*	*12/15/21 04:36*	*12/18/21 18:40*	*1*
18O2 PFHxS	*76*		*50 - 150*	*12/15/21 04:36*	*12/18/21 18:40*	*1*
13C4 PFOS	*79*		*50 - 150*	*12/15/21 04:36*	*12/18/21 18:40*	*1*
13C8 FOSA	*82*		*50 - 150*	*12/15/21 04:36*	*12/18/21 18:40*	*1*
M2-4:2 FTS	*72*		*50 - 150*	*12/15/21 04:36*	*12/18/21 18:40*	*1*
M2-6:2 FTS	*72*		*50 - 150*	*12/15/21 04:36*	*12/18/21 18:40*	*1*
M2-8:2 FTS	*74*		*50 - 150*	*12/15/21 04:36*	*12/18/21 18:40*	*1*
d5-NEtFOSAA	*93*		*50 - 150*	*12/15/21 04:36*	*12/18/21 18:40*	*1*
d3-NMeFOSAA	*83*		*50 - 150*	*12/15/21 04:36*	*12/18/21 18:40*	*1*

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15 (Continued)

Lab Sample ID: LCS 320-550957/2-A
Matrix: Solid
Analysis Batch: 552101

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 550957

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Perfluorobutanoic acid (PFBA)	2.00	1.97		ug/Kg		98	71 - 135
Perfluoropentanoic acid (PFPeA)	2.00	2.08		ug/Kg		104	69 - 132
Perfluorohexanoic acid (PFHxA)	2.00	1.88		ug/Kg		94	70 - 132
Perfluoroheptanoic acid (PFHpA)	2.00	1.97		ug/Kg		99	71 - 131
Perfluorooctanoic acid (PFOA)	2.00	1.76		ug/Kg		88	69 - 133
Perfluorononanoic acid (PFNA)	2.00	1.98		ug/Kg		99	72 - 129
Perfluorodecanoic acid (PFDA)	2.00	1.80		ug/Kg		90	69 - 133
Perfluoroundecanoic acid (PFUnA)	2.00	1.88		ug/Kg		94	64 - 136
Perfluorododecanoic acid (PFDoA)	2.00	1.97		ug/Kg		99	69 - 135
Perfluorotridecanoic acid (PFTrDA)	2.00	1.91		ug/Kg		95	66 - 139
Perfluorotetradecanoic acid (PFTeA)	2.00	1.94		ug/Kg		97	69 - 133
Perfluorobutanesulfonic acid (PFBS)	1.77	1.43		ug/Kg		81	72 - 128
Perfluoropentanesulfonic acid (PFPeS)	1.88	1.67		ug/Kg		89	73 - 123
Perfluorohexanesulfonic acid (PFHxS)	1.82	1.89		ug/Kg		104	67 - 130
Perfluoroheptanesulfonic Acid (PFHpS)	1.90	1.82		ug/Kg		96	70 - 132
Perfluorooctanesulfonic acid (PFOS)	1.86	1.73		ug/Kg		93	68 - 136
Perfluorodecanesulfonic acid (PFDS)	1.93	1.95		ug/Kg		101	59 - 134
Perfluorooctanesulfonamide (FOSA)	2.00	1.92		ug/Kg		96	67 - 137
NEtFOSAA	2.00	2.15		ug/Kg		107	61 - 139
NMeFOSAA	2.00	1.93		ug/Kg		96	63 - 144
4:2 FTS	1.87	1.80		ug/Kg		96	62 - 145
6:2 FTS	1.90	1.72		ug/Kg		91	64 - 140
8:2 FTS	1.92	1.80		ug/Kg		94	65 - 137

Isotope Dilution	*LCS %Recovery*	*LCS Qualifier*	*Limits*
13C4 PFBA	*81*		*50 - 150*
13C5 PFPeA	*86*		*50 - 150*
13C2 PFHxA	*93*		*50 - 150*
13C4 PFHpA	*98*		*50 - 150*
13C4 PFOA	*98*		*50 - 150*
13C5 PFNA	*92*		*50 - 150*
13C2 PFDA	*95*		*50 - 150*
13C2 PFUnA	*97*		*50 - 150*
13C2 PFDoA	*90*		*50 - 150*
13C2 PFTeDA	*83*		*50 - 150*
13C3 PFBS	*93*		*50 - 150*
18O2 PFHxS	*78*		*50 - 150*
13C4 PFOS	*82*		*50 - 150*
13C8 FOSA	*87*		*50 - 150*
M2-4:2 FTS	*77*		*50 - 150*

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15 (Continued)

Lab Sample ID: LCS 320-550957/2-A
Matrix: Solid
Analysis Batch: 552101

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 550957

Isotope Dilution	*LCS %Recovery*	*LCS Qualifier*	*Limits*
M2-6:2 FTS	*75*		*50 - 150*
M2-8:2 FTS	*77*		*50 - 150*
d5-NEtFOSAA	*86*		*50 - 150*
d3-NMeFOSAA	*82*		*50 - 150*

Lab Sample ID: MB 320-551094/1-A
Matrix: Water
Analysis Batch: 551511

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 551094

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		5.0	2.4	ng/L		12/15/21 12:37	12/16/21 15:14	1
Perfluoropentanoic acid (PFPeA)	ND		2.0	0.49	ng/L		12/15/21 12:37	12/16/21 15:14	1
Perfluorohexanoic acid (PFHxA)	ND		2.0	0.58	ng/L		12/15/21 12:37	12/16/21 15:14	1
Perfluoroheptanoic acid (PFHpA)	ND		2.0	0.25	ng/L		12/15/21 12:37	12/16/21 15:14	1
Perfluorooctanoic acid (PFOA)	ND		2.0	0.85	ng/L		12/15/21 12:37	12/16/21 15:14	1
Perfluorononanoic acid (PFNA)	ND		2.0	0.27	ng/L		12/15/21 12:37	12/16/21 15:14	1
Perfluorodecanoic acid (PFDA)	ND		2.0	0.31	ng/L		12/15/21 12:37	12/16/21 15:14	1
Perfluoroundecanoic acid (PFUnA)	ND		2.0	1.1	ng/L		12/15/21 12:37	12/16/21 15:14	1
Perfluorododecanoic acid (PFDoA)	ND		2.0	0.55	ng/L		12/15/21 12:37	12/16/21 15:14	1
Perfluorotridecanoic acid (PFTrDA)	ND		2.0	1.3	ng/L		12/15/21 12:37	12/16/21 15:14	1
Perfluorotetradecanoic acid (PFTeA)	ND		2.0	0.73	ng/L		12/15/21 12:37	12/16/21 15:14	1
Perfluorobutanesulfonic acid (PFBS)	ND		2.0	0.20	ng/L		12/15/21 12:37	12/16/21 15:14	1
Perfluoropentanesulfonic acid (PFPeS)	ND		2.0	0.30	ng/L		12/15/21 12:37	12/16/21 15:14	1
Perfluorohexanesulfonic acid (PFHxS)	ND		2.0	0.57	ng/L		12/15/21 12:37	12/16/21 15:14	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		2.0	0.19	ng/L		12/15/21 12:37	12/16/21 15:14	1
Perfluorooctanesulfonic acid (PFOS)	ND		2.0	0.54	ng/L		12/15/21 12:37	12/16/21 15:14	1
Perfluorodecanesulfonic acid (PFDS)	ND		2.0	0.32	ng/L		12/15/21 12:37	12/16/21 15:14	1
Perfluorooctanesulfonamide (FOSA)	ND		2.0	0.98	ng/L		12/15/21 12:37	12/16/21 15:14	1
NEtFOSAA	ND		5.0	1.3	ng/L		12/15/21 12:37	12/16/21 15:14	1
NMeFOSAA	ND		5.0	1.2	ng/L		12/15/21 12:37	12/16/21 15:14	1
4:2 FTS	ND		2.0	0.24	ng/L		12/15/21 12:37	12/16/21 15:14	1
6:2 FTS	ND		5.0	2.5	ng/L		12/15/21 12:37	12/16/21 15:14	1
8:2 FTS	ND		2.0	0.46	ng/L		12/15/21 12:37	12/16/21 15:14	1

Isotope Dilution	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*94*		*50 - 150*	*12/15/21 12:37*	*12/16/21 15:14*	*1*
13C5 PFPeA	*91*		*50 - 150*	*12/15/21 12:37*	*12/16/21 15:14*	*1*
13C2 PFHxA	*90*		*50 - 150*	*12/15/21 12:37*	*12/16/21 15:14*	*1*
13C4 PFHpA	*100*		*50 - 150*	*12/15/21 12:37*	*12/16/21 15:14*	*1*
13C4 PFOA	*105*		*50 - 150*	*12/15/21 12:37*	*12/16/21 15:14*	*1*
13C5 PFNA	*103*		*50 - 150*	*12/15/21 12:37*	*12/16/21 15:14*	*1*
13C2 PFDA	*99*		*50 - 150*	*12/15/21 12:37*	*12/16/21 15:14*	*1*
13C2 PFUnA	*102*		*50 - 150*	*12/15/21 12:37*	*12/16/21 15:14*	*1*
13C2 PFDoA	*111*		*50 - 150*	*12/15/21 12:37*	*12/16/21 15:14*	*1*
13C2 PFTeDA	*112*		*50 - 150*	*12/15/21 12:37*	*12/16/21 15:14*	*1*
13C3 PFBS	*94*		*50 - 150*	*12/15/21 12:37*	*12/16/21 15:14*	*1*
18O2 PFHxS	*95*		*50 - 150*	*12/15/21 12:37*	*12/16/21 15:14*	*1*

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15 (Continued)

Lab Sample ID: MB 320-551094/1-A
Matrix: Water
Analysis Batch: 551511

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 551094

Isotope Dilution	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFOS	*100*		*50 - 150*	*12/15/21 12:37*	*12/16/21 15:14*	*1*
13C8 FOSA	*92*		*50 - 150*	*12/15/21 12:37*	*12/16/21 15:14*	*1*
M2-4:2 FTS	*100*		*50 - 150*	*12/15/21 12:37*	*12/16/21 15:14*	*1*
M2-6:2 FTS	*99*		*50 - 150*	*12/15/21 12:37*	*12/16/21 15:14*	*1*
M2-8:2 FTS	*115*		*50 - 150*	*12/15/21 12:37*	*12/16/21 15:14*	*1*
d5-NEtFOSAA	*115*		*50 - 150*	*12/15/21 12:37*	*12/16/21 15:14*	*1*
d3-NMeFOSAA	*108*		*50 - 150*	*12/15/21 12:37*	*12/16/21 15:14*	*1*

Lab Sample ID: MB 320-551094/1-A
Matrix: Water
Analysis Batch: 552887

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 551094

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		5.0	2.4	ng/L		12/15/21 12:37	12/21/21 12:23	1
Perfluoropentanoic acid (PFPeA)	ND		2.0	0.49	ng/L		12/15/21 12:37	12/21/21 12:23	1
Perfluorohexanoic acid (PFHxA)	ND		2.0	0.58	ng/L		12/15/21 12:37	12/21/21 12:23	1
Perfluoroheptanoic acid (PFHpA)	ND		2.0	0.25	ng/L		12/15/21 12:37	12/21/21 12:23	1
Perfluorooctanoic acid (PFOA)	ND		2.0	0.85	ng/L		12/15/21 12:37	12/21/21 12:23	1
Perfluorononanoic acid (PFNA)	ND		2.0	0.27	ng/L		12/15/21 12:37	12/21/21 12:23	1
Perfluorodecanoic acid (PFDA)	ND		2.0	0.31	ng/L		12/15/21 12:37	12/21/21 12:23	1
Perfluoroundecanoic acid (PFUnA)	ND		2.0	1.1	ng/L		12/15/21 12:37	12/21/21 12:23	1
Perfluorododecanoic acid (PFDoA)	ND		2.0	0.55	ng/L		12/15/21 12:37	12/21/21 12:23	1
Perfluorotridecanoic acid (PFTrDA)	ND		2.0	1.3	ng/L		12/15/21 12:37	12/21/21 12:23	1
Perfluorotetradecanoic acid (PFTeA)	ND		2.0	0.73	ng/L		12/15/21 12:37	12/21/21 12:23	1
Perfluorobutanesulfonic acid (PFBS)	ND		2.0	0.20	ng/L		12/15/21 12:37	12/21/21 12:23	1
Perfluoropentanesulfonic acid (PFPeS)	ND		2.0	0.30	ng/L		12/15/21 12:37	12/21/21 12:23	1
Perfluorohexanesulfonic acid (PFHxS)	ND		2.0	0.57	ng/L		12/15/21 12:37	12/21/21 12:23	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		2.0	0.19	ng/L		12/15/21 12:37	12/21/21 12:23	1
Perfluorooctanesulfonic acid (PFOS)	ND		2.0	0.54	ng/L		12/15/21 12:37	12/21/21 12:23	1
Perfluorodecanesulfonic acid (PFDS)	ND		2.0	0.32	ng/L		12/15/21 12:37	12/21/21 12:23	1
Perfluorooctanesulfonamide (FOSA)	ND		2.0	0.98	ng/L		12/15/21 12:37	12/21/21 12:23	1
NEtFOSAA	ND		5.0	1.3	ng/L		12/15/21 12:37	12/21/21 12:23	1
NMeFOSAA	ND		5.0	1.2	ng/L		12/15/21 12:37	12/21/21 12:23	1
4:2 FTS	ND		2.0	0.24	ng/L		12/15/21 12:37	12/21/21 12:23	1
6:2 FTS	ND		5.0	2.5	ng/L		12/15/21 12:37	12/21/21 12:23	1
8:2 FTS	ND		2.0	0.46	ng/L		12/15/21 12:37	12/21/21 12:23	1

Isotope Dilution	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*96*		*50 - 150*	*12/15/21 12:37*	*12/21/21 12:23*	*1*
13C5 PFPeA	*95*		*50 - 150*	*12/15/21 12:37*	*12/21/21 12:23*	*1*
13C2 PFHxA	*104*		*50 - 150*	*12/15/21 12:37*	*12/21/21 12:23*	*1*
13C4 PFHpA	*101*		*50 - 150*	*12/15/21 12:37*	*12/21/21 12:23*	*1*
13C4 PFOA	*107*		*50 - 150*	*12/15/21 12:37*	*12/21/21 12:23*	*1*
13C5 PFNA	*101*		*50 - 150*	*12/15/21 12:37*	*12/21/21 12:23*	*1*
13C2 PFDA	*100*		*50 - 150*	*12/15/21 12:37*	*12/21/21 12:23*	*1*
13C2 PFUnA	*107*		*50 - 150*	*12/15/21 12:37*	*12/21/21 12:23*	*1*
13C2 PFDoA	*94*		*50 - 150*	*12/15/21 12:37*	*12/21/21 12:23*	*1*

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15 (Continued)

Lab Sample ID: MB 320-551094/1-A
Matrix: Water
Analysis Batch: 552887

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 551094

Isotope Dilution	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFTeDA	*88*		*50 - 150*	*12/15/21 12:37*	*12/21/21 12:23*	*1*
13C3 PFBS	*106*		*50 - 150*	*12/15/21 12:37*	*12/21/21 12:23*	*1*
18O2 PFHxS	*103*		*50 - 150*	*12/15/21 12:37*	*12/21/21 12:23*	*1*
13C4 PFOS	*105*		*50 - 150*	*12/15/21 12:37*	*12/21/21 12:23*	*1*
13C8 FOSA	*92*		*50 - 150*	*12/15/21 12:37*	*12/21/21 12:23*	*1*
M2-4:2 FTS	*108*		*50 - 150*	*12/15/21 12:37*	*12/21/21 12:23*	*1*
M2-6:2 FTS	*104*		*50 - 150*	*12/15/21 12:37*	*12/21/21 12:23*	*1*
M2-8:2 FTS	*110*		*50 - 150*	*12/15/21 12:37*	*12/21/21 12:23*	*1*
d5-NEtFOSAA	*98*		*50 - 150*	*12/15/21 12:37*	*12/21/21 12:23*	*1*
d3-NMeFOSAA	*101*		*50 - 150*	*12/15/21 12:37*	*12/21/21 12:23*	*1*

Lab Sample ID: LCS 320-551094/2-A
Matrix: Water
Analysis Batch: 551511

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 551094

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Perfluorobutanoic acid (PFBA)	40.0	40.3		ng/L		101	73 - 129
Perfluoropentanoic acid (PFPeA)	40.0	43.1		ng/L		108	72 - 129
Perfluorohexanoic acid (PFHxA)	40.0	39.6		ng/L		99	72 - 129
Perfluoroheptanoic acid (PFHpA)	40.0	40.2		ng/L		101	72 - 130
Perfluorooctanoic acid (PFOA)	40.0	40.9		ng/L		102	71 - 133
Perfluorononanoic acid (PFNA)	40.0	40.7		ng/L		102	69 - 130
Perfluorodecanoic acid (PFDA)	40.0	37.4		ng/L		93	71 - 129
Perfluoroundecanoic acid (PFUnA)	40.0	37.2		ng/L		93	69 - 133
Perfluorododecanoic acid (PFDoA)	40.0	40.4		ng/L		101	72 - 134
Perfluorotridecanoic acid (PFTrDA)	40.0	37.0		ng/L		93	65 - 144
Perfluorotetradecanoic acid (PFTeA)	40.0	35.1		ng/L		88	71 - 132
Perfluorobutanesulfonic acid (PFBS)	35.4	30.1		ng/L		85	72 - 130
Perfluoropentanesulfonic acid (PFPeS)	37.5	34.9		ng/L		93	71 - 127
Perfluorohexanesulfonic acid (PFHxS)	36.4	36.5		ng/L		100	68 - 131
Perfluoroheptanesulfonic Acid (PFHpS)	38.1	36.6		ng/L		96	69 - 134
Perfluorooctanesulfonic acid (PFOS)	37.1	34.4		ng/L		93	65 - 140
Perfluorodecanesulfonic acid (PFDS)	38.6	38.1		ng/L		99	53 - 142
Perfluorooctanesulfonamide (FOSA)	40.0	41.2		ng/L		103	67 - 137
NEtFOSAA	40.0	39.1		ng/L		98	61 - 135
NMeFOSAA	40.0	43.9		ng/L		110	65 - 136
4:2 FTS	37.4	40.7		ng/L		109	63 - 143
6:2 FTS	37.9	41.5		ng/L		110	64 - 140
8:2 FTS	38.3	40.2		ng/L		105	67 - 138

QC Sample Results

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15 (Continued)

Isotope Dilution	*LCS %Recovery*	*LCS Qualifier*	*Limits*
13C4 PFBA	*91*		*50 - 150*
13C5 PFPeA	*88*		*50 - 150*
13C2 PFHxA	*90*		*50 - 150*
13C4 PFHpA	*98*		*50 - 150*
13C4 PFOA	*101*		*50 - 150*
13C5 PFNA	*107*		*50 - 150*
13C2 PFDA	*102*		*50 - 150*
13C2 PFUnA	*109*		*50 - 150*
13C2 PFDoA	*112*		*50 - 150*
13C2 PFTeDA	*110*		*50 - 150*
13C3 PFBS	*95*		*50 - 150*
18O2 PFHxS	*91*		*50 - 150*
13C4 PFOS	*101*		*50 - 150*
13C8 FOSA	*93*		*50 - 150*
M2-4:2 FTS	*89*		*50 - 150*
M2-6:2 FTS	*101*		*50 - 150*
M2-8:2 FTS	*107*		*50 - 150*
d5-NEtFOSAA	*120*		*50 - 150*
d3-NMeFOSAA	*106*		*50 - 150*

Lab Sample ID: LCS 320-551094/2-A
Matrix: Water
Analysis Batch: 552887

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 551094

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Perfluorobutanoic acid (PFBA)	40.0	37.4		ng/L		94	73 - 129
Perfluoropentanoic acid (PFPeA)	40.0	40.5		ng/L		101	72 - 129
Perfluorohexanoic acid (PFHxA)	40.0	40.9		ng/L		102	72 - 129
Perfluoroheptanoic acid (PFHpA)	40.0	36.2		ng/L		90	72 - 130
Perfluorooctanoic acid (PFOA)	40.0	38.7		ng/L		97	71 - 133
Perfluorononanoic acid (PFNA)	40.0	44.3		ng/L		111	69 - 130
Perfluorodecanoic acid (PFDA)	40.0	38.5		ng/L		96	71 - 129
Perfluoroundecanoic acid (PFUnA)	40.0	39.1		ng/L		98	69 - 133
Perfluorododecanoic acid (PFDoA)	40.0	40.9		ng/L		102	72 - 134
Perfluorotridecanoic acid (PFTrDA)	40.0	41.6		ng/L		104	65 - 144
Perfluorotetradecanoic acid (PFTeA)	40.0	39.2		ng/L		98	71 - 132
Perfluorobutanesulfonic acid (PFBS)	35.4	35.2		ng/L		100	72 - 130
Perfluoropentanesulfonic acid (PFPeS)	37.5	36.9		ng/L		98	71 - 127
Perfluorohexanesulfonic acid (PFHxS)	36.4	36.1		ng/L		99	68 - 131
Perfluoroheptanesulfonic Acid (PFHpS)	38.1	36.2		ng/L		95	69 - 134
Perfluorooctanesulfonic acid (PFOS)	37.1	35.8		ng/L		96	65 - 140
Perfluorodecanesulfonic acid (PFDS)	38.6	38.5		ng/L		100	53 - 142
Perfluorooctanesulfonamide (FOSA)	40.0	40.4		ng/L		101	67 - 137
NEtFOSAA	40.0	37.1		ng/L		93	61 - 135

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15 (Continued)

Lab Sample ID: LCS 320-551094/2-A
Matrix: Water
Analysis Batch: 552887

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 551094

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
NMeFOSAA	40.0	38.8		ng/L		97	65 - 136
4:2 FTS	37.4	31.8		ng/L		85	63 - 143
6:2 FTS	37.9	42.0		ng/L		111	64 - 140
8:2 FTS	38.3	38.5		ng/L		100	67 - 138

Isotope Dilution	*LCS %Recovery*	*LCS Qualifier*	*Limits*
13C4 PFBA	*91*		*50 - 150*
13C5 PFPeA	*91*		*50 - 150*
13C2 PFHxA	*92*		*50 - 150*
13C4 PFHpA	*104*		*50 - 150*
13C4 PFOA	*100*		*50 - 150*
13C5 PFNA	*95*		*50 - 150*
13C2 PFDA	*91*		*50 - 150*
13C2 PFUnA	*100*		*50 - 150*
13C2 PFDoA	*85*		*50 - 150*
13C2 PFTeDA	*76*		*50 - 150*
13C3 PFBS	*98*		*50 - 150*
18O2 PFHxS	*95*		*50 - 150*
13C4 PFOS	*98*		*50 - 150*
13C8 FOSA	*88*		*50 - 150*
M2-4:2 FTS	*109*		*50 - 150*
M2-6:2 FTS	*93*		*50 - 150*
M2-8:2 FTS	*91*		*50 - 150*
d5-NEtFOSAA	*95*		*50 - 150*
d3-NMeFOSAA	*91*		*50 - 150*

Lab Sample ID: LCSD 320-551094/3-A
Matrix: Water
Analysis Batch: 551511

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 551094

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Perfluorobutanoic acid (PFBA)	40.0	38.4		ng/L		96	73 - 129	5	30
Perfluoropentanoic acid (PFPeA)	40.0	36.1		ng/L		90	72 - 129	18	30
Perfluorohexanoic acid (PFHxA)	40.0	39.0		ng/L		98	72 - 129	2	30
Perfluoroheptanoic acid (PFHpA)	40.0	41.6		ng/L		104	72 - 130	3	30
Perfluorooctanoic acid (PFOA)	40.0	36.6		ng/L		91	71 - 133	11	30
Perfluorononanoic acid (PFNA)	40.0	40.7		ng/L		102	69 - 130	0	30
Perfluorodecanoic acid (PFDA)	40.0	37.7		ng/L		94	71 - 129	1	30
Perfluoroundecanoic acid (PFUnA)	40.0	36.1		ng/L		90	69 - 133	3	30
Perfluorododecanoic acid (PFDoA)	40.0	39.0		ng/L		98	72 - 134	3	30
Perfluorotridecanoic acid (PFTrDA)	40.0	36.2		ng/L		91	65 - 144	2	30
Perfluorotetradecanoic acid (PFTeA)	40.0	34.1		ng/L		85	71 - 132	3	30
Perfluorobutanesulfonic acid (PFBS)	35.4	30.7		ng/L		87	72 - 130	2	30
Perfluoropentanesulfonic acid (PFPeS)	37.5	32.8		ng/L		88	71 - 127	6	30

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15 (Continued)

Lab Sample ID: LCSD 320-551094/3-A
Matrix: Water
Analysis Batch: 551511

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 551094

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Perfluorohexanesulfonic acid (PFHxS)	36.4	35.7		ng/L		98	68 - 131	2	30
Perfluoroheptanesulfonic Acid (PFHpS)	38.1	37.4		ng/L		98	69 - 134	2	30
Perfluorooctanesulfonic acid (PFOS)	37.1	32.4		ng/L		87	65 - 140	6	30
Perfluorodecanesulfonic acid (PFDS)	38.6	34.6		ng/L		90	53 - 142	9	30
Perfluorooctanesulfonamide (FOSA)	40.0	39.2		ng/L		98	67 - 137	5	30
NEtFOSAA	40.0	42.5		ng/L		106	61 - 135	8	30
NMeFOSAA	40.0	37.4		ng/L		94	65 - 136	16	30
4:2 FTS	37.4	39.3		ng/L		105	63 - 143	4	30
6:2 FTS	37.9	39.2		ng/L		103	64 - 140	6	30
8:2 FTS	38.3	37.2		ng/L		97	67 - 138	8	30

Isotope Dilution	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
13C4 PFBA	*88*		*50 - 150*
13C5 PFPeA	*95*		*50 - 150*
13C2 PFHxA	*87*		*50 - 150*
13C4 PFHpA	*89*		*50 - 150*
13C4 PFOA	*107*		*50 - 150*
13C5 PFNA	*102*		*50 - 150*
13C2 PFDA	*104*		*50 - 150*
13C2 PFUnA	*107*		*50 - 150*
13C2 PFDoA	*103*		*50 - 150*
13C2 PFTeDA	*106*		*50 - 150*
13C3 PFBS	*94*		*50 - 150*
18O2 PFHxS	*87*		*50 - 150*
13C4 PFOS	*99*		*50 - 150*
13C8 FOSA	*90*		*50 - 150*
M2-4:2 FTS	*97*		*50 - 150*
M2-6:2 FTS	*101*		*50 - 150*
M2-8:2 FTS	*115*		*50 - 150*
d5-NEtFOSAA	*110*		*50 - 150*
d3-NMeFOSAA	*111*		*50 - 150*

Lab Sample ID: LCSD 320-551094/3-A
Matrix: Water
Analysis Batch: 552887

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 551094

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Perfluorobutanoic acid (PFBA)	40.0	37.9		ng/L		95	73 - 129	1	30
Perfluoropentanoic acid (PFPeA)	40.0	36.0		ng/L		90	72 - 129	12	30
Perfluorohexanoic acid (PFHxA)	40.0	40.2		ng/L		101	72 - 129	2	30
Perfluoroheptanoic acid (PFHpA)	40.0	39.7		ng/L		99	72 - 130	9	30
Perfluorooctanoic acid (PFOA)	40.0	38.9		ng/L		97	71 - 133	0	30
Perfluorononanoic acid (PFNA)	40.0	42.2		ng/L		106	69 - 130	5	30
Perfluorodecanoic acid (PFDA)	40.0	39.5		ng/L		99	71 - 129	3	30

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15 (Continued)

Lab Sample ID: LCSD 320-551094/3-A
Matrix: Water
Analysis Batch: 552887

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 551094

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Perfluoroundecanoic acid (PFUnA)	40.0	38.5		ng/L		96	69 - 133	2	30
Perfluorododecanoic acid (PFDoA)	40.0	41.6		ng/L		104	72 - 134	2	30
Perfluorotridecanoic acid (PFTrDA)	40.0	37.9		ng/L		95	65 - 144	9	30
Perfluorotetradecanoic acid (PFTeA)	40.0	39.9		ng/L		100	71 - 132	2	30
Perfluorobutanesulfonic acid (PFBS)	35.4	31.4		ng/L		89	72 - 130	11	30
Perfluoropentanesulfonic acid (PFPeS)	37.5	38.8		ng/L		103	71 - 127	5	30
Perfluorohexanesulfonic acid (PFHxS)	36.4	36.1		ng/L		99	68 - 131	0	30
Perfluoroheptanesulfonic Acid (PFHpS)	38.1	34.8		ng/L		91	69 - 134	4	30
Perfluorooctanesulfonic acid (PFOS)	37.1	34.5		ng/L		93	65 - 140	4	30
Perfluorodecanesulfonic acid (PFDS)	38.6	37.7		ng/L		98	53 - 142	2	30
Perfluorooctanesulfonamide (FOSA)	40.0	41.4		ng/L		103	67 - 137	2	30
NEtFOSAA	40.0	40.9		ng/L		102	61 - 135	10	30
NMeFOSAA	40.0	35.0		ng/L		87	65 - 136	10	30
4:2 FTS	37.4	34.6		ng/L		93	63 - 143	8	30
6:2 FTS	37.9	36.0		ng/L		95	64 - 140	15	30
8:2 FTS	38.3	34.3		ng/L		89	67 - 138	12	30

Isotope Dilution	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
13C4 PFBA	*93*		*50 - 150*
13C5 PFPeA	*99*		*50 - 150*
13C2 PFHxA	*97*		*50 - 150*
13C4 PFHpA	*97*		*50 - 150*
13C4 PFOA	*104*		*50 - 150*
13C5 PFNA	*98*		*50 - 150*
13C2 PFDA	*95*		*50 - 150*
13C2 PFUnA	*99*		*50 - 150*
13C2 PFDoA	*91*		*50 - 150*
13C2 PFTeDA	*79*		*50 - 150*
13C3 PFBS	*98*		*50 - 150*
18O2 PFHxS	*94*		*50 - 150*
13C4 PFOS	*101*		*50 - 150*
13C8 FOSA	*90*		*50 - 150*
M2-4:2 FTS	*99*		*50 - 150*
M2-6:2 FTS	*106*		*50 - 150*
M2-8:2 FTS	*104*		*50 - 150*
d5-NEtFOSAA	*89*		*50 - 150*
d3-NMeFOSAA	*96*		*50 - 150*

QC Association Summary

LCMS

Prep Batch: 550957

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-82845-5 - DL	L10-SED	Total/NA	Solid	SHAKE	
320-82845-5	L10-SED	Total/NA	Solid	SHAKE	
MB 320-550957/1-A	Method Blank	Total/NA	Solid	SHAKE	
LCS 320-550957/2-A	Lab Control Sample	Total/NA	Solid	SHAKE	

Prep Batch: 551094

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-82845-1	L8/9-SW	Total/NA	Water	3535	
320-82845-2	L8/9-SW-1	Total/NA	Water	3535	
320-82845-2 - DL	L8/9-SW-1	Total/NA	Water	3535	
320-82845-3	EB-1-SW	Total/NA	Water	3535	
320-82845-4 - DL	L10-SW	Total/NA	Water	3535	
320-82845-4	L10-SW	Total/NA	Water	3535	
MB 320-551094/1-A	Method Blank	Total/NA	Water	3535	
LCS 320-551094/2-A	Lab Control Sample	Total/NA	Water	3535	
LCSD 320-551094/3-A	Lab Control Sample Dup	Total/NA	Water	3535	

Analysis Batch: 551511

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-82845-2	L8/9-SW-1	Total/NA	Water	EPA 537(Mod)	551094
320-82845-3	EB-1-SW	Total/NA	Water	EPA 537(Mod)	551094
320-82845-4	L10-SW	Total/NA	Water	EPA 537(Mod)	551094
MB 320-551094/1-A	Method Blank	Total/NA	Water	EPA 537(Mod)	551094
LCS 320-551094/2-A	Lab Control Sample	Total/NA	Water	EPA 537(Mod)	551094
LCSD 320-551094/3-A	Lab Control Sample Dup	Total/NA	Water	EPA 537(Mod)	551094

Analysis Batch: 552101

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-82845-5	L10-SED	Total/NA	Solid	EPA 537(Mod)	550957
MB 320-550957/1-A	Method Blank	Total/NA	Solid	EPA 537(Mod)	550957
LCS 320-550957/2-A	Lab Control Sample	Total/NA	Solid	EPA 537(Mod)	550957

Analysis Batch: 552264

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-82845-5 - DL	L10-SED	Total/NA	Solid	EPA 537(Mod)	550957

Analysis Batch: 552887

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-82845-1	L8/9-SW	Total/NA	Water	EPA 537(Mod)	551094
320-82845-2 - DL	L8/9-SW-1	Total/NA	Water	EPA 537(Mod)	551094
320-82845-4 - DL	L10-SW	Total/NA	Water	EPA 537(Mod)	551094
MB 320-551094/1-A	Method Blank	Total/NA	Water	EPA 537(Mod)	551094
LCS 320-551094/2-A	Lab Control Sample	Total/NA	Water	EPA 537(Mod)	551094
LCSD 320-551094/3-A	Lab Control Sample Dup	Total/NA	Water	EPA 537(Mod)	551094

General Chemistry

Analysis Batch: 550881

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-82845-5	L10-SED	Total/NA	Solid	D 2216	

Lab Chronicle

Client Sample ID: L8/9-SW

Lab Sample ID: 320-82845-1
Date Collected: 12/13/21 10:20
Matrix: Water
Date Received: 12/13/21 13:35

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			273.5 mL	10.0 mL	551094	12/15/21 12:37	DVC	TAL SAC
Total/NA	Analysis	EPA 537(Mod)		20			552887	12/21/21 15:41	K1S	TAL SAC

Client Sample ID: L8/9-SW-1

Lab Sample ID: 320-82845-2
Date Collected: 12/13/21 10:20
Matrix: Water
Date Received: 12/13/21 13:35

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			271 mL	10.0 mL	551094	12/15/21 12:37	DVC	TAL SAC
Total/NA	Analysis	EPA 537(Mod)		1			551511	12/16/21 16:27	D1R	TAL SAC
Total/NA	Prep	3535	DL		271 mL	10.0 mL	551094	12/15/21 12:37	DVC	TAL SAC
Total/NA	Analysis	EPA 537(Mod)	DL	20			552887	12/21/21 15:51	K1S	TAL SAC

Client Sample ID: EB-1-SW

Lab Sample ID: 320-82845-3
Date Collected: 12/13/21 10:10
Matrix: Water
Date Received: 12/13/21 13:35

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			279.7 mL	10.0 mL	551094	12/15/21 12:37	DVC	TAL SAC
Total/NA	Analysis	EPA 537(Mod)		1			551511	12/16/21 16:37	D1R	TAL SAC

Client Sample ID: L10-SW

Lab Sample ID: 320-82845-4
Date Collected: 12/13/21 10:50
Matrix: Water
Date Received: 12/13/21 13:35

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			267.5 mL	10.0 mL	551094	12/15/21 12:37	DVC	TAL SAC
Total/NA	Analysis	EPA 537(Mod)		1			551511	12/16/21 16:48	D1R	TAL SAC
Total/NA	Prep	3535	DL		267.5 mL	10.0 mL	551094	12/15/21 12:37	DVC	TAL SAC
Total/NA	Analysis	EPA 537(Mod)	DL	50			552887	12/21/21 16:02	K1S	TAL SAC

Client Sample ID: L10-SED

Lab Sample ID: 320-82845-5
Date Collected: 12/13/21 11:20
Matrix: Solid
Date Received: 12/13/21 13:35

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1			550881	12/14/21 16:06	TCS	TAL SAC

Client Sample ID: L10-SED

Lab Sample ID: 320-82845-5
Date Collected: 12/13/21 11:20
Matrix: Solid
Date Received: 12/13/21 13:35
Percent Solids: 79.4

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			5.26 g	10.0 mL	550957	12/15/21 04:36	NSS	TAL SAC
Total/NA	Analysis	EPA 537(Mod)		1			552101	12/18/21 19:00	K1S	TAL SAC

Lab Chronicle

Client: Woodard & Curran, Inc.
Project/Site: SJC PFAS Phase 2

Job ID: 320-82845-1

Client Sample ID: L10-SED
Date Collected: 12/13/21 11:20
Date Received: 12/13/21 13:35

Lab Sample ID: 320-82845-5
Matrix: Solid
Percent Solids: 79.4

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE	DL		5.26 g	10.0 mL	550957	12/15/21 04:36	NSS	TAL SAC
Total/NA	Analysis	EPA 537(Mod)	DL	10			552264	12/19/21 21:25	AF	TAL SAC

Laboratory References:

TAL SAC = Eurofins TestAmerica, Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600

Accreditation/Certification Summary

Client: Woodard & Curran, Inc.
Project/Site: SJC PFAS Phase 2

Job ID: 320-82845-1

Laboratory: Eurofins TestAmerica, Sacramento

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
California	State	2897	01-31-22

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
D 2216		Solid	Percent Moisture
D 2216		Solid	Percent Solids

Method Summary

Method	Method Description	Protocol	Laboratory
EPA 537(Mod)	PFAS for QSM 5.3, Table B-15	EPA	TAL SAC
D 2216	Percent Moisture	ASTM	TAL SAC
3535	Solid-Phase Extraction (SPE)	SW846	TAL SAC
SHAKE	Shake Extraction with Ultrasonic Bath Extraction	SW846	TAL SAC

Protocol References:

ASTM = ASTM International
EPA = US Environmental Protection Agency
SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL SAC = Eurofins TestAmerica, Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600

Sample Summary

Client: Woodard & Curran, Inc.
Project/Site: SJC PFAS Phase 2

Job ID: 320-82845-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
320-82845-1	L8/9-SW	Water	12/13/21 10:20	12/13/21 13:35
320-82845-2	L8/9-SW-1	Water	12/13/21 10:20	12/13/21 13:35
320-82845-3	EB-1-SW	Water	12/13/21 10:10	12/13/21 13:35
320-82845-4	L10-SW	Water	12/13/21 10:50	12/13/21 13:35
320-82845-5	L10-SED	Solid	12/13/21 11:20	12/13/21 13:35

Address: Eurofins TestAmerica West Sacramento
880 Riverside Pkwy
West Sacramento, CA 95605

Chain of Custody Record

320 82845

574606 eurofins | Environment Testing TestAmerica

201650 TAL-8210

Regulatory Program ☐ DW ☐ NPDES ☐ RCRA ☐ Other:

Client Contact	Project Manager: Jim Strandberg	Site Contact: Kevin Almestad	Date: 12/13/2021
Company Name: Woodard&Curran	Tel/Email: Jstrandberg@woodardcurran.com	Lab Contact: Linda Lauer	Carrier: Drop-off
Address: 2175 N. California Blvd, Ste 315	Analysis Turnaround Time		
City/State/Zip: Walnut Creek, CA 94596	☐ CALENDAR DAYS ☒ WORKING DAYS		
Phone: (925)-627-4100	TAT if different from Below		
Fax: (925)-627-4101	☒ 2 weeks		
Project Name: SJC PFAS phase 2	☐ 1 week		
Site: San Jose Airport	☐ 2 days		
PO # 0232401.07	☐ 1 day		

COC No:
1 of 1 COCs
Sampler:
For Lab Use Only:
Walk-in Client:
Lab Sampling
Job / SDG No.

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y / N)	Perform MS / MSD (Y / N)	PFAS (23)	Sample Specific Notes:
L8/9-SW	12/13/21	1020	G	W	2			X	
L8/9-SW-1	↓	1020	↓	↓	2			↓	
EB-1-SW	↓	1010	↓	↓	2			↓	
L10-SW	↓	1050	↓	↓	2			↓	
L10-SED	↓	1120	↓	S	2			↓	

320-82845 Chain of Custody

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other ________

Possible Hazard Identification
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☒ Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return to Client ☒ Disposal by Lab ☐ Archive for ________ Months

6c

Special Instructions/QC Requirements & Comments Standard TAT

Custody Seals Intact: ☐ Yes ☐ No
Custody Seal No.
Cooler Temp (°C) Obs'd ________ Corr'd ________ Therm ID No ________

Relinquished by:	Company: Woodard&Curran	Date/Time: 12/13/21 1335	Received by: Jorlen Muller	Company: ETA-SJ	Date/Time: 12-13-21 1335
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company:	Date/Time:

Eurofins TestAmerica, Sacramento
880 Riverside Parkway
West Sacramento, CA 95605
Phone: 916-373-5600 Fax: 916-372-1059

Chain of Custody Record

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Client Information (Sub Contract Lab)	Sampler:	Lab PM: Laver, Linda C.	Carrier Tracking No(s):	COC No: 320-252803.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: Linda.Laver@Eurofinset.com	State of Origin: California	Page: Page 1 of 1
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): State - California		Job #: 320-82845-1
Address: 880 Riverside Parkway,	**Due Date Requested:** 12/27/2021			
City: West Sacramento	**TAT Requested (days):**			
State, Zip: CA, 95605				
Phone: 916-373-5600(Tel) 916-372-1059(Fax)	PO #:			
Email:	WO #:			
Project Name: PFAS, San Jose Airport	Project #: 32019160			
Site:	SSOW#:			

Preservation Codes:

A - HCL
B - NaOH
C - Zn Acetate
D - Nitric Acid
E - NaHSO4
F - MeOH
G - Amchlor
H - Ascorbic Acid
I - Ice
J - DI Water
K - EDTA
L - EDA
M - Hexane
N - None
O - AsNaO2
P - Na2O4S
Q - Na2SO3
R - Na2S2O3
S - H2SO4
T - TSP Dodecahydrate
U - Acetone
V - MCAA
W - pH 4-5
Z - other (specify)

Other:

Analysis Requested

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	PFC_IDA_B15/3535_PFC CA-DWQ 23 Required	PFC_IDA_B15/Shake_Bath_14D CA-DWQ 23 Required	Moisture	Total Number of containers	Special Instructions/Note:
				Preservation Code:							
L8/9-SW (320-82845-1)	12/13/21	10:20 Pacific		Water			X			2	
L8/9-SW-1 (320-82845-2)	12/13/21	10:20 Pacific		Water			X			2	
EB-1-SW (320-82845-3)	12/13/21	10:10 Pacific		Water			X			2	
L10-SW (320-82845-4)	12/13/21	10:50 Pacific		Water			X			2	
L10-SED (320-82845-5)	12/13/21	11:20 Pacific		Solid				X	X	2	

Note: Since laboratory accreditations are subject to change, Eurofins TestAmerica places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins TestAmerica attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said complicance to Eurofins TestAmerica.

Possible Hazard Identification
Unconfirmed

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ *Return To Client* ☐ *Disposal By Lab* ☐ *Archive For* ______ *Months*

Deliverable Requested: I, II, III, IV, Other (specify)
Primary Deliverable Rank: 2
Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time: 12-13-21 1630	Company ST	Received by:	Date/Time: 12-13-21 / 1630	Company DCS
Relinquished by:	Date/Time: 12-13-21 1900	Company DCS	Received by:	Date/Time: 12-13-21 / 19:00	Company EETSAC
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks: 2.0

Ver: 06/08/2021

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15

Login Sample Receipt Checklist

Client: Woodard & Curran, Inc.   Job Number: 320-82845-1

Login Number: 82845   **List Source: Eurofins TestAmerica, Sacramento**
List Number: 1
Creator: Mullen, Joan

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	N/A	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: Woodard & Curran, Inc.

Job Number: 320-82845-1

Login Number: 82845
List Number: 2
Creator: Cahill, Nicholas P

List Source: Eurofins TestAmerica, Sacramento

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	N/A	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	2.0c
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	False	Received project as a subcontract.
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

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ANALYTICAL REPORT

Eurofins Sacramento
880 Riverside Parkway
West Sacramento, CA 95605
Tel: (916)373-5600

Laboratory Job ID: 320-84353-1
Client Project/Site: PFAS, San Jose Airport Phase 2
Revision: 1

For:
Woodard & Curran, Inc.
2175 North California Blvd.
Suite 315
Walnut Creek, California 94596

Attn: Kevin Almestad

Linda C. Laver

Authorized for release by:
3/3/2022 3:50:17 PM

Linda C. Laver, Senior Project Manager
(916)374-4362
Linda.Laver@Eurofinset.com

LINKS

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Table of Contents

Definitions/Glossary

Client: Woodard & Curran, Inc.
Project/Site: PFAS, San Jose Airport Phase 2
Job ID: 320-84353-1

Qualifiers

LCMS

Qualifier	Qualifier Description
*5-	Isotope dilution analyte is outside acceptance limits, low biased.
*5+	Isotope dilution analyte is outside acceptance limits, high biased.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Case Narrative

Job ID: 320-84353-1

Laboratory: Eurofins Sacramento

Narrative

Job Narrative
320-84353-1 Rev (1)

Revision 1
The sample ID has been revised from L10-6D-GW to L10-60-GW (320-84353-4).

Receipt
The samples were received on 1/31/2022 4:05 PM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 1.3º C.

Receipt Exceptions
The sample ID listed on 1 of the 2 container labels did not include the "D" and the sample was logged in based on the Chain of Custody: L10-6D-GW (320-84353-4).

LCMS
Method EPA 537(Mod): Some results were reported from the analysis of a diluted extract due to high concentration of the target analyte in the analysis of the undiluted extract for the following samples. The dilution factor was applied to the labeled internal standard area counts and these area counts were within acceptance limits. L10-6-GW (320-84353-3), L10-60-GW (320-84353-4), L10-5-GW (320-84353-5) and L10-4-GW (320-84353-6)

Method EPA 537(Mod): Isotope Dilution Analyte (IDA) recoveries are below the method recommended limit in the following samples. Generally, data quality is not considered affected if the IDA signal-to-noise ratio is greater than 10:1, which is achieved for all IDA in the samples. L10-6-GW (320-84353-3), L10-5-GW (320-84353-5) and L10-4-GW (320-84353-6).

Method EPA 537(Mod): Isotope Dilution Analyte (IDA) recoveries are above the method recommended limit for the following samples. Quantitation by isotope dilution generally precludes any adverse effect on data quality due to elevated IDA recoveries. L10-5-GW (320-84353-5) and L10-4-GW (320-84353-6)

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Organic Prep
Method 3535: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 320-563274.

Method 3535: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 320-563436.

Method 3535: The following samples were yellow and contained a thin layer of sediment at the bottom of the container prior to extraction: L10-6-GW (320-84353-3), L10-60-GW (320-84353-4), L10-5-GW (320-84353-5) and L10-4-GW (320-84353-6).
preparation batch 320-563436

Method 3535: During the solid phase extraction process, the following samples contain non-settable particulates which clogged the solid phase extraction column: L10-6-GW (320-84353-3), L10-5-GW (320-84353-5) and L10-4-GW (320-84353-6).
preparation batch 320-563436

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Detection Summary

Client: Woodard & Curran, Inc.
Job ID: 320-84353-1
Project/Site: PFAS, San Jose Airport Phase 2

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Client Sample ID: FB-6-013122 — Lab Sample ID: 320-84353-1

No Detections.

Client Sample ID: EB-3-013122 — Lab Sample ID: 320-84353-2

No Detections.

Client Sample ID: L10-6-GW — Lab Sample ID: 320-84353-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluoroheptanoic acid (PFHpA)	360		1.9	0.23	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorooctanoic acid (PFOA)	21		1.9	0.79	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	83		1.9	0.19	ng/L	1		EPA 537(Mod)	Total/NA
Perfluoropentanesulfonic acid (PFPeS)	64		1.9	0.28	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	140		1.9	0.53	ng/L	1		EPA 537(Mod)	Total/NA
4:2 FTS	2.3		1.9	0.22	ng/L	1		EPA 537(Mod)	Total/NA
6:2 FTS	230		4.7	2.3	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorobutanoic acid (PFBA) - DL	1200		230	110	ng/L	50		EPA 537(Mod)	Total/NA
Perfluoropentanoic acid (PFPeA) - DL	5000		93	23	ng/L	50		EPA 537(Mod)	Total/NA
Perfluorohexanoic acid (PFHxA) - DL	2200		93	27	ng/L	50		EPA 537(Mod)	Total/NA

Client Sample ID: L10-60-GW — Lab Sample ID: 320-84353-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluoroheptanoic acid (PFHpA)	330		1.9	0.23	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorooctanoic acid (PFOA)	20		1.9	0.79	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	82		1.9	0.19	ng/L	1		EPA 537(Mod)	Total/NA
Perfluoropentanesulfonic acid (PFPeS)	60		1.9	0.28	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	130		1.9	0.53	ng/L	1		EPA 537(Mod)	Total/NA
Perfluoroheptanesulfonic Acid (PFHpS)	0.36	J	1.9	0.18	ng/L	1		EPA 537(Mod)	Total/NA
4:2 FTS	2.0		1.9	0.22	ng/L	1		EPA 537(Mod)	Total/NA
6:2 FTS	210		4.7	2.3	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorobutanoic acid (PFBA) - DL	1000		230	110	ng/L	50		EPA 537(Mod)	Total/NA
Perfluoropentanoic acid (PFPeA) - DL	4800		94	23	ng/L	50		EPA 537(Mod)	Total/NA
Perfluorohexanoic acid (PFHxA) - DL	2800		94	27	ng/L	50		EPA 537(Mod)	Total/NA

Client Sample ID: L10-5-GW — Lab Sample ID: 320-84353-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorononanoic acid (PFNA)	57		1.8	0.25	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorodecanoic acid (PFDA)	18		1.8	0.28	ng/L	1		EPA 537(Mod)	Total/NA
Perfluoroheptanesulfonic Acid (PFHpS)	150		1.8	0.17	ng/L	1		EPA 537(Mod)	Total/NA
4:2 FTS	200		1.8	0.22	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorobutanoic acid (PFBA) - DL	3000		460	220	ng/L	100		EPA 537(Mod)	Total/NA
Perfluoropentanoic acid (PFPeA) - DL	15000		180	45	ng/L	100		EPA 537(Mod)	Total/NA
Perfluorohexanoic acid (PFHxA) - DL	11000		180	53	ng/L	100		EPA 537(Mod)	Total/NA
Perfluoroheptanoic acid (PFHpA) - DL	1700		180	23	ng/L	100		EPA 537(Mod)	Total/NA
Perfluorooctanoic acid (PFOA) - DL	1200		180	78	ng/L	100		EPA 537(Mod)	Total/NA
Perfluorobutanesulfonic acid (PFBS) - DL	2200		180	18	ng/L	100		EPA 537(Mod)	Total/NA
Perfluoropentanesulfonic acid (PFPeS) - DL	1600		180	28	ng/L	100		EPA 537(Mod)	Total/NA

This Detection Summary does not include radiochemical test results.

Detection Summary

Client: Woodard & Curran, Inc. Job ID: 320-84353-1

Project/Site: PFAS, San Jose Airport Phase 2

Client Sample ID: L10-5-GW (Continued) Lab Sample ID: 320-84353-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorohexanesulfonic acid (PFHxS) - DL	9300		180	52	ng/L	100		EPA 537(Mod)	Total/NA
Perfluorooctanesulfonic acid (PFOS) - DL	9000		180	50	ng/L	100		EPA 537(Mod)	Total/NA
6:2 FTS - DL	10000		460	230	ng/L	100		EPA 537(Mod)	Total/NA
8:2 FTS - DL	510		180	42	ng/L	100		EPA 537(Mod)	Total/NA

Client Sample ID: L10-4-GW Lab Sample ID: 320-84353-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorononanoic acid (PFNA)	6.9		1.9	0.25	ng/L	1		EPA 537(Mod)	Total/NA
Perfluoroheptanesulfonic Acid (PFHpS)	38		1.9	0.18	ng/L	1		EPA 537(Mod)	Total/NA
4:2 FTS	6.6		1.9	0.22	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorobutanoic acid (PFBA) - DL	1200		230	110	ng/L	50		EPA 537(Mod)	Total/NA
Perfluoropentanoic acid (PFPeA) - DL	5900		93	23	ng/L	50		EPA 537(Mod)	Total/NA
Perfluorohexanoic acid (PFHxA) - DL	4900		93	27	ng/L	50		EPA 537(Mod)	Total/NA
Perfluoroheptanoic acid (PFHpA) - DL	1400		93	12	ng/L	50		EPA 537(Mod)	Total/NA
Perfluorooctanoic acid (PFOA) - DL	370		93	39	ng/L	50		EPA 537(Mod)	Total/NA
Perfluorobutanesulfonic acid (PFBS) - DL	400		93	9.3	ng/L	50		EPA 537(Mod)	Total/NA
Perfluoropentanesulfonic acid (PFPeS) - DL	430		93	14	ng/L	50		EPA 537(Mod)	Total/NA
Perfluorohexanesulfonic acid (PFHxS) - DL	2500		93	26	ng/L	50		EPA 537(Mod)	Total/NA
Perfluorooctanesulfonic acid (PFOS) - DL	710		93	25	ng/L	50		EPA 537(Mod)	Total/NA
6:2 FTS - DL	4400		230	120	ng/L	50		EPA 537(Mod)	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample Results

Client Sample ID: FB-6-013122

Lab Sample ID: 320-84353-1

Date Collected: 01/31/22 11:35

Matrix: Water

Date Received: 01/31/22 16:05

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		4.6	2.2	ng/L		02/04/22 04:55	02/06/22 02:54	1
Perfluoropentanoic acid (PFPeA)	ND		1.9	0.45	ng/L		02/04/22 04:55	02/06/22 02:54	1
Perfluorohexanoic acid (PFHxA)	ND		1.9	0.54	ng/L		02/04/22 04:55	02/06/22 02:54	1
Perfluoroheptanoic acid (PFHpA)	ND		1.9	0.23	ng/L		02/04/22 04:55	02/06/22 02:54	1
Perfluorooctanoic acid (PFOA)	ND		1.9	0.79	ng/L		02/04/22 04:55	02/06/22 02:54	1
Perfluorononanoic acid (PFNA)	ND		1.9	0.25	ng/L		02/04/22 04:55	02/06/22 02:54	1
Perfluorodecanoic acid (PFDA)	ND		1.9	0.29	ng/L		02/04/22 04:55	02/06/22 02:54	1
Perfluoroundecanoic acid (PFUnA)	ND		1.9	1.0	ng/L		02/04/22 04:55	02/06/22 02:54	1
Perfluorododecanoic acid (PFDoA)	ND		1.9	0.51	ng/L		02/04/22 04:55	02/06/22 02:54	1
Perfluorotridecanoic acid (PFTrDA)	ND		1.9	1.2	ng/L		02/04/22 04:55	02/06/22 02:54	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.9	0.68	ng/L		02/04/22 04:55	02/06/22 02:54	1
Perfluorobutanesulfonic acid (PFBS)	ND		1.9	0.19	ng/L		02/04/22 04:55	02/06/22 02:54	1
Perfluoropentanesulfonic acid (PFPeS)	ND		1.9	0.28	ng/L		02/04/22 04:55	02/06/22 02:54	1
Perfluorohexanesulfonic acid (PFHxS)	ND		1.9	0.53	ng/L		02/04/22 04:55	02/06/22 02:54	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		1.9	0.18	ng/L		02/04/22 04:55	02/06/22 02:54	1
Perfluorooctanesulfonic acid (PFOS)	ND		1.9	0.50	ng/L		02/04/22 04:55	02/06/22 02:54	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.9	0.30	ng/L		02/04/22 04:55	02/06/22 02:54	1
Perfluorooctanesulfonamide (FOSA)	ND		1.9	0.91	ng/L		02/04/22 04:55	02/06/22 02:54	1
NEtFOSAA	ND		4.6	1.2	ng/L		02/04/22 04:55	02/06/22 02:54	1
NMeFOSAA	ND		4.6	1.1	ng/L		02/04/22 04:55	02/06/22 02:54	1
4:2 FTS	ND		1.9	0.22	ng/L		02/04/22 04:55	02/06/22 02:54	1
6:2 FTS	ND		4.6	2.3	ng/L		02/04/22 04:55	02/06/22 02:54	1
8:2 FTS	ND		1.9	0.43	ng/L		02/04/22 04:55	02/06/22 02:54	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*92*		*50 - 150*	*02/04/22 04:55*	*02/06/22 02:54*	*1*
13C5 PFPeA	*92*		*50 - 150*	*02/04/22 04:55*	*02/06/22 02:54*	*1*
13C2 PFHxA	*95*		*50 - 150*	*02/04/22 04:55*	*02/06/22 02:54*	*1*
13C4 PFHpA	*100*		*50 - 150*	*02/04/22 04:55*	*02/06/22 02:54*	*1*
13C4 PFOA	*98*		*50 - 150*	*02/04/22 04:55*	*02/06/22 02:54*	*1*
13C5 PFNA	*104*		*50 - 150*	*02/04/22 04:55*	*02/06/22 02:54*	*1*
13C2 PFDA	*96*		*50 - 150*	*02/04/22 04:55*	*02/06/22 02:54*	*1*
13C2 PFUnA	*99*		*50 - 150*	*02/04/22 04:55*	*02/06/22 02:54*	*1*
13C2 PFDoA	*111*		*50 - 150*	*02/04/22 04:55*	*02/06/22 02:54*	*1*
13C2 PFTeDA	*99*		*50 - 150*	*02/04/22 04:55*	*02/06/22 02:54*	*1*
13C3 PFBS	*96*		*50 - 150*	*02/04/22 04:55*	*02/06/22 02:54*	*1*
18O2 PFHxS	*100*		*50 - 150*	*02/04/22 04:55*	*02/06/22 02:54*	*1*
13C4 PFOS	*101*		*50 - 150*	*02/04/22 04:55*	*02/06/22 02:54*	*1*
13C8 FOSA	*97*		*50 - 150*	*02/04/22 04:55*	*02/06/22 02:54*	*1*
M2-4:2 FTS	*78*		*50 - 150*	*02/04/22 04:55*	*02/06/22 02:54*	*1*
M2-6:2 FTS	*74*		*50 - 150*	*02/04/22 04:55*	*02/06/22 02:54*	*1*
M2-8:2 FTS	*71*		*50 - 150*	*02/04/22 04:55*	*02/06/22 02:54*	*1*
d5-NEtFOSAA	*110*		*50 - 150*	*02/04/22 04:55*	*02/06/22 02:54*	*1*
d3-NMeFOSAA	*102*		*50 - 150*	*02/04/22 04:55*	*02/06/22 02:54*	*1*

Client Sample Results

Client: Woodard & Curran, Inc.
Job ID: 320-84353-1
Project/Site: PFAS, San Jose Airport Phase 2

Client Sample ID: EB-3-013122

Lab Sample ID: 320-84353-2
Date Collected: 01/31/22 11:50
Matrix: Water
Date Received: 01/31/22 16:05

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		4.6	2.2	ng/L		02/04/22 04:55	02/06/22 03:04	1
Perfluoropentanoic acid (PFPeA)	ND		1.8	0.45	ng/L		02/04/22 04:55	02/06/22 03:04	1
Perfluorohexanoic acid (PFHxA)	ND		1.8	0.53	ng/L		02/04/22 04:55	02/06/22 03:04	1
Perfluoroheptanoic acid (PFHpA)	ND		1.8	0.23	ng/L		02/04/22 04:55	02/06/22 03:04	1
Perfluorooctanoic acid (PFOA)	ND		1.8	0.78	ng/L		02/04/22 04:55	02/06/22 03:04	1
Perfluorononanoic acid (PFNA)	ND		1.8	0.25	ng/L		02/04/22 04:55	02/06/22 03:04	1
Perfluorodecanoic acid (PFDA)	ND		1.8	0.28	ng/L		02/04/22 04:55	02/06/22 03:04	1
Perfluoroundecanoic acid (PFUnA)	ND		1.8	1.0	ng/L		02/04/22 04:55	02/06/22 03:04	1
Perfluorododecanoic acid (PFDoA)	ND		1.8	0.50	ng/L		02/04/22 04:55	02/06/22 03:04	1
Perfluorotridecanoic acid (PFTrDA)	ND		1.8	1.2	ng/L		02/04/22 04:55	02/06/22 03:04	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.8	0.67	ng/L		02/04/22 04:55	02/06/22 03:04	1
Perfluorobutanesulfonic acid (PFBS)	ND		1.8	0.18	ng/L		02/04/22 04:55	02/06/22 03:04	1
Perfluoropentanesulfonic acid (PFPeS)	ND		1.8	0.27	ng/L		02/04/22 04:55	02/06/22 03:04	1
Perfluorohexanesulfonic acid (PFHxS)	ND		1.8	0.52	ng/L		02/04/22 04:55	02/06/22 03:04	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		1.8	0.17	ng/L		02/04/22 04:55	02/06/22 03:04	1
Perfluorooctanesulfonic acid (PFOS)	ND		1.8	0.49	ng/L		02/04/22 04:55	02/06/22 03:04	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.8	0.29	ng/L		02/04/22 04:55	02/06/22 03:04	1
Perfluorooctanesulfonamide (FOSA)	ND		1.8	0.89	ng/L		02/04/22 04:55	02/06/22 03:04	1
NEtFOSAA	ND		4.6	1.2	ng/L		02/04/22 04:55	02/06/22 03:04	1
NMeFOSAA	ND		4.6	1.1	ng/L		02/04/22 04:55	02/06/22 03:04	1
4:2 FTS	ND		1.8	0.22	ng/L		02/04/22 04:55	02/06/22 03:04	1
6:2 FTS	ND		4.6	2.3	ng/L		02/04/22 04:55	02/06/22 03:04	1
8:2 FTS	ND		1.8	0.42	ng/L		02/04/22 04:55	02/06/22 03:04	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*100*		*50 - 150*	*02/04/22 04:55*	*02/06/22 03:04*	*1*
13C5 PFPeA	*99*		*50 - 150*	*02/04/22 04:55*	*02/06/22 03:04*	*1*
13C2 PFHxA	*106*		*50 - 150*	*02/04/22 04:55*	*02/06/22 03:04*	*1*
13C4 PFHpA	*110*		*50 - 150*	*02/04/22 04:55*	*02/06/22 03:04*	*1*
13C4 PFOA	*112*		*50 - 150*	*02/04/22 04:55*	*02/06/22 03:04*	*1*
13C5 PFNA	*108*		*50 - 150*	*02/04/22 04:55*	*02/06/22 03:04*	*1*
13C2 PFDA	*108*		*50 - 150*	*02/04/22 04:55*	*02/06/22 03:04*	*1*
13C2 PFUnA	*110*		*50 - 150*	*02/04/22 04:55*	*02/06/22 03:04*	*1*
13C2 PFDoA	*120*		*50 - 150*	*02/04/22 04:55*	*02/06/22 03:04*	*1*
13C2 PFTeDA	*130*		*50 - 150*	*02/04/22 04:55*	*02/06/22 03:04*	*1*
13C3 PFBS	*104*		*50 - 150*	*02/04/22 04:55*	*02/06/22 03:04*	*1*
18O2 PFHxS	*103*		*50 - 150*	*02/04/22 04:55*	*02/06/22 03:04*	*1*
13C4 PFOS	*103*		*50 - 150*	*02/04/22 04:55*	*02/06/22 03:04*	*1*
13C8 FOSA	*106*		*50 - 150*	*02/04/22 04:55*	*02/06/22 03:04*	*1*
M2-4:2 FTS	*93*		*50 - 150*	*02/04/22 04:55*	*02/06/22 03:04*	*1*
M2-6:2 FTS	*87*		*50 - 150*	*02/04/22 04:55*	*02/06/22 03:04*	*1*
M2-8:2 FTS	*81*		*50 - 150*	*02/04/22 04:55*	*02/06/22 03:04*	*1*
d5-NEtFOSAA	*130*		*50 - 150*	*02/04/22 04:55*	*02/06/22 03:04*	*1*
d3-NMeFOSAA	*115*		*50 - 150*	*02/04/22 04:55*	*02/06/22 03:04*	*1*

Client Sample Results

Client: Woodard & Curran, Inc.
Project/Site: PFAS, San Jose Airport Phase 2

Job ID: 320-84353-1

Client Sample ID: L10-6-GW

Date Collected: 01/31/22 12:20
Date Received: 01/31/22 16:05

Lab Sample ID: 320-84353-3
Matrix: Water

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluoroheptanoic acid (PFHpA)	**360**		1.9	0.23	ng/L		02/04/22 13:22	02/05/22 17:45	1
Perfluorooctanoic acid (PFOA)	**21**		1.9	0.79	ng/L		02/04/22 13:22	02/05/22 17:45	1
Perfluorononanoic acid (PFNA)	ND		1.9	0.25	ng/L		02/04/22 13:22	02/05/22 17:45	1
Perfluorodecanoic acid (PFDA)	ND		1.9	0.29	ng/L		02/04/22 13:22	02/05/22 17:45	1
Perfluoroundecanoic acid (PFUnA)	ND		1.9	1.0	ng/L		02/04/22 13:22	02/05/22 17:45	1
Perfluorododecanoic acid (PFDoA)	ND		1.9	0.51	ng/L		02/04/22 13:22	02/05/22 17:45	1
Perfluorotridecanoic acid (PFTrDA)	ND		1.9	1.2	ng/L		02/04/22 13:22	02/05/22 17:45	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.9	0.68	ng/L		02/04/22 13:22	02/05/22 17:45	1
Perfluorobutanesulfonic acid (PFBS)	**83**		1.9	0.19	ng/L		02/04/22 13:22	02/05/22 17:45	1
Perfluoropentanesulfonic acid (PFPeS)	**64**		1.9	0.28	ng/L		02/04/22 13:22	02/05/22 17:45	1
Perfluorohexanesulfonic acid (PFHxS)	**140**		1.9	0.53	ng/L		02/04/22 13:22	02/05/22 17:45	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		1.9	0.18	ng/L		02/04/22 13:22	02/05/22 17:45	1
Perfluorooctanesulfonic acid (PFOS)	ND		1.9	0.50	ng/L		02/04/22 13:22	02/05/22 17:45	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.9	0.30	ng/L		02/04/22 13:22	02/05/22 17:45	1
Perfluorooctanesulfonamide (FOSA)	ND		1.9	0.91	ng/L		02/04/22 13:22	02/05/22 17:45	1
NEtFOSAA	ND		4.7	1.2	ng/L		02/04/22 13:22	02/05/22 17:45	1
NMeFOSAA	ND		4.7	1.1	ng/L		02/04/22 13:22	02/05/22 17:45	1
4:2 FTS	**2.3**		1.9	0.22	ng/L		02/04/22 13:22	02/05/22 17:45	1
6:2 FTS	**230**		4.7	2.3	ng/L		02/04/22 13:22	02/05/22 17:45	1
8:2 FTS	ND		1.9	0.43	ng/L		02/04/22 13:22	02/05/22 17:45	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFHpA	*83*		*50 - 150*	*02/04/22 13:22*	*02/05/22 17:45*	*1*
13C4 PFOA	*85*		*50 - 150*	*02/04/22 13:22*	*02/05/22 17:45*	*1*
13C5 PFNA	*83*		*50 - 150*	*02/04/22 13:22*	*02/05/22 17:45*	*1*
13C2 PFDA	*74*		*50 - 150*	*02/04/22 13:22*	*02/05/22 17:45*	*1*
13C2 PFUnA	*56*		*50 - 150*	*02/04/22 13:22*	*02/05/22 17:45*	*1*
13C2 PFDoA	*45*	**5-*	*50 - 150*	*02/04/22 13:22*	*02/05/22 17:45*	*1*
13C2 PFTeDA	*44*	**5-*	*50 - 150*	*02/04/22 13:22*	*02/05/22 17:45*	*1*
13C3 PFBS	*87*		*50 - 150*	*02/04/22 13:22*	*02/05/22 17:45*	*1*
18O2 PFHxS	*84*		*50 - 150*	*02/04/22 13:22*	*02/05/22 17:45*	*1*
13C4 PFOS	*80*		*50 - 150*	*02/04/22 13:22*	*02/05/22 17:45*	*1*
13C8 FOSA	*71*		*50 - 150*	*02/04/22 13:22*	*02/05/22 17:45*	*1*
M2-4:2 FTS	*68*		*50 - 150*	*02/04/22 13:22*	*02/05/22 17:45*	*1*
M2-6:2 FTS	*64*		*50 - 150*	*02/04/22 13:22*	*02/05/22 17:45*	*1*
M2-8:2 FTS	*56*		*50 - 150*	*02/04/22 13:22*	*02/05/22 17:45*	*1*
d5-NEtFOSAA	*41*	**5-*	*50 - 150*	*02/04/22 13:22*	*02/05/22 17:45*	*1*
d3-NMeFOSAA	*44*	**5-*	*50 - 150*	*02/04/22 13:22*	*02/05/22 17:45*	*1*

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15 - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**1200**		230	110	ng/L		02/04/22 13:22	02/12/22 07:44	50
Perfluoropentanoic acid (PFPeA)	**5000**		93	23	ng/L		02/04/22 13:22	02/12/22 07:44	50
Perfluorohexanoic acid (PFHxA)	**2200**		93	27	ng/L		02/04/22 13:22	02/12/22 07:44	50

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*77*		*50 - 150*	*02/04/22 13:22*	*02/12/22 07:44*	*50*
13C5 PFPeA	*75*		*50 - 150*	*02/04/22 13:22*	*02/12/22 07:44*	*50*

Client Sample ID: L10-6-GW
Date Collected: 01/31/22 12:20
Date Received: 01/31/22 16:05

Lab Sample ID: 320-84353-3
Matrix: Water

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15 - DL (Continued)

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*79*		*50 - 150*	*02/04/22 13:22*	*02/12/22 07:44*	*50*

Client Sample ID: L10-60-GW

Lab Sample ID: 320-84353-4

Date Collected: 01/31/22 12:20

Matrix: Water

Date Received: 01/31/22 16:05

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluoroheptanoic acid (PFHpA)	**330**		1.9	0.23	ng/L		02/04/22 13:22	02/05/22 17:55	1
Perfluorooctanoic acid (PFOA)	**20**		1.9	0.79	ng/L		02/04/22 13:22	02/05/22 17:55	1
Perfluorononanoic acid (PFNA)	ND		1.9	0.25	ng/L		02/04/22 13:22	02/05/22 17:55	1
Perfluorodecanoic acid (PFDA)	ND		1.9	0.29	ng/L		02/04/22 13:22	02/05/22 17:55	1
Perfluoroundecanoic acid (PFUnA)	ND		1.9	1.0	ng/L		02/04/22 13:22	02/05/22 17:55	1
Perfluorododecanoic acid (PFDoA)	ND		1.9	0.51	ng/L		02/04/22 13:22	02/05/22 17:55	1
Perfluorotridecanoic acid (PFTrDA)	ND		1.9	1.2	ng/L		02/04/22 13:22	02/05/22 17:55	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.9	0.68	ng/L		02/04/22 13:22	02/05/22 17:55	1
Perfluorobutanesulfonic acid (PFBS)	**82**		1.9	0.19	ng/L		02/04/22 13:22	02/05/22 17:55	1
Perfluoropentanesulfonic acid (PFPeS)	**60**		1.9	0.28	ng/L		02/04/22 13:22	02/05/22 17:55	1
Perfluorohexanesulfonic acid (PFHxS)	**130**		1.9	0.53	ng/L		02/04/22 13:22	02/05/22 17:55	1
Perfluoroheptanesulfonic Acid (PFHpS)	**0.36**	**J**	1.9	0.18	ng/L		02/04/22 13:22	02/05/22 17:55	1
Perfluorooctanesulfonic acid (PFOS)	ND		1.9	0.51	ng/L		02/04/22 13:22	02/05/22 17:55	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.9	0.30	ng/L		02/04/22 13:22	02/05/22 17:55	1
Perfluorooctanesulfonamide (FOSA)	ND		1.9	0.92	ng/L		02/04/22 13:22	02/05/22 17:55	1
NEtFOSAA	ND		4.7	1.2	ng/L		02/04/22 13:22	02/05/22 17:55	1
NMeFOSAA	ND		4.7	1.1	ng/L		02/04/22 13:22	02/05/22 17:55	1
4:2 FTS	**2.0**		1.9	0.22	ng/L		02/04/22 13:22	02/05/22 17:55	1
6:2 FTS	**210**		4.7	2.3	ng/L		02/04/22 13:22	02/05/22 17:55	1
8:2 FTS	ND		1.9	0.43	ng/L		02/04/22 13:22	02/05/22 17:55	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFHpA	*112*		*50 - 150*	*02/04/22 13:22*	*02/05/22 17:55*	*1*
13C4 PFOA	*111*		*50 - 150*	*02/04/22 13:22*	*02/05/22 17:55*	*1*
13C5 PFNA	*109*		*50 - 150*	*02/04/22 13:22*	*02/05/22 17:55*	*1*
13C2 PFDA	*108*		*50 - 150*	*02/04/22 13:22*	*02/05/22 17:55*	*1*
13C2 PFUnA	*99*		*50 - 150*	*02/04/22 13:22*	*02/05/22 17:55*	*1*
13C2 PFDoA	*101*		*50 - 150*	*02/04/22 13:22*	*02/05/22 17:55*	*1*
13C2 PFTeDA	*93*		*50 - 150*	*02/04/22 13:22*	*02/05/22 17:55*	*1*
13C3 PFBS	*115*		*50 - 150*	*02/04/22 13:22*	*02/05/22 17:55*	*1*
18O2 PFHxS	*107*		*50 - 150*	*02/04/22 13:22*	*02/05/22 17:55*	*1*
13C4 PFOS	*112*		*50 - 150*	*02/04/22 13:22*	*02/05/22 17:55*	*1*
13C8 FOSA	*99*		*50 - 150*	*02/04/22 13:22*	*02/05/22 17:55*	*1*
M2-4:2 FTS	*90*		*50 - 150*	*02/04/22 13:22*	*02/05/22 17:55*	*1*
M2-6:2 FTS	*84*		*50 - 150*	*02/04/22 13:22*	*02/05/22 17:55*	*1*
M2-8:2 FTS	*86*		*50 - 150*	*02/04/22 13:22*	*02/05/22 17:55*	*1*
d5-NEtFOSAA	*84*		*50 - 150*	*02/04/22 13:22*	*02/05/22 17:55*	*1*
d3-NMeFOSAA	*74*		*50 - 150*	*02/04/22 13:22*	*02/05/22 17:55*	*1*

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15 - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**1000**		230	110	ng/L		02/04/22 13:22	02/12/22 07:55	50
Perfluoropentanoic acid (PFPeA)	**4800**		94	23	ng/L		02/04/22 13:22	02/12/22 07:55	50
Perfluorohexanoic acid (PFHxA)	**2800**		94	27	ng/L		02/04/22 13:22	02/12/22 07:55	50

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*112*		*50 - 150*	*02/04/22 13:22*	*02/12/22 07:55*	*50*
13C5 PFPeA	*98*		*50 - 150*	*02/04/22 13:22*	*02/12/22 07:55*	*50*

Client Sample ID: L10-60-GW **Lab Sample ID: 320-84353-4**

Date Collected: 01/31/22 12:20 **Matrix: Water**

Date Received: 01/31/22 16:05

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15 - DL (Continued)

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*84*		*50 - 150*	*02/04/22 13:22*	*02/12/22 07:55*	*50*

Client Sample Results

Client Sample ID: L10-5-GW

Lab Sample ID: 320-84353-5
Date Collected: 01/31/22 13:44
Matrix: Water
Date Received: 01/31/22 16:05

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorononanoic acid (PFNA)	**57**		1.8	0.25	ng/L		02/04/22 13:22	02/05/22 18:06	1
Perfluorodecanoic acid (PFDA)	**18**		1.8	0.28	ng/L		02/04/22 13:22	02/05/22 18:06	1
Perfluoroundecanoic acid (PFUnA)	ND		1.8	1.0	ng/L		02/04/22 13:22	02/05/22 18:06	1
Perfluorododecanoic acid (PFDoA)	ND		1.8	0.50	ng/L		02/04/22 13:22	02/05/22 18:06	1
Perfluorotridecanoic acid (PFTrDA)	ND		1.8	1.2	ng/L		02/04/22 13:22	02/05/22 18:06	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.8	0.67	ng/L		02/04/22 13:22	02/05/22 18:06	1
Perfluoroheptanesulfonic Acid (PFHpS)	**150**		1.8	0.17	ng/L		02/04/22 13:22	02/05/22 18:06	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.8	0.29	ng/L		02/04/22 13:22	02/05/22 18:06	1
Perfluorooctanesulfonamide (FOSA)	ND		1.8	0.90	ng/L		02/04/22 13:22	02/05/22 18:06	1
NEtFOSAA	ND		4.6	1.2	ng/L		02/04/22 13:22	02/05/22 18:06	1
NMeFOSAA	ND		4.6	1.1	ng/L		02/04/22 13:22	02/05/22 18:06	1
4:2 FTS	**200**		1.8	0.22	ng/L		02/04/22 13:22	02/05/22 18:06	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C5 PFNA	*59*		*50 - 150*	*02/04/22 13:22*	*02/05/22 18:06*	*1*
13C2 PFDA	*66*		*50 - 150*	*02/04/22 13:22*	*02/05/22 18:06*	*1*
13C2 PFUnA	*58*		*50 - 150*	*02/04/22 13:22*	*02/05/22 18:06*	*1*
13C2 PFDoA	*52*		*50 - 150*	*02/04/22 13:22*	*02/05/22 18:06*	*1*
13C2 PFTeDA	*44*	*5-	*50 - 150*	*02/04/22 13:22*	*02/05/22 18:06*	*1*
13C4 PFOS	*64*		*50 - 150*	*02/04/22 13:22*	*02/05/22 18:06*	*1*
13C8 FOSA	*64*		*50 - 150*	*02/04/22 13:22*	*02/05/22 18:06*	*1*
M2-4:2 FTS	*42*	*5-	*50 - 150*	*02/04/22 13:22*	*02/05/22 18:06*	*1*
d5-NEtFOSAA	*41*	*5-	*50 - 150*	*02/04/22 13:22*	*02/05/22 18:06*	*1*
d3-NMeFOSAA	*42*	*5-	*50 - 150*	*02/04/22 13:22*	*02/05/22 18:06*	*1*

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15 - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**3000**		460	220	ng/L		02/04/22 13:22	02/12/22 08:16	100
Perfluoropentanoic acid (PFPeA)	**15000**		180	45	ng/L		02/04/22 13:22	02/12/22 08:16	100
Perfluorohexanoic acid (PFHxA)	**11000**		180	53	ng/L		02/04/22 13:22	02/12/22 08:16	100
Perfluoroheptanoic acid (PFHpA)	**1700**		180	23	ng/L		02/04/22 13:22	02/12/22 08:16	100
Perfluorooctanoic acid (PFOA)	**1200**		180	78	ng/L		02/04/22 13:22	02/12/22 08:16	100
Perfluorobutanesulfonic acid (PFBS)	**2200**		180	18	ng/L		02/04/22 13:22	02/12/22 08:16	100
Perfluoropentanesulfonic acid (PFPeS)	**1600**		180	28	ng/L		02/04/22 13:22	02/12/22 08:16	100
Perfluorohexanesulfonic acid (PFHxS)	**9300**		180	52	ng/L		02/04/22 13:22	02/12/22 08:16	100
Perfluorooctanesulfonic acid (PFOS)	**9000**		180	50	ng/L		02/04/22 13:22	02/12/22 08:16	100
6:2 FTS	**10000**		460	230	ng/L		02/04/22 13:22	02/12/22 08:16	100
8:2 FTS	**510**		180	42	ng/L		02/04/22 13:22	02/12/22 08:16	100

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*68*		*50 - 150*	*02/04/22 13:22*	*02/12/22 08:16*	*100*
13C5 PFPeA	*57*		*50 - 150*	*02/04/22 13:22*	*02/12/22 08:16*	*100*
13C2 PFHxA	*67*		*50 - 150*	*02/04/22 13:22*	*02/12/22 08:16*	*100*
13C4 PFHpA	*57*		*50 - 150*	*02/04/22 13:22*	*02/12/22 08:16*	*100*
13C4 PFOA	*49*	*5-	*50 - 150*	*02/04/22 13:22*	*02/12/22 08:16*	*100*
13C3 PFBS	*42*	*5-	*50 - 150*	*02/04/22 13:22*	*02/12/22 08:16*	*100*
18O2 PFHxS	*35*	*5-	*50 - 150*	*02/04/22 13:22*	*02/12/22 08:16*	*100*

Client Sample ID: L10-5-GW **Lab Sample ID: 320-84353-5**
Date Collected: 01/31/22 13:44 **Matrix: Water**
Date Received: 01/31/22 16:05

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15 - DL (Continued)

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFOS	*79*		*50 - 150*	*02/04/22 13:22*	*02/12/22 08:16*	*100*
M2-6:2 FTS	*551*	**5+*	*50 - 150*	*02/04/22 13:22*	*02/12/22 08:16*	*100*
M2-8:2 FTS	*123*		*50 - 150*	*02/04/22 13:22*	*02/12/22 08:16*	*100*

Client Sample ID: L10-4-GW

Lab Sample ID: 320-84353-6

Date Collected: 01/31/22 14:47

Matrix: Water

Date Received: 01/31/22 16:05

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorononanoic acid (PFNA)	**6.9**		1.9	0.25	ng/L		02/04/22 13:22	02/05/22 18:16	1
Perfluorodecanoic acid (PFDA)	ND		1.9	0.29	ng/L		02/04/22 13:22	02/05/22 18:16	1
Perfluoroundecanoic acid (PFUnA)	ND		1.9	1.0	ng/L		02/04/22 13:22	02/05/22 18:16	1
Perfluorododecanoic acid (PFDoA)	ND		1.9	0.51	ng/L		02/04/22 13:22	02/05/22 18:16	1
Perfluorotridecanoic acid (PFTrDA)	ND		1.9	1.2	ng/L		02/04/22 13:22	02/05/22 18:16	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.9	0.68	ng/L		02/04/22 13:22	02/05/22 18:16	1
Perfluoroheptanesulfonic Acid (PFHpS)	**38**		1.9	0.18	ng/L		02/04/22 13:22	02/05/22 18:16	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.9	0.30	ng/L		02/04/22 13:22	02/05/22 18:16	1
Perfluorooctanesulfonamide (FOSA)	ND		1.9	0.91	ng/L		02/04/22 13:22	02/05/22 18:16	1
NEtFOSAA	ND		4.6	1.2	ng/L		02/04/22 13:22	02/05/22 18:16	1
NMeFOSAA	ND		4.6	1.1	ng/L		02/04/22 13:22	02/05/22 18:16	1
4:2 FTS	**6.6**		1.9	0.22	ng/L		02/04/22 13:22	02/05/22 18:16	1
8:2 FTS	ND		1.9	0.43	ng/L		02/04/22 13:22	02/05/22 18:16	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C5 PFNA	*85*		*50 - 150*	*02/04/22 13:22*	*02/05/22 18:16*	*1*
13C2 PFDA	*73*		*50 - 150*	*02/04/22 13:22*	*02/05/22 18:16*	*1*
13C2 PFUnA	*63*		*50 - 150*	*02/04/22 13:22*	*02/05/22 18:16*	*1*
13C2 PFDoA	*52*		*50 - 150*	*02/04/22 13:22*	*02/05/22 18:16*	*1*
13C2 PFTeDA	*53*		*50 - 150*	*02/04/22 13:22*	*02/05/22 18:16*	*1*
13C4 PFOS	*86*		*50 - 150*	*02/04/22 13:22*	*02/05/22 18:16*	*1*
13C8 FOSA	*73*		*50 - 150*	*02/04/22 13:22*	*02/05/22 18:16*	*1*
M2-4:2 FTS	*67*		*50 - 150*	*02/04/22 13:22*	*02/05/22 18:16*	*1*
M2-8:2 FTS	*60*		*50 - 150*	*02/04/22 13:22*	*02/05/22 18:16*	*1*
d5-NEtFOSAA	*47*	**5-*	*50 - 150*	*02/04/22 13:22*	*02/05/22 18:16*	*1*
d3-NMeFOSAA	*45*	**5-*	*50 - 150*	*02/04/22 13:22*	*02/05/22 18:16*	*1*

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15 - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**1200**		230	110	ng/L		02/04/22 13:22	02/12/22 08:05	50
Perfluoropentanoic acid (PFPeA)	**5900**		93	23	ng/L		02/04/22 13:22	02/12/22 08:05	50
Perfluorohexanoic acid (PFHxA)	**4900**		93	27	ng/L		02/04/22 13:22	02/12/22 08:05	50
Perfluoroheptanoic acid (PFHpA)	**1400**		93	12	ng/L		02/04/22 13:22	02/12/22 08:05	50
Perfluorooctanoic acid (PFOA)	**370**		93	39	ng/L		02/04/22 13:22	02/12/22 08:05	50
Perfluorobutanesulfonic acid (PFBS)	**400**		93	9.3	ng/L		02/04/22 13:22	02/12/22 08:05	50
Perfluoropentanesulfonic acid (PFPeS)	**430**		93	14	ng/L		02/04/22 13:22	02/12/22 08:05	50
Perfluorohexanesulfonic acid (PFHxS)	**2500**		93	26	ng/L		02/04/22 13:22	02/12/22 08:05	50
Perfluorooctanesulfonic acid (PFOS)	**710**		93	25	ng/L		02/04/22 13:22	02/12/22 08:05	50
6:2 FTS	**4400**		230	120	ng/L		02/04/22 13:22	02/12/22 08:05	50

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*113*		*50 - 150*	*02/04/22 13:22*	*02/12/22 08:05*	*50*
13C5 PFPeA	*106*		*50 - 150*	*02/04/22 13:22*	*02/12/22 08:05*	*50*
13C2 PFHxA	*106*		*50 - 150*	*02/04/22 13:22*	*02/12/22 08:05*	*50*
13C4 PFHpA	*81*		*50 - 150*	*02/04/22 13:22*	*02/12/22 08:05*	*50*
13C4 PFOA	*134*		*50 - 150*	*02/04/22 13:22*	*02/12/22 08:05*	*50*
13C3 PFBS	*115*		*50 - 150*	*02/04/22 13:22*	*02/12/22 08:05*	*50*

Client Sample ID: L10-4-GW
Date Collected: 01/31/22 14:47
Date Received: 01/31/22 16:05

Lab Sample ID: 320-84353-6
Matrix: Water

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15 - DL (Continued)

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
18O2 PFHxS	*115*		*50 - 150*	*02/04/22 13:22*	*02/12/22 08:05*	*50*
13C4 PFOS	*92*		*50 - 150*	*02/04/22 13:22*	*02/12/22 08:05*	*50*
M2-6:2 FTS	*167*	**5+*	*50 - 150*	*02/04/22 13:22*	*02/12/22 08:05*	*50*

Isotope Dilution Summary

Client: Woodard & Curran, Inc. Job ID: 320-84353-1
Project/Site: PFAS, San Jose Airport Phase 2

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

Matrix: Water **Prep Type: Total/NA**

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	PFBA (50-150)	PFPeA (50-150)	PFHxA (50-150)	C4PFHA (50-150)	PFOA (50-150)	PFNA (50-150)	PFDA (50-150)	PFUnA (50-150)
320-84353-1	FB-6-013122	92	92	95	100	98	104	96	99
320-84353-2	EB-3-013122	100	99	106	110	112	108	108	110
320-84353-3	L10-6-GW				83	85	83	74	56
320-84353-3 - DL	L10-6-GW	77	75	79					
320-84353-4	L10-60-GW				112	111	109	108	99
320-84353-4 - DL	L10-60-GW	112	98	84					
320-84353-5	L10-5-GW						59	66	58
320-84353-5 - DL	L10-5-GW	68	57	67	57	49 *5-			
320-84353-6	L10-4-GW						85	73	63
320-84353-6 - DL	L10-4-GW	113	106	106	81	134			
LCS 320-563274/2-A	Lab Control Sample	88	90	90	95	96	92	93	97
LCS 320-563436/2-A	Lab Control Sample	113	119	112	109	114	112	112	111
LCSD 320-563274/3-A	Lab Control Sample Dup	90	90	96	97	98	97	96	102
LCSD 320-563436/3-A	Lab Control Sample Dup	109	115	111	106	109	109	103	110
MB 320-563274/1-A	Method Blank	88	89	93	99	101	92	94	106
MB 320-563436/1-A	Method Blank	119	127	122	117	118	120	112	111

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	PFDoA (50-150)	PFTDA (50-150)	C3PFBS (50-150)	PFHxS (50-150)	PFOS (50-150)	PFOSA (50-150)	M242FTS (50-150)	M262FTS (50-150)
320-84353-1	FB-6-013122	111	99	96	100	101	97	78	74
320-84353-2	EB-3-013122	120	130	104	103	103	106	93	87
320-84353-3	L10-6-GW	45 *5-	44 *5-	87	84	80	71	68	64
320-84353-3 - DL	L10-6-GW								
320-84353-4	L10-60-GW	101	93	115	107	112	99	90	84
320-84353-4 - DL	L10-60-GW								
320-84353-5	L10-5-GW	52	44 *5-			64	64	42 *5-	
320-84353-5 - DL	L10-5-GW			42 *5-	35 *5-	79			551 *5+
320-84353-6	L10-4-GW	52	53			86	73	67	
320-84353-6 - DL	L10-4-GW			115	115	92			167 *5+
LCS 320-563274/2-A	Lab Control Sample	97	103	91	93	93	92	76	70
LCS 320-563436/2-A	Lab Control Sample	104	111	120	114	117	105	84	85
LCSD 320-563274/3-A	Lab Control Sample Dup	101	114	89	93	96	95	76	70
LCSD 320-563436/3-A	Lab Control Sample Dup	105	109	119	108	113	99	87	86
MB 320-563274/1-A	Method Blank	109	112	89	98	101	101	82	75
MB 320-563436/1-A	Method Blank	115	115	125	116	123	106	93	83

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	M282FTS (50-150)	d5NEFOS (50-150)	d3NMFOS (50-150)
320-84353-1	FB-6-013122	71	110	102
320-84353-2	EB-3-013122	81	130	115
320-84353-3	L10-6-GW	56	41 *5-	44 *5-
320-84353-3 - DL	L10-6-GW			
320-84353-4	L10-60-GW	86	84	74
320-84353-4 - DL	L10-60-GW			
320-84353-5	L10-5-GW		41 *5-	42 *5-
320-84353-5 - DL	L10-5-GW	123		
320-84353-6	L10-4-GW	60	47 *5-	45 *5-
320-84353-6 - DL	L10-4-GW			
LCS 320-563274/2-A	Lab Control Sample	67	106	98

Isotope Dilution Summary

Client: Woodard & Curran, Inc. Job ID: 320-84353-1
Project/Site: PFAS, San Jose Airport Phase 2

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15 (Continued)

Matrix: Water **Prep Type: Total/NA**

		Percent Isotope Dilution Recovery (Acceptance Limits)		
		M282FTS	d5NEFOS	d3NMFOS
Lab Sample ID	**Client Sample ID**	(50-150)	(50-150)	(50-150)
LCS 320-563436/2-A	Lab Control Sample	85	89	82
LCSD 320-563274/3-A	Lab Control Sample Dup	72	112	101
LCSD 320-563436/3-A	Lab Control Sample Dup	85	92	83
MB 320-563274/1-A	Method Blank	69	115	102
MB 320-563436/1-A	Method Blank	84	94	85

Surrogate Legend

PFBA = 13C4 PFBA
PFPeA = 13C5 PFPeA
PFHxA = 13C2 PFHxA
C4PFHA = 13C4 PFHpA
PFOA = 13C4 PFOA
PFNA = 13C5 PFNA
PFDA = 13C2 PFDA
PFUnA = 13C2 PFUnA
PFDoA = 13C2 PFDoA
PFTDA = 13C2 PFTeDA
C3PFBS = 13C3 PFBS
PFHxS = 18O2 PFHxS
PFOS = 13C4 PFOS
PFOSA = 13C8 FOSA
M242FTS = M2-4:2 FTS
M262FTS = M2-6:2 FTS
M282FTS = M2-8:2 FTS
d5NEFOS = d5-NEtFOSAA
d3NMFOS = d3-NMeFOSAA

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

Lab Sample ID: MB 320-563274/1-A
Matrix: Water
Analysis Batch: 563667

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 563274

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		5.0	2.4	ng/L		02/04/22 04:55	02/06/22 02:24	1
Perfluoropentanoic acid (PFPeA)	ND		2.0	0.49	ng/L		02/04/22 04:55	02/06/22 02:24	1
Perfluorohexanoic acid (PFHxA)	ND		2.0	0.58	ng/L		02/04/22 04:55	02/06/22 02:24	1
Perfluoroheptanoic acid (PFHpA)	ND		2.0	0.25	ng/L		02/04/22 04:55	02/06/22 02:24	1
Perfluorooctanoic acid (PFOA)	ND		2.0	0.85	ng/L		02/04/22 04:55	02/06/22 02:24	1
Perfluorononanoic acid (PFNA)	ND		2.0	0.27	ng/L		02/04/22 04:55	02/06/22 02:24	1
Perfluorodecanoic acid (PFDA)	ND		2.0	0.31	ng/L		02/04/22 04:55	02/06/22 02:24	1
Perfluoroundecanoic acid (PFUnA)	ND		2.0	1.1	ng/L		02/04/22 04:55	02/06/22 02:24	1
Perfluorododecanoic acid (PFDoA)	ND		2.0	0.55	ng/L		02/04/22 04:55	02/06/22 02:24	1
Perfluorotridecanoic acid (PFTrDA)	ND		2.0	1.3	ng/L		02/04/22 04:55	02/06/22 02:24	1
Perfluorotetradecanoic acid (PFTeA)	ND		2.0	0.73	ng/L		02/04/22 04:55	02/06/22 02:24	1
Perfluorobutanesulfonic acid (PFBS)	ND		2.0	0.20	ng/L		02/04/22 04:55	02/06/22 02:24	1
Perfluoropentanesulfonic acid (PFPeS)	ND		2.0	0.30	ng/L		02/04/22 04:55	02/06/22 02:24	1
Perfluorohexanesulfonic acid (PFHxS)	ND		2.0	0.57	ng/L		02/04/22 04:55	02/06/22 02:24	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		2.0	0.19	ng/L		02/04/22 04:55	02/06/22 02:24	1
Perfluorooctanesulfonic acid (PFOS)	ND		2.0	0.54	ng/L		02/04/22 04:55	02/06/22 02:24	1
Perfluorodecanesulfonic acid (PFDS)	ND		2.0	0.32	ng/L		02/04/22 04:55	02/06/22 02:24	1
Perfluorooctanesulfonamide (FOSA)	ND		2.0	0.98	ng/L		02/04/22 04:55	02/06/22 02:24	1
NEtFOSAA	ND		5.0	1.3	ng/L		02/04/22 04:55	02/06/22 02:24	1
NMeFOSAA	ND		5.0	1.2	ng/L		02/04/22 04:55	02/06/22 02:24	1
4:2 FTS	ND		2.0	0.24	ng/L		02/04/22 04:55	02/06/22 02:24	1
6:2 FTS	ND		5.0	2.5	ng/L		02/04/22 04:55	02/06/22 02:24	1
8:2 FTS	ND		2.0	0.46	ng/L		02/04/22 04:55	02/06/22 02:24	1

Isotope Dilution	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*88*		*50 - 150*	*02/04/22 04:55*	*02/06/22 02:24*	*1*
13C5 PFPeA	*89*		*50 - 150*	*02/04/22 04:55*	*02/06/22 02:24*	*1*
13C2 PFHxA	*93*		*50 - 150*	*02/04/22 04:55*	*02/06/22 02:24*	*1*
13C4 PFHpA	*99*		*50 - 150*	*02/04/22 04:55*	*02/06/22 02:24*	*1*
13C4 PFOA	*101*		*50 - 150*	*02/04/22 04:55*	*02/06/22 02:24*	*1*
13C5 PFNA	*92*		*50 - 150*	*02/04/22 04:55*	*02/06/22 02:24*	*1*
13C2 PFDA	*94*		*50 - 150*	*02/04/22 04:55*	*02/06/22 02:24*	*1*
13C2 PFUnA	*106*		*50 - 150*	*02/04/22 04:55*	*02/06/22 02:24*	*1*
13C2 PFDoA	*109*		*50 - 150*	*02/04/22 04:55*	*02/06/22 02:24*	*1*
13C2 PFTeDA	*112*		*50 - 150*	*02/04/22 04:55*	*02/06/22 02:24*	*1*
13C3 PFBS	*89*		*50 - 150*	*02/04/22 04:55*	*02/06/22 02:24*	*1*
18O2 PFHxS	*98*		*50 - 150*	*02/04/22 04:55*	*02/06/22 02:24*	*1*
13C4 PFOS	*101*		*50 - 150*	*02/04/22 04:55*	*02/06/22 02:24*	*1*
13C8 FOSA	*101*		*50 - 150*	*02/04/22 04:55*	*02/06/22 02:24*	*1*
M2-4:2 FTS	*82*		*50 - 150*	*02/04/22 04:55*	*02/06/22 02:24*	*1*
M2-6:2 FTS	*75*		*50 - 150*	*02/04/22 04:55*	*02/06/22 02:24*	*1*
M2-8:2 FTS	*69*		*50 - 150*	*02/04/22 04:55*	*02/06/22 02:24*	*1*
d5-NEtFOSAA	*115*		*50 - 150*	*02/04/22 04:55*	*02/06/22 02:24*	*1*
d3-NMeFOSAA	*102*		*50 - 150*	*02/04/22 04:55*	*02/06/22 02:24*	*1*

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15 (Continued)

Lab Sample ID: LCS 320-563274/2-A
Matrix: Water
Analysis Batch: 563667

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 563274

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Perfluorobutanoic acid (PFBA)	40.0	36.6		ng/L		92	73 - 129
Perfluoropentanoic acid (PFPeA)	40.0	34.0		ng/L		85	72 - 129
Perfluorohexanoic acid (PFHxA)	40.0	35.4		ng/L		89	72 - 129
Perfluoroheptanoic acid (PFHpA)	40.0	39.3		ng/L		98	72 - 130
Perfluorooctanoic acid (PFOA)	40.0	35.4		ng/L		89	71 - 133
Perfluorononanoic acid (PFNA)	40.0	37.5		ng/L		94	69 - 130
Perfluorodecanoic acid (PFDA)	40.0	36.5		ng/L		91	71 - 129
Perfluoroundecanoic acid (PFUnA)	40.0	34.5		ng/L		86	69 - 133
Perfluorododecanoic acid (PFDoA)	40.0	38.9		ng/L		97	72 - 134
Perfluorotridecanoic acid (PFTrDA)	40.0	40.5		ng/L		101	65 - 144
Perfluorotetradecanoic acid (PFTeA)	40.0	38.6		ng/L		96	71 - 132
Perfluorobutanesulfonic acid (PFBS)	35.4	30.7		ng/L		87	72 - 130
Perfluoropentanesulfonic acid (PFPeS)	37.5	35.3		ng/L		94	71 - 127
Perfluorohexanesulfonic acid (PFHxS)	36.4	32.4		ng/L		89	68 - 131
Perfluoroheptanesulfonic Acid (PFHpS)	38.1	37.2		ng/L		98	69 - 134
Perfluorooctanesulfonic acid (PFOS)	37.1	32.1		ng/L		86	65 - 140
Perfluorodecanesulfonic acid (PFDS)	38.6	33.5		ng/L		87	53 - 142
Perfluorooctanesulfonamide (FOSA)	40.0	38.8		ng/L		97	67 - 137
NEtFOSAA	40.0	33.9		ng/L		85	61 - 135
NMeFOSAA	40.0	36.2		ng/L		90	65 - 136
4:2 FTS	37.4	33.1		ng/L		89	63 - 143
6:2 FTS	37.9	36.0		ng/L		95	64 - 140
8:2 FTS	38.3	36.0		ng/L		94	67 - 138

Isotope Dilution	*LCS %Recovery*	*LCS Qualifier*	*Limits*
13C4 PFBA	*88*		*50 - 150*
13C5 PFPeA	*90*		*50 - 150*
13C2 PFHxA	*90*		*50 - 150*
13C4 PFHpA	*95*		*50 - 150*
13C4 PFOA	*96*		*50 - 150*
13C5 PFNA	*92*		*50 - 150*
13C2 PFDA	*93*		*50 - 150*
13C2 PFUnA	*97*		*50 - 150*
13C2 PFDoA	*97*		*50 - 150*
13C2 PFTeDA	*103*		*50 - 150*
13C3 PFBS	*91*		*50 - 150*
18O2 PFHxS	*93*		*50 - 150*
13C4 PFOS	*93*		*50 - 150*
13C8 FOSA	*92*		*50 - 150*
M2-4:2 FTS	*76*		*50 - 150*

QC Sample Results

Client: Woodard & Curran, Inc. Job ID: 320-84353-1
Project/Site: PFAS, San Jose Airport Phase 2

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15 (Continued)

Lab Sample ID: LCS 320-563274/2-A **Client Sample ID: Lab Control Sample**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 563667 **Prep Batch: 563274**

Isotope Dilution	*LCS %Recovery*	*LCS Qualifier*	*Limits*
M2-6:2 FTS	*70*		*50 - 150*
M2-8:2 FTS	*67*		*50 - 150*
d5-NEtFOSAA	*106*		*50 - 150*
d3-NMeFOSAA	*98*		*50 - 150*

Lab Sample ID: LCSD 320-563274/3-A **Client Sample ID: Lab Control Sample Dup**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 563667 **Prep Batch: 563274**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Perfluorobutanoic acid (PFBA)	40.0	38.7		ng/L		97	73 - 129	5	30
Perfluoropentanoic acid (PFPeA)	40.0	36.7		ng/L		92	72 - 129	7	30
Perfluorohexanoic acid (PFHxA)	40.0	37.1		ng/L		93	72 - 129	5	30
Perfluoroheptanoic acid (PFHpA)	40.0	40.7		ng/L		102	72 - 130	4	30
Perfluorooctanoic acid (PFOA)	40.0	38.1		ng/L		95	71 - 133	7	30
Perfluorononanoic acid (PFNA)	40.0	39.6		ng/L		99	69 - 130	5	30
Perfluorodecanoic acid (PFDA)	40.0	38.0		ng/L		95	71 - 129	4	30
Perfluoroundecanoic acid (PFUnA)	40.0	36.7		ng/L		92	69 - 133	6	30
Perfluorododecanoic acid (PFDoA)	40.0	39.4		ng/L		98	72 - 134	1	30
Perfluorotridecanoic acid (PFTrDA)	40.0	37.9		ng/L		95	65 - 144	7	30
Perfluorotetradecanoic acid (PFTeA)	40.0	41.9		ng/L		105	71 - 132	8	30
Perfluorobutanesulfonic acid (PFBS)	35.4	36.0		ng/L		102	72 - 130	16	30
Perfluoropentanesulfonic acid (PFPeS)	37.5	39.0		ng/L		104	71 - 127	10	30
Perfluorohexanesulfonic acid (PFHxS)	36.4	36.2		ng/L		99	68 - 131	11	30
Perfluoroheptanesulfonic Acid (PFHpS)	38.1	37.9		ng/L		100	69 - 134	2	30
Perfluorooctanesulfonic acid (PFOS)	37.1	34.3		ng/L		92	65 - 140	7	30
Perfluorodecanesulfonic acid (PFDS)	38.6	34.2		ng/L		89	53 - 142	2	30
Perfluorooctanesulfonamide (FOSA)	40.0	39.9		ng/L		100	67 - 137	3	30
NEtFOSAA	40.0	34.5		ng/L		86	61 - 135	2	30
NMeFOSAA	40.0	38.6		ng/L		96	65 - 136	6	30
4:2 FTS	37.4	36.2		ng/L		97	63 - 143	9	30
6:2 FTS	37.9	39.8		ng/L		105	64 - 140	10	30
8:2 FTS	38.3	36.5		ng/L		95	67 - 138	1	30

Isotope Dilution	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
13C4 PFBA	*90*		*50 - 150*
13C5 PFPeA	*90*		*50 - 150*
13C2 PFHxA	*96*		*50 - 150*
13C4 PFHpA	*97*		*50 - 150*
13C4 PFOA	*98*		*50 - 150*
13C5 PFNA	*97*		*50 - 150*

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15 (Continued)

Lab Sample ID: LCSD 320-563274/3-A
Matrix: Water
Analysis Batch: 563667

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 563274

Isotope Dilution	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
13C2 PFDA	*96*		*50 - 150*
13C2 PFUnA	*102*		*50 - 150*
13C2 PFDoA	*101*		*50 - 150*
13C2 PFTeDA	*114*		*50 - 150*
13C3 PFBS	*89*		*50 - 150*
18O2 PFHxS	*93*		*50 - 150*
13C4 PFOS	*96*		*50 - 150*
13C8 FOSA	*95*		*50 - 150*
M2-4:2 FTS	*76*		*50 - 150*
M2-6:2 FTS	*70*		*50 - 150*
M2-8:2 FTS	*72*		*50 - 150*
d5-NEtFOSAA	*112*		*50 - 150*
d3-NMeFOSAA	*101*		*50 - 150*

Lab Sample ID: MB 320-563436/1-A
Matrix: Water
Analysis Batch: 563620

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 563436

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		5.0	2.4	ng/L		02/04/22 13:22	02/05/22 17:14	1
Perfluoropentanoic acid (PFPeA)	ND		2.0	0.49	ng/L		02/04/22 13:22	02/05/22 17:14	1
Perfluorohexanoic acid (PFHxA)	ND		2.0	0.58	ng/L		02/04/22 13:22	02/05/22 17:14	1
Perfluoroheptanoic acid (PFHpA)	ND		2.0	0.25	ng/L		02/04/22 13:22	02/05/22 17:14	1
Perfluorooctanoic acid (PFOA)	ND		2.0	0.85	ng/L		02/04/22 13:22	02/05/22 17:14	1
Perfluorononanoic acid (PFNA)	ND		2.0	0.27	ng/L		02/04/22 13:22	02/05/22 17:14	1
Perfluorodecanoic acid (PFDA)	ND		2.0	0.31	ng/L		02/04/22 13:22	02/05/22 17:14	1
Perfluoroundecanoic acid (PFUnA)	ND		2.0	1.1	ng/L		02/04/22 13:22	02/05/22 17:14	1
Perfluorododecanoic acid (PFDoA)	ND		2.0	0.55	ng/L		02/04/22 13:22	02/05/22 17:14	1
Perfluorotridecanoic acid (PFTrDA)	ND		2.0	1.3	ng/L		02/04/22 13:22	02/05/22 17:14	1
Perfluorotetradecanoic acid (PFTeA)	ND		2.0	0.73	ng/L		02/04/22 13:22	02/05/22 17:14	1
Perfluorobutanesulfonic acid (PFBS)	ND		2.0	0.20	ng/L		02/04/22 13:22	02/05/22 17:14	1
Perfluoropentanesulfonic acid (PFPeS)	ND		2.0	0.30	ng/L		02/04/22 13:22	02/05/22 17:14	1
Perfluorohexanesulfonic acid (PFHxS)	ND		2.0	0.57	ng/L		02/04/22 13:22	02/05/22 17:14	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		2.0	0.19	ng/L		02/04/22 13:22	02/05/22 17:14	1
Perfluorooctanesulfonic acid (PFOS)	ND		2.0	0.54	ng/L		02/04/22 13:22	02/05/22 17:14	1
Perfluorodecanesulfonic acid (PFDS)	ND		2.0	0.32	ng/L		02/04/22 13:22	02/05/22 17:14	1
Perfluorooctanesulfonamide (FOSA)	ND		2.0	0.98	ng/L		02/04/22 13:22	02/05/22 17:14	1
NEtFOSAA	ND		5.0	1.3	ng/L		02/04/22 13:22	02/05/22 17:14	1
NMeFOSAA	ND		5.0	1.2	ng/L		02/04/22 13:22	02/05/22 17:14	1
4:2 FTS	ND		2.0	0.24	ng/L		02/04/22 13:22	02/05/22 17:14	1
6:2 FTS	ND		5.0	2.5	ng/L		02/04/22 13:22	02/05/22 17:14	1
8:2 FTS	ND		2.0	0.46	ng/L		02/04/22 13:22	02/05/22 17:14	1

Isotope Dilution	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*119*		*50 - 150*	*02/04/22 13:22*	*02/05/22 17:14*	*1*
13C5 PFPeA	*127*		*50 - 150*	*02/04/22 13:22*	*02/05/22 17:14*	*1*
13C2 PFHxA	*122*		*50 - 150*	*02/04/22 13:22*	*02/05/22 17:14*	*1*

QC Sample Results

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15 (Continued)

Lab Sample ID: MB 320-563436/1-A
Matrix: Water
Analysis Batch: 563620

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 563436

Isotope Dilution	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFHpA	*117*		*50 - 150*	*02/04/22 13:22*	*02/05/22 17:14*	*1*
13C4 PFOA	*118*		*50 - 150*	*02/04/22 13:22*	*02/05/22 17:14*	*1*
13C5 PFNA	*120*		*50 - 150*	*02/04/22 13:22*	*02/05/22 17:14*	*1*
13C2 PFDA	*112*		*50 - 150*	*02/04/22 13:22*	*02/05/22 17:14*	*1*
13C2 PFUnA	*111*		*50 - 150*	*02/04/22 13:22*	*02/05/22 17:14*	*1*
13C2 PFDoA	*115*		*50 - 150*	*02/04/22 13:22*	*02/05/22 17:14*	*1*
13C2 PFTeDA	*115*		*50 - 150*	*02/04/22 13:22*	*02/05/22 17:14*	*1*
13C3 PFBS	*125*		*50 - 150*	*02/04/22 13:22*	*02/05/22 17:14*	*1*
18O2 PFHxS	*116*		*50 - 150*	*02/04/22 13:22*	*02/05/22 17:14*	*1*
13C4 PFOS	*123*		*50 - 150*	*02/04/22 13:22*	*02/05/22 17:14*	*1*
13C8 FOSA	*106*		*50 - 150*	*02/04/22 13:22*	*02/05/22 17:14*	*1*
M2-4:2 FTS	*93*		*50 - 150*	*02/04/22 13:22*	*02/05/22 17:14*	*1*
M2-6:2 FTS	*83*		*50 - 150*	*02/04/22 13:22*	*02/05/22 17:14*	*1*
M2-8:2 FTS	*84*		*50 - 150*	*02/04/22 13:22*	*02/05/22 17:14*	*1*
d5-NEtFOSAA	*94*		*50 - 150*	*02/04/22 13:22*	*02/05/22 17:14*	*1*
d3-NMeFOSAA	*85*		*50 - 150*	*02/04/22 13:22*	*02/05/22 17:14*	*1*

Lab Sample ID: LCS 320-563436/2-A
Matrix: Water
Analysis Batch: 563620

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 563436

Analyte	**Spike Added**	**LCS Result**	**LCS Qualifier**	**Unit**	**D**	**%Rec**	**%Rec. Limits**
Perfluorobutanoic acid (PFBA)	40.0	40.6		ng/L		102	73 - 129
Perfluoropentanoic acid (PFPeA)	40.0	39.4		ng/L		99	72 - 129
Perfluorohexanoic acid (PFHxA)	40.0	40.2		ng/L		100	72 - 129
Perfluoroheptanoic acid (PFHpA)	40.0	40.0		ng/L		100	72 - 130
Perfluorooctanoic acid (PFOA)	40.0	37.2		ng/L		93	71 - 133
Perfluorononanoic acid (PFNA)	40.0	37.8		ng/L		95	69 - 130
Perfluorodecanoic acid (PFDA)	40.0	34.7		ng/L		87	71 - 129
Perfluoroundecanoic acid (PFUnA)	40.0	37.4		ng/L		93	69 - 133
Perfluorododecanoic acid (PFDoA)	40.0	41.1		ng/L		103	72 - 134
Perfluorotridecanoic acid (PFTrDA)	40.0	41.3		ng/L		103	65 - 144
Perfluorotetradecanoic acid (PFTeA)	40.0	37.0		ng/L		92	71 - 132
Perfluorobutanesulfonic acid (PFBS)	35.4	33.1		ng/L		93	72 - 130
Perfluoropentanesulfonic acid (PFPeS)	37.5	35.7		ng/L		95	71 - 127
Perfluorohexanesulfonic acid (PFHxS)	36.4	34.2		ng/L		94	68 - 131
Perfluoroheptanesulfonic Acid (PFHpS)	38.1	36.9		ng/L		97	69 - 134
Perfluorooctanesulfonic acid (PFOS)	37.1	34.2		ng/L		92	65 - 140
Perfluorodecanesulfonic acid (PFDS)	38.6	36.6		ng/L		95	53 - 142
Perfluorooctanesulfonamide (FOSA)	40.0	41.1		ng/L		103	67 - 137
NEtFOSAA	40.0	36.8		ng/L		92	61 - 135

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15 (Continued)

Lab Sample ID: LCS 320-563436/2-A
Matrix: Water
Analysis Batch: 563620

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 563436

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
NMeFOSAA	40.0	39.9		ng/L		100	65 - 136
4:2 FTS	37.4	37.3		ng/L		100	63 - 143
6:2 FTS	37.9	38.6		ng/L		102	64 - 140
8:2 FTS	38.3	38.8		ng/L		101	67 - 138

Isotope Dilution	*LCS %Recovery*	*LCS Qualifier*	*Limits*
13C4 PFBA	*113*		*50 - 150*
13C5 PFPeA	*119*		*50 - 150*
13C2 PFHxA	*112*		*50 - 150*
13C4 PFHpA	*109*		*50 - 150*
13C4 PFOA	*114*		*50 - 150*
13C5 PFNA	*112*		*50 - 150*
13C2 PFDA	*112*		*50 - 150*
13C2 PFUnA	*111*		*50 - 150*
13C2 PFDoA	*104*		*50 - 150*
13C2 PFTeDA	*111*		*50 - 150*
13C3 PFBS	*120*		*50 - 150*
18O2 PFHxS	*114*		*50 - 150*
13C4 PFOS	*117*		*50 - 150*
13C8 FOSA	*105*		*50 - 150*
M2-4:2 FTS	*84*		*50 - 150*
M2-6:2 FTS	*85*		*50 - 150*
M2-8:2 FTS	*85*		*50 - 150*
d5-NEtFOSAA	*89*		*50 - 150*
d3-NMeFOSAA	*82*		*50 - 150*

Lab Sample ID: LCSD 320-563436/3-A
Matrix: Water
Analysis Batch: 563620

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 563436

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Perfluorobutanoic acid (PFBA)	40.0	38.7		ng/L		97	73 - 129	5	30
Perfluoropentanoic acid (PFPeA)	40.0	37.9		ng/L		95	72 - 129	4	30
Perfluorohexanoic acid (PFHxA)	40.0	38.4		ng/L		96	72 - 129	5	30
Perfluoroheptanoic acid (PFHpA)	40.0	38.4		ng/L		96	72 - 130	4	30
Perfluorooctanoic acid (PFOA)	40.0	37.7		ng/L		94	71 - 133	1	30
Perfluorononanoic acid (PFNA)	40.0	36.8		ng/L		92	69 - 130	3	30
Perfluorodecanoic acid (PFDA)	40.0	35.1		ng/L		88	71 - 129	1	30
Perfluoroundecanoic acid (PFUnA)	40.0	36.2		ng/L		91	69 - 133	3	30
Perfluorododecanoic acid (PFDoA)	40.0	38.4		ng/L		96	72 - 134	7	30
Perfluorotridecanoic acid (PFTrDA)	40.0	40.8		ng/L		102	65 - 144	1	30
Perfluorotetradecanoic acid (PFTeA)	40.0	37.3		ng/L		93	71 - 132	1	30
Perfluorobutanesulfonic acid (PFBS)	35.4	31.6		ng/L		89	72 - 130	4	30
Perfluoropentanesulfonic acid (PFPeS)	37.5	33.9		ng/L		90	71 - 127	5	30

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15 (Continued)

Lab Sample ID: LCSD 320-563436/3-A
Matrix: Water
Analysis Batch: 563620

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 563436

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Perfluorohexanesulfonic acid (PFHxS)	36.4	33.2		ng/L		91	68 - 131	3	30
Perfluoroheptanesulfonic Acid (PFHpS)	38.1	39.1		ng/L		103	69 - 134	6	30
Perfluorooctanesulfonic acid (PFOS)	37.1	33.2		ng/L		89	65 - 140	3	30
Perfluorodecanesulfonic acid (PFDS)	38.6	36.9		ng/L		96	53 - 142	1	30
Perfluorooctanesulfonamide (FOSA)	40.0	40.6		ng/L		101	67 - 137	1	30
NEtFOSAA	40.0	34.1		ng/L		85	61 - 135	8	30
NMeFOSAA	40.0	37.2		ng/L		93	65 - 136	7	30
4:2 FTS	37.4	38.2		ng/L		102	63 - 143	2	30
6:2 FTS	37.9	35.3		ng/L		93	64 - 140	9	30
8:2 FTS	38.3	33.7		ng/L		88	67 - 138	14	30

Isotope Dilution	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
13C4 PFBA	*109*		*50 - 150*
13C5 PFPeA	*115*		*50 - 150*
13C2 PFHxA	*111*		*50 - 150*
13C4 PFHpA	*106*		*50 - 150*
13C4 PFOA	*109*		*50 - 150*
13C5 PFNA	*109*		*50 - 150*
13C2 PFDA	*103*		*50 - 150*
13C2 PFUnA	*110*		*50 - 150*
13C2 PFDoA	*105*		*50 - 150*
13C2 PFTeDA	*109*		*50 - 150*
13C3 PFBS	*119*		*50 - 150*
18O2 PFHxS	*108*		*50 - 150*
13C4 PFOS	*113*		*50 - 150*
13C8 FOSA	*99*		*50 - 150*
M2-4:2 FTS	*87*		*50 - 150*
M2-6:2 FTS	*86*		*50 - 150*
M2-8:2 FTS	*85*		*50 - 150*
d5-NEtFOSAA	*92*		*50 - 150*
d3-NMeFOSAA	*83*		*50 - 150*

QC Association Summary

Client: Woodard & Curran, Inc.
Project/Site: PFAS, San Jose Airport Phase 2

Job ID: 320-84353-1

LCMS

Prep Batch: 563274

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-84353-1	FB-6-013122	Total/NA	Water	3535	
320-84353-2	EB-3-013122	Total/NA	Water	3535	
MB 320-563274/1-A	Method Blank	Total/NA	Water	3535	
LCS 320-563274/2-A	Lab Control Sample	Total/NA	Water	3535	
LCSD 320-563274/3-A	Lab Control Sample Dup	Total/NA	Water	3535	

Prep Batch: 563436

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-84353-3	L10-6-GW	Total/NA	Water	3535	
320-84353-3 - DL	L10-6-GW	Total/NA	Water	3535	
320-84353-4	L10-60-GW	Total/NA	Water	3535	
320-84353-4 - DL	L10-60-GW	Total/NA	Water	3535	
320-84353-5	L10-5-GW	Total/NA	Water	3535	
320-84353-5 - DL	L10-5-GW	Total/NA	Water	3535	
320-84353-6	L10-4-GW	Total/NA	Water	3535	
320-84353-6 - DL	L10-4-GW	Total/NA	Water	3535	
MB 320-563436/1-A	Method Blank	Total/NA	Water	3535	
LCS 320-563436/2-A	Lab Control Sample	Total/NA	Water	3535	
LCSD 320-563436/3-A	Lab Control Sample Dup	Total/NA	Water	3535	

Analysis Batch: 563620

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-84353-3	L10-6-GW	Total/NA	Water	EPA 537(Mod)	563436
320-84353-4	L10-60-GW	Total/NA	Water	EPA 537(Mod)	563436
320-84353-5	L10-5-GW	Total/NA	Water	EPA 537(Mod)	563436
320-84353-6	L10-4-GW	Total/NA	Water	EPA 537(Mod)	563436
MB 320-563436/1-A	Method Blank	Total/NA	Water	EPA 537(Mod)	563436
LCS 320-563436/2-A	Lab Control Sample	Total/NA	Water	EPA 537(Mod)	563436
LCSD 320-563436/3-A	Lab Control Sample Dup	Total/NA	Water	EPA 537(Mod)	563436

Analysis Batch: 563667

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-84353-1	FB-6-013122	Total/NA	Water	EPA 537(Mod)	563274
320-84353-2	EB-3-013122	Total/NA	Water	EPA 537(Mod)	563274
MB 320-563274/1-A	Method Blank	Total/NA	Water	EPA 537(Mod)	563274
LCS 320-563274/2-A	Lab Control Sample	Total/NA	Water	EPA 537(Mod)	563274
LCSD 320-563274/3-A	Lab Control Sample Dup	Total/NA	Water	EPA 537(Mod)	563274

Analysis Batch: 565379

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-84353-3 - DL	L10-6-GW	Total/NA	Water	EPA 537(Mod)	563436
320-84353-4 - DL	L10-60-GW	Total/NA	Water	EPA 537(Mod)	563436
320-84353-5 - DL	L10-5-GW	Total/NA	Water	EPA 537(Mod)	563436
320-84353-6 - DL	L10-4-GW	Total/NA	Water	EPA 537(Mod)	563436

Lab Chronicle

Client: Woodard & Curran, Inc.
Project/Site: PFAS, San Jose Airport Phase 2

Job ID: 320-84353-1

Client Sample ID: FB-6-013122

Lab Sample ID: 320-84353-1
Date Collected: 01/31/22 11:35
Matrix: Water
Date Received: 01/31/22 16:05

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			269.6 mL	10.0 mL	563274	02/04/22 04:55	EG	TAL SAC
Total/NA	Analysis	EPA 537(Mod)		1			563667	02/06/22 02:54	S1M	TAL SAC

Client Sample ID: EB-3-013122

Lab Sample ID: 320-84353-2
Date Collected: 01/31/22 11:50
Matrix: Water
Date Received: 01/31/22 16:05

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			274 mL	10.0 mL	563274	02/04/22 04:55	EG	TAL SAC
Total/NA	Analysis	EPA 537(Mod)		1			563667	02/06/22 03:04	S1M	TAL SAC

Client Sample ID: L10-6-GW

Lab Sample ID: 320-84353-3
Date Collected: 01/31/22 12:20
Matrix: Water
Date Received: 01/31/22 16:05

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			268.5 mL	10.0 mL	563436	02/04/22 13:22	DVC	TAL SAC
Total/NA	Analysis	EPA 537(Mod)		1			563620	02/05/22 17:45	K1S	TAL SAC
Total/NA	Prep	3535	DL		268.5 mL	10.0 mL	563436	02/04/22 13:22	DVC	TAL SAC
Total/NA	Analysis	EPA 537(Mod)	DL	50			565379	02/12/22 07:44	K1S	TAL SAC

Client Sample ID: L10-60-GW

Lab Sample ID: 320-84353-4
Date Collected: 01/31/22 12:20
Matrix: Water
Date Received: 01/31/22 16:05

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			267.3 mL	10.0 mL	563436	02/04/22 13:22	DVC	TAL SAC
Total/NA	Analysis	EPA 537(Mod)		1			563620	02/05/22 17:55	K1S	TAL SAC
Total/NA	Prep	3535	DL		267.3 mL	10.0 mL	563436	02/04/22 13:22	DVC	TAL SAC
Total/NA	Analysis	EPA 537(Mod)	DL	50			565379	02/12/22 07:55	K1S	TAL SAC

Client Sample ID: L10-5-GW

Lab Sample ID: 320-84353-5
Date Collected: 01/31/22 13:44
Matrix: Water
Date Received: 01/31/22 16:05

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			272.5 mL	10.0 mL	563436	02/04/22 13:22	DVC	TAL SAC
Total/NA	Analysis	EPA 537(Mod)		1			563620	02/05/22 18:06	K1S	TAL SAC
Total/NA	Prep	3535	DL		272.5 mL	10.0 mL	563436	02/04/22 13:22	DVC	TAL SAC
Total/NA	Analysis	EPA 537(Mod)	DL	100			565379	02/12/22 08:16	K1S	TAL SAC

Lab Chronicle

Client: Woodard & Curran, Inc. Job ID: 320-84353-1
Project/Site: PFAS, San Jose Airport Phase 2

Client Sample ID: L10-4-GW

Lab Sample ID: 320-84353-6

Date Collected: 01/31/22 14:47
Matrix: Water
Date Received: 01/31/22 16:05

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			269.2 mL	10.0 mL	563436	02/04/22 13:22	DVC	TAL SAC
Total/NA	Analysis	EPA 537(Mod)		1			563620	02/05/22 18:16	K1S	TAL SAC
Total/NA	Prep	3535	DL		269.2 mL	10.0 mL	563436	02/04/22 13:22	DVC	TAL SAC
Total/NA	Analysis	EPA 537(Mod)	DL	50			565379	02/12/22 08:05	K1S	TAL SAC

Laboratory References:

TAL SAC = Eurofins Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600

Accreditation/Certification Summary

Client: Woodard & Curran, Inc.
Job ID: 320-84353-1
Project/Site: PFAS, San Jose Airport Phase 2

Laboratory: Eurofins Sacramento

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	Expiration Date
California	State	2897	01-31-23

Method Summary

Client: Woodard & Curran, Inc.
Project/Site: PFAS, San Jose Airport Phase 2

Job ID: 320-84353-1

Method	Method Description	Protocol	Laboratory
EPA 537(Mod)	PFAS for QSM 5.3, Table B-15	EPA	TAL SAC
3535	Solid-Phase Extraction (SPE)	SW846	TAL SAC

Protocol References:

EPA = US Environmental Protection Agency
SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL SAC = Eurofins Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600

Sample Summary

Client: Woodard & Curran, Inc.
Project/Site: PFAS, San Jose Airport Phase 2

Job ID: 320-84353-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
320-84353-1	FB-6-013122	Water	01/31/22 11:35	01/31/22 16:05
320-84353-2	EB-3-013122	Water	01/31/22 11:50	01/31/22 16:05
320-84353-3	L10-6-GW	Water	01/31/22 12:20	01/31/22 16:05
320-84353-4	L10-60-GW	Water	01/31/22 12:20	01/31/22 16:05
320-84353-5	L10-5-GW	Water	01/31/22 13:44	01/31/22 16:05
320-84353-6	L10-4-GW	Water	01/31/22 14:47	01/31/22 16:05

Address. Eurofins TestAmerica West Sacramento
880 Riverside Pkwy
West Sacramento, CA 94516

Chain of Custody Record

320-84353

589984 eurofins | Environment Testing TestAmerica

201938

TAL-8210

Regulatory Program ☐ DW ☐ NPDES ☐ RCRA ☐ Other:

Client Contact	Project Manager: Jim Strandberg	Site Contact: Kevin Almestad	Date: 1/31/2022
Company Name: Woodard & Curran, Inc	Tel/Email: jstrandberg@woodardcurran.com	Lab Contact: Linda Laver	Carrier: Drop off
Address: 2175 N California Blvd, Ste 315	**Analysis Turnaround Time**		
City/State/Zip: Walnut Creek, CA 94596	☐ CALENDAR DAYS ☒ WORKING DAYS		
Phone: (925) 627 4100	TAT if different from Below ______		
Fax: (925) 627-4101	☒ 2 weeks		
Project Name: SSC PFAS Phase 2	☐ 1 week		
Site: San Jose Area A	☐ 2 days		
P O # 0232401 07	☐ 1 day		

COC No.
1 of 1 COCs
Sampler:
For Lab Use Only:
Walk-in Client:
Lab Sampling:
Job / SDG No

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y / N)	Perform MS / MSD (Y / N)	PFAS (23)	Sample Specific Notes:
FB-6-013121	1/31/22	1135	G	W	2			X	
EB-3-013121	↓	1150	↓	↓	2			↓	
L10-6-GW	↓	1220	↓	↓	2			↓	
L10-6D-GW	↓	1220	↓	↓	2			↓	
L10-5-GW	↓	1344	↓	↓	2			↓	slightly Turbid
L10-4-GW	↓	1447	↓	↓	2			↓	

320-84353 Chain of Custody

Preservation Used 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3, 5=NaOH 6= Other ______

Possible Hazard Identification
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☒ Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return to Client ☒ Disposal by Lab ☐ Archive for ______ Months

Special Instructions/QC Requirements & Comments Standard TAT

D 1.3°c

Custody Seals Intact: ☐ Yes ☐ No
Custody Seal No.
Cooler Temp (°C) Obs'd. ______ Corr'd. ______ Therm ID No. ______

Relinquished by:	Company: Woodard & Curran	Date/Time: 1-31-22 1605	Received by:	Company: ETASS	Date/Time: 1-31-22 1605
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company:	Date/Time:

Eurofins Sacramento
880 Riverside Parkway
West Sacramento, CA 95605
Phone: 916-373-5600 Fax: 916-372-1059

Chain of Custody Record

eurofins Environment Testing America

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Laver, Linda C.	Carrier Tracking No(s):	COC No: 320-257733.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: Linda.Laver@Eurofinset.com	State of Origin: California	Page: Page 1 of 1
Company: Eurofins Environment Testing Northern Ca		Accreditations Required (See note): State - California		Job #: 320-84353-1
Address: 880 Riverside Parkway,	**Due Date Requested:** 2/11/2022	**Analysis Requested**		**Preservation Codes:**
City: West Sacramento	**TAT Requested (days):**			
State, Zip: CA, 95605				
Phone: 916-373-5600(Tel) 916-372-1059(Fax)	PO #:			
Email:	WO #:			
Project Name: PFAS, San Jose Airport Phase 2	Project #: 32019160			
Site:	SSOW#:			

Preservation Codes:
A - HCL
B - NaOH
C - Zn Acetate
D - Nitric Acid
E - NaHSO4
F - MeOH
G - Amchlor
H - Ascorbic Acid
I - Ice
J - DI Water
K - EDTA
L - EDA
M - Hexane
N - None
O - AsNaO2
P - Na2O4S
Q - Na2SO3
R - Na2S2O3
S - H2SO4
T - TSP Dodecahydrate
U - Acetone
V - MCAA
W - pH 4-5
Z - other (specify)
Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	PFC_IDA_B15/3535_PFC CA-DWQ 23 Required	Total Number of containers	Special Instructions/Note:
			Preservation Code:						
FB-6-013121 (320-84353-1)	1/31/22	11:35 Pacific		Water			X	2	
EB-3-013121 (320-84353-2)	1/31/22	11:50 Pacific		Water			X	2	
L10-6-GW (320-84353-3)	1/31/22	12:20 Pacific		Water			X	2	
L10-6D-GW (320-84353-4)	1/31/22	12:20 Pacific		Water			X	2	
L10-5-GW (320-84353-5)	1/31/22	13:44 Pacific		Water			X	2	
L10-4-GW (320-84353-6)	1/31/22	14:47 Pacific		Water			X	2	

Note: Since laboratory accreditations are subject to change, Eurofins Environment Testing Northern California, LLC places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins Environment Testing Northern California, LLC laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Environment Testing Northern California, LLC attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said complicance to Eurofins Environment Testing Northern California, LLC.

Possible Hazard Identification
Unconfirmed

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ *Return To Client* ☐ *Disposal By Lab* ☐ *Archive For* ______ *Months*

Deliverable Requested: I, II, III, IV, Other (specify)
Primary Deliverable Rank: 2
Special Instructions/QC Requirements:

Empty Kit Relinquished by:		Date:	Time:	Method of Shipment:	
Relinquished by:	Date/Time: 1-31-22 1630	Company: SJ	Received by:	Date/Time: 1-31-22 1630	Company: DCS
Relinquished by:	Date/Time: 1-31-22 1845	Company: DCS	Received by:	Date/Time: 1/31/22 - 1845	Company: EETCA
Relinquished by:	Date/Time:	Company:	Received by:	Date/Time:	Company:
Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:		Cooler Temperature(s) °C and Other Remarks: 0-4		

Ver: 06/08/2021

Login Sample Receipt Checklist

Client: Woodard & Curran, Inc.

Job Number: 320-84353-1

Login Number: 84353
List Number: 1
Creator: Mullen, Joan

List Source: Eurofins Sacramento

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	N/A	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	1.3 C
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	False	Refer to Job Narrative for details.
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: Woodard & Curran, Inc.

Job Number: 320-84353-1

Login Number: 84353
List Number: 2
Creator: Guzman, Juan

List Source: Eurofins Sacramento

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	N/A	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	0.9 C
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Woodard
& Curran

woodardcurran.com

Appendix F

Cultural Resources

CONTENTS

- *Attachment 1:* FAA Consultation with California SHPO, June 2, 2022, SHPO Response August 31, 2022.
- *Attachment 2*: *Proposed Terminal B South Concourse Improvements at Norman Y. Mineta San Jose International Airport Cultural Resource Evaluation Report*, HNTB, June 2022.
- *Attachment 3*: FAA Consultation with Tribes, April 2022.
- *Attachment 4*: Tamien Nation Response to FAA, May 4, 2022 (received by FAA November 2, 2022).
- *Attachment 5:* FAA Response to Tamien Nation, November 14, 2022.

Attachment 1:

FAA Consultation with California SHPO, June 2, 2022,
SHPO Response August 31, 2022.

U.S. Department
of Transportation
**Federal Aviation
Administration**

Western-Pacific Region
San Francisco Airports District Office

1000 Marina Blvd., Suite 115
Brisbane, CA 94005-1835

June 2, 2022

VIA EMAIL: calshpo.ohp@parks.ca.gov

Julianne Polanco
California State Historic Preservation Officer
Office of Historic Preservation
Department of Parks and Recreation
1725 23rd Street, Suite 100
Sacramento, CA 95816-7100

Subject: National Historic Preservation Act, Section 106 Consultation – Proposed Terminal B South Concourse Improvements for Norman Y. Mineta San Jose International Airport, San Jose, California

Dear Ms. Polanco:

The Federal Aviation Administration (FAA) is initiating National Historic Preservation Act, Section 106 consultation with you regarding a proposed Terminal B South Concourse Improvement Project (Proposed Project) at Norman Y. Mineta San Jose International Airport (SJC/Airport), San Jose, California. The City of San Jose (City), as the owner and operator of SJC is seeking FAA approval of portions of an updated Airport Layout Plan (ALP)[1], and potential federal funding support for eligible portions of the Proposed Project.

The requested FAA ALP approval and financial support are federal undertakings as defined in 36 CFR § 800.16(y).

The FAA is seeking your concurrence with the Areas of Potential Effect (APE), expedited consultation pursuant to 36 CFR § 800.3(g), and concurrence with the FAA's finding of "*No Historic Properties Affected*." The FAA finding is supported by the enclosed:

- *Proposed Terminal B South Concourse Improvements at Norman Y. Mineta San Jose International Airport Cultural Resource Evaluation Report*, dated June 2022. (Cultural Resource Report)

Proposed Project Description

The Proposed Project would construct a proposed 750,000 square foot South Concourse extension at Terminal B. The proposed extension would be comprised of 16 airline gates with associated jet bridges. Eight of the airline gates would replace the existing interim gates; two gates would be relocations from Terminals A and B; and six airline gates would be new additions. The existing pavement in the area of the extension would be reconstructed and strengthened to accommodate

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[1] Pursuant to Section 163 of the *Federal Aviation Administration Reauthorization Act of 2018* (Public Law 115-254)[Section 163], Congress limited FAA's approval authority to portions of the Airport Layout Plan (ALP) that meet certain statutorily defined criteria, including those portions necessary for aeronautical purposes. Therefore, FAA approval of the Airport Layout Plan (ALP) that depict the proposed projects within FAA's authority to approve.

aircraft movement to and from the concourse and parking at the airline gates as a Terminal Apron. The area of the Proposed Project is depicted in Figure 2 of the Cultural Resource Report.

Area of Potential Effect

A proposed Direct and Indirect Areas of Potential Effect (APE) are shown on Figure 3 in the Cultural Resource Report. Figure 4 provides a depiction of the Airport boundary and APE on a USGS Quad Map. The Direct APE is approximately 18.8 acres and is comprised of the area where construction of the terminal extension and Terminal Apron is proposed. The depth of disturbances is approximately 25 feet below ground surface (bgs) for construction of the concourse extension with structural supports reaching approximately 80 feet bgs. Structural supports would be installed via pile driving. The depth of disturbance associated with the Terminal Apron is approximately 5 feet. All construction activity and staging would occur within the Direct APE. The Indirect APE is a 100-foot buffer around the Direct APE.

Resource Assessment

The Cultural Resource Report evaluation included a records search conducted at the Northwest Information Center of the California Historical Resources Information System and a reconnaissance survey of historic-age buildings within SJC property. The assessment evaluated both archaeological, architectural resources, and evaluated SJC as a potential National Register of Historic Places (NRHP) district.

The evaluation identified no new archaeological resources and no historic-age buildings that qualified for NRHP inclusion were identified. The Cultural Resource Report, Evaluation of Eligibility, beginning on page 10 concluded that SJC is not eligible as a NRHP district.

The Cultural Resource Report includes information about independent projects within the Direct and Indirect APEs for the Proposed Project. Independent projects within the Direct APE include the demolition and relocation of the San Jose Police Department (SJPD) Hangar and its support hangar, and the demolition and relocation of the Air Freight Hangar – Belly Freight. Within the Indirect APE the independent project is demolition of the Fire and Rescue Building[2]. The FAA is conducting a separate consultation with you regarding the SJPD Hangar relocation project.

Native American Consultation

A search of the Native American Heritage Commission's Sacred Lands File was conducted. The search results were negative. The FAA initiated consultation with the Amah Mutsun Tribal Band, the Amah Mutsun Tribal Band of Mission San Juan Bautista, the Indian Canyon Mutsun Band of Costanoan, the Muwekma Ohlone Indian Tribe of the San Francisco Bay Area, the North Valley Yokuts Tribe, the Ohlone Indian Tribe, the Wutsache Indian Tribe/Eshorm Valley Band, and the Tamien Nation between April 7, 2022 and April 14, 2022. No responses have been received.

Finding of Effect and Concurrence Request

Based upon the evaluation contained in the Cultural Resources Report, the FAA determined that there are no historic properties within the Direct or Indirect APE, therefore a finding of *No Historic Properties Affected*, is appropriate.

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[2] The FAA evaluated its jurisdiction for projects proposed by the City pursuant to Section 163 and determined its authority was limited to the proposed demolition and relocation of the SJPD Hangar and support Hangar. (Cultural Resource Report, Appendix A)

State of California • Natural Resources Agency Gavin Newsom, *Governor*

DEPARTMENT OF PARKS AND RECREATION
OFFICE OF HISTORIC PRESERVATION
Julianne Polanco, State Historic Preservation Officer
1725 23rd Street, Suite 100, Sacramento, CA 95816-7100
Telephone: (916) 445-7000 FAX: (916) 445-7053
calshpo.ohp@parks.ca.gov www.ohp.parks.ca.gov

Armando Quintero, *Director*

August 31, 2022 Reply in Reference To: FAA_2022_0602_001

Submitted Via Electronic Mail

Camille Garibaldi
Environmental Protection Specialist
Federal Aviation Administration
Western-Pacific Region, Airports Division
1000 Marina Boulevard, Suite 220
Brisbane, CA 94005

RE: Terminal B South Concourse Improvement Project at Norman Y Mineta San Jose International Airport, San Jose, California

Dear Ms. Garibaldi:

The United States Federal Aviation Administration (FAA) is consulting with the State Historic Preservation Officer (SHPO) in order to comply with Section 106 of the National Historic Preservation Act of 1966 (54 U.S.C. § 306108), as amended, and its implementing regulations at 36 CFR Part 800. The FAA is requesting SHPO concurrence with a finding of no historic properties affected. In addition to your June 2, 2022 letter, you have provided the following study in support of this undertaking:

- *Proposed Terminal B South Concourse Improvements at Norman Y. Mineta San Jose International Airport Cultural Resource Evaluation Report*, dated June 2022. (Cultural Resource Report)

The FAA plan to approve The City of San Jose's proposed 750,000 square foot South Concourse extension at Terminal B. The extension will be comprised of 16 airline gates with associated jet bridges. Eight of the airline gates will replace the existing interim gates; two gates will be relocations from Terminals A and B; and six airline gates will be new additions. The existing pavement in the area of the extension will be reconstructed and strengthened to accommodate aircraft movement to and from the concourse and parking at the airline gates as a terminal apron.

The Direct Area of Potential Effects (APE) is approximately 18.8 acres and is comprised of the area where construction of the terminal extension and Terminal Apron is proposed. The depth of disturbances is approximately 25 feet below ground level for construction of the concourse extension with structural supports reaching approximately 80 feet below ground level. Structural supports would be installed via pile driving. The depth of disturbance associated with the Terminal Apron is approximately 5 feet. All construction activity and staging would occur within the Direct APE. The Indirect APE is a 100- foot buffer around the Direct APE.

In an effort to identify historic properties in the APE, qualified cultural resources analyzed prior studies undertaken at the airport. Four buildings constructed over 50 years ago (between 1963 and 1970), the SJPD Hangar (ACM/Pestana), Support Hangar (ACM/Pestana Support Hangar), and Air Freight Hangar/ Belly Freight in the Direct APE and the Fire and Rescue Building within the Indirect APE, were identified. The buildings in the APE were evaluated as contributors to a potential Norman Y. Mineta San José International Airport Historic District (SJC Historic District) and found to be ineligible for listing on the National Register of Historic Places (NRHP) under all criteria. Records also indicate that construction activities in the APE have disturbed the soils to such an extent that there is a low probability of encountering archaeological resources during construction activities.

A search of the Native American Heritage Commission’s Sacred Lands File was conducted. The search results were negative. The FAA initiated consultation with the Amah Mutsun Tribal Band, the Amah Mutsun Tribal Band of Mission San Juan Bautista, the Indian Canyon Mutsun Band of Costanoan, the Muwekma Ohlone Indian Tribe of the San Francisco Bay Area, the North Valley Yokuts Tribe, the Ohlone Indian Tribe, the Wutsache Indian Tribe/Eshorm Valley Band, and the Tamien Nation between April 7, 2022 and April 14, 2022. No responses were received.

Having reviewed your submittal, SHPO offers the following comments:

1) The APE appears adequate to account for direct and indirect effects to historic properties;

2) SHPO concurs that the SJPD Hangar (ACM/Pestana), Support Hangar (ACM/Pestana Support Hangar), Air Freight Hangar/Belly Freight and the Fire and Rescue Building are ineligible for listing on the NRHP individually or as part on a historic district;

3) SHPO concurs that the undertaking will not affect historic properties;

4) Please be reminded that in the event of an unanticipated discovery or a change in the scale or scope of the undertaking, the FAA may have further consultation responsibilities under 36 CFR Part 800.

If the FAA has any questions or comments, please contact staff historian Tristan Tozer at (916) 445-7027 or Tristan.Tozer@parks.ca.gov.

Sincerely,

Julianne Polanco
State Historic Preservation Officer

Your attention to this matter is appreciated. If you have any questions or concerns, I am available by phone at (405) 666-1068 or by e-mail at Camille.Garibaldi@faa.gov.

Sincerely,

Camille Garibaldi
Environmental Protection Specialist

Enclosures

For Enclosures, see *Attachment 2: Cultural Resources Evaluation Report*

Attachment 2:

Proposed Terminal B South Concourse Improvements at Norman Y. Mineta
San Jose International Airport Cultural Resource Evaluation Report,
HNTB, June 2022.

PROPOSED TERMINAL B SOUTH CONCOURSE IMPROVEMENTS AT NORMAN Y. MINETA SAN JOSÉ INTERNATIONAL AIRPORT

CULTURAL RESOURCE EVALUATION REPORT

Prepared for:

Norman Y. Mineta San José International Airport
1701 Airport Boulevard
San Jose, CA 95110

Prepared by:

HNTB

June 2022

Contents

Figures

Appendices

Appendix A: Federal Aviation Administration (FAA) Reauthorization Act of 2018 (Public Law 115-254), Section 163 Determination

Appendix B: Cartier and Detlefs, "Archaeological Evaluation of the San José Municipal Airport," 1980.

Report is withheld from public review as confidential. To request the 1980 report, please contact: Ryan Sheelen, C.M., Airport Planner IV Planning and Development Division Mineta San José International Airport 1701 Airport Blvd. Ste B-1130, San José, CA 95110, Email: rsheelen@sjc.org; 408-392-3600

Appendix C: DPR Survey and Evaluation Forms

INTRODUCTION

The City of San José (City), California, owner and operator of the Norman Y. Mineta San José International Airport (SJC or Airport) proposes to extend and modernize Terminal B through the construction of a proposed South Concourse Improvement Project (Proposed Project) designed to provide an outstanding user experience to the existing and projected passengers and airlines using this critical Silicon Valley – South Bay airport. The proposed South Concourse Improvements would include construction of a 750,000 square foot (SF) terminal building with 16 airline gates (with jet bridges) and reconstruction and strengthening of the existing pavement to support aircraft parking.

In 2020, a reconnaissance level survey was conducted of historic-age buildings (45 years or older) on SJC property, and the Airport was evaluated as a district for its potential for listing on the NRHP.

PROJECT LOCATION AND PROJECT DESCRIPTION

PROJECT LOCATION AND BACKGROUND

SJC is located on an approximately 1,000-acre site in Santa Clara County at the southerly end of San Francisco Bay, approximately two miles north of downtown San José. The Airport's primary service area includes the southern end of the San Francisco Bay Area, known as Silicon Valley, and extends southward into Santa Cruz and Monterey counties, and eastward towards Fresno and Yosemite Valley. The Airport is generally bounded by U.S. 101 to the north, the Guadalupe River and State Route 87 to the east, Interstate 880 to the south, and Coleman Avenue and De la Cruz Boulevard to the west. Please refer to **Figure 1** for a project location map.

SJC serves most commercial airlines with statewide, national and international destinations, as well as air cargo airlines, and general aviation aircraft. SJC has two 11,000-foot-long runways at the Airport, 12R/30L and 12L/30R. The Airport has two passenger terminals, Terminal A and Terminal B, totaling 1,050,000 SF of terminal space and 36 boarding gates. Eight of the 20 gates in Terminal B are interim facilities that would be replaced with permanent facilities as part of the proposed South Concourse Improvements. Terminal A was constructed in 1990 and Terminal B was constructed in 2010.

PROJECT DESCRIPTION

The City of San José is proposing to implement its Terminal B South Concourse Improvements, which includes the following major components as shown on **Figure 2**:

- Terminal B would be improved by constructing a proposed 750,000 square foot modern South Concourse extension comprised of 16 airline gates with jet bridges;
    - Eight of the airline gate would replace the existing eight interim gates;
    - Two of the airline gates would be relocated from elsewhere in Terminals A and B; and

Norman Y. Mineta San José International Airport Proposed Terminal B South Concourse Improvements Environmental Assessment

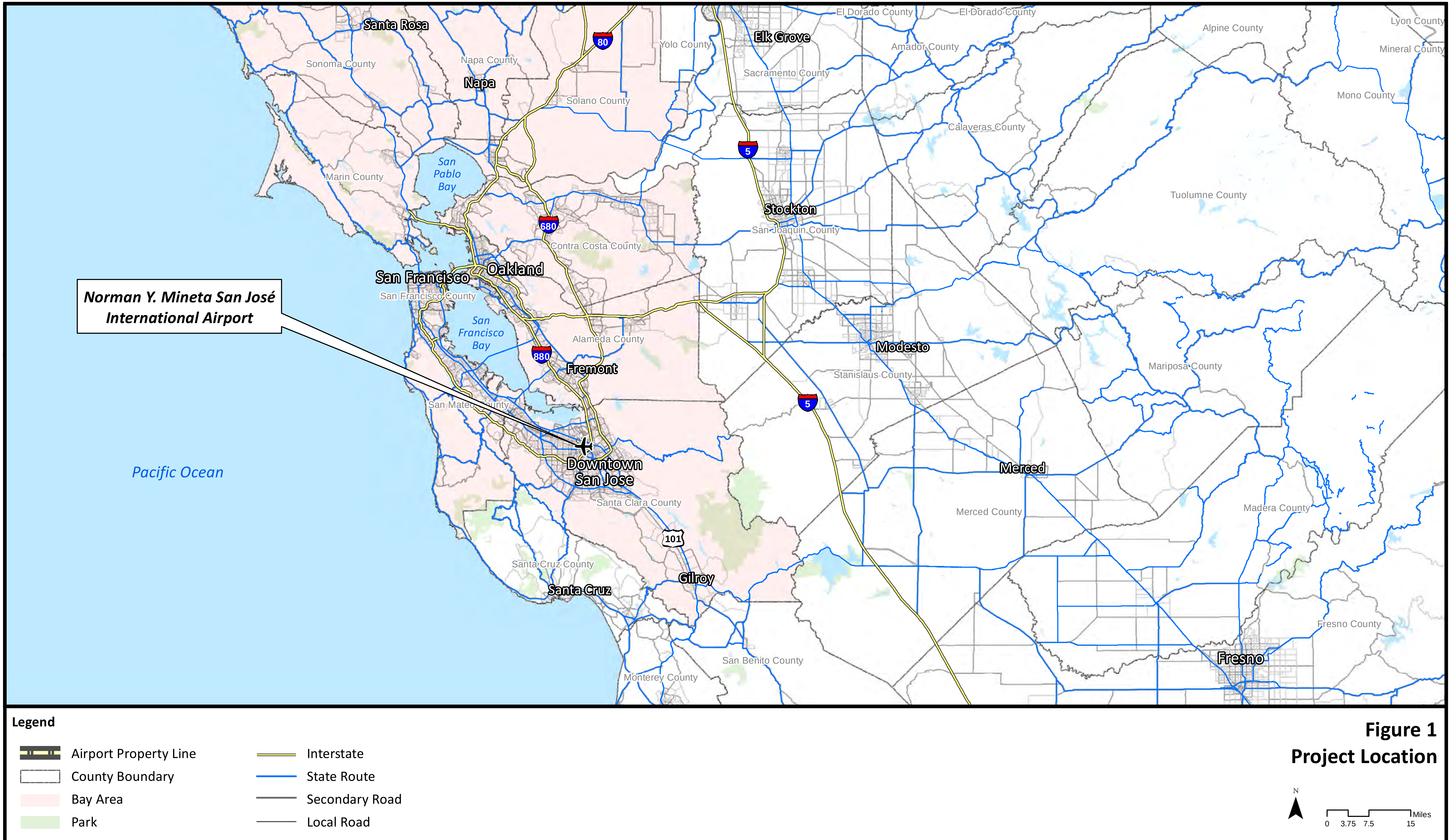
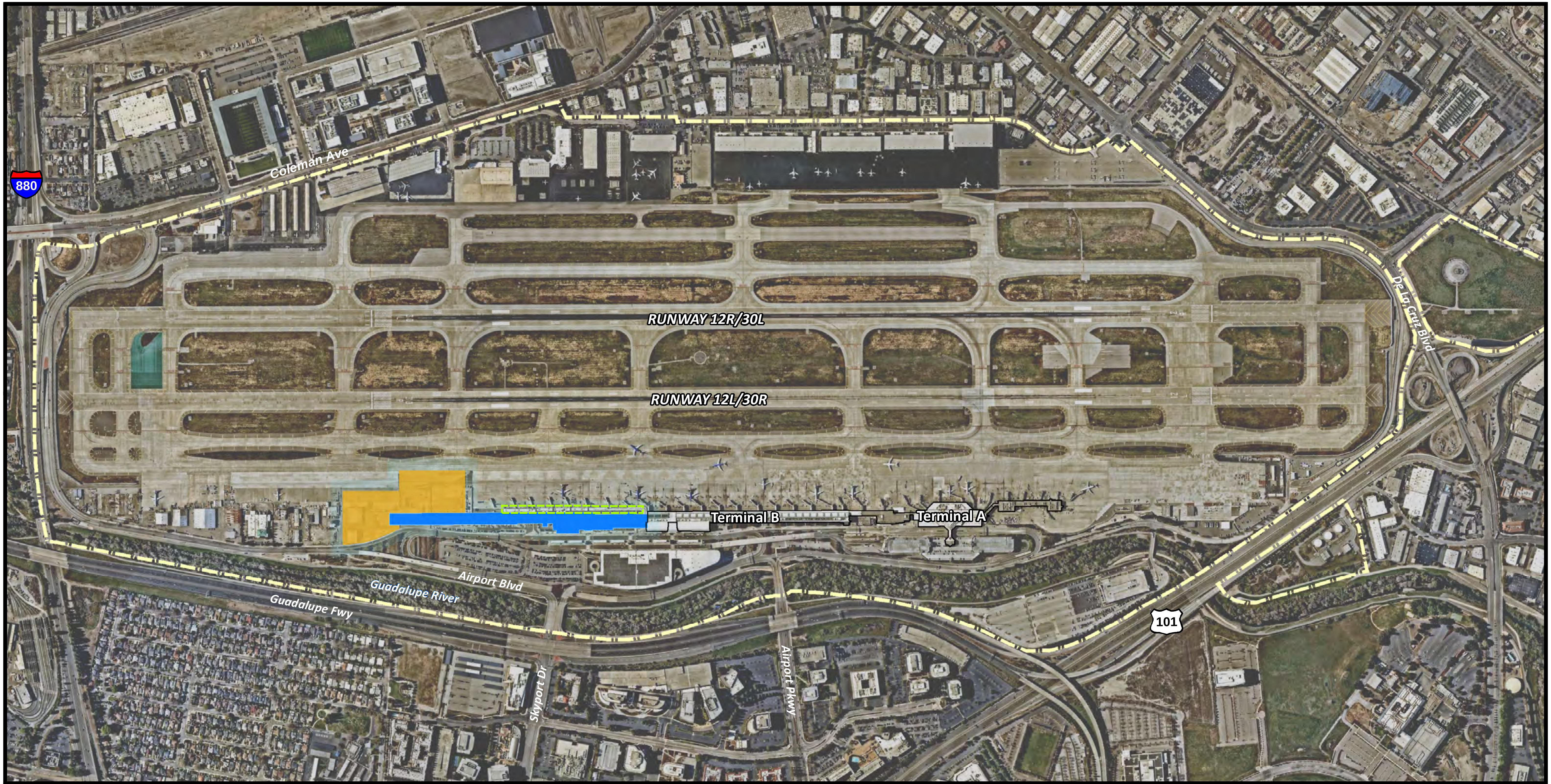


Figure 1
Project Location

Sources: SJC, US Census Bureau, California Department of Fish and Wildlife

Norman Y. Mineta San José International Airport Proposed Terminal B South Concourse Improvements Environmental Assessment



Legend

🟦 Proposed South Concourse

🟧 Proposed Terminal Apron

⬚ Interim Terminal Facility (to be replaced by Proposed South Concourse)

▬ Airport Property Line

Figure 2
Proposed Project

Sources: SJC, Nearmap

  - Six airline gates would be added;
- The existing airfield pavement adjacent to the concourse would be reconstructed and strengthened as a Terminal Apron for movement and parking of aircraft at the airline gates.

Three hangar buildings are within the location of the apron reconstruction and will be removed prior to the reconstruction in that area. The demolition of these buildings has independent utility unrelated to the Proposed Project. Additionally, the FAA does not have review or approval authority over the Air Freight Hangar – Belly Freight to be removed, per the FAA Reauthorization Act of 2018 (Public Law 115-254)[1]. FAA's Section 163 Cargo determination letter dated 11/18/2021 is provided in **Appendix A**. The FAA does have review authority over the two other hangars related to the San José Police Department, however that review is occurring as part of a separate NEPA document (*Demolition and Construction of San José Police Department (SJPD) Facilities* submitted to SHPO by FAA on 3/7/2022).

AREA OF POTENTIAL EFFECTS (APE)

The project site is a highly disturbed area that has long been, and is currently being, used for airport purposes. The Proposed Project location and the direct and indirect Areas of Potential Effect (APE) are shown on the enclosed **Figure 3**. **Figure 4** depicts the APE and Airport boundary on a USGS Quad Map.

The Proposed Project would take place within areas of Airport property that have been impacted by previous development. The City has advised the FAA that it plans to use existing impervious area within the Direct APE for construction staging. These boundaries were determined through consultation with the City on the extent of the proposed Terminal B extension work. Thus, the FAA used the boundaries of the area that would have physical disturbance and construction staging to delineate the Direct APE, which encompasses approximately 18.8 acres. Within the Direct APE, a depth of disturbance of approximately 5 feet below ground surface (bgs) is estimated for the reconstruction of airfield pavement for the Terminal Apron, and a depth of approximately 25 feet bgs is estimated for the concourse improvements. Additionally, where necessary, concourse structural supports reaching approximately 80 feet bgs would be installed via pile driving. The Indirect APE includes a 100-foot buffer around the Direct APE and encompasses approximately 31.0 acres. The buffer is an estimated distance for any potential indirect effects during construction (e.g., visual intrusions, noise, vibration, etc.). Because construction of the proposed South Concourse

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[1] FAA Reauthorization Act of 2018 (P.L. 115-254) limits the FAA's review and approval authority for Airport Layout Plans (ALP) to those portions of ALPs or ALP revisions that:

- materially impact the safe and efficient operations of aircraft at, to, or from an airport;
- adversely affect the safety of people or property on the ground adjacent to an airport because of aircraft operations; or
- adversely affect the value of prior federal investments to a significant extent.

Norman Y. Mineta San José International Airport Proposed Terminal B South Concourse Improvements Environmental Assessment

Legend

- Direct Area of Potential Effects
- Indirect Area of Potential Effects
- Airport Property Line

Note that archaeological resource locations are not shown on this figure for public review as these are considered confidential and only to be used to comply with the requirements of the National Historic Preservation Act of 1966, as amended, the National Environmental Policy Act of 1969, as amended, Archaeological and Historic Preservation Act of 1960, as amended.

Figure 3

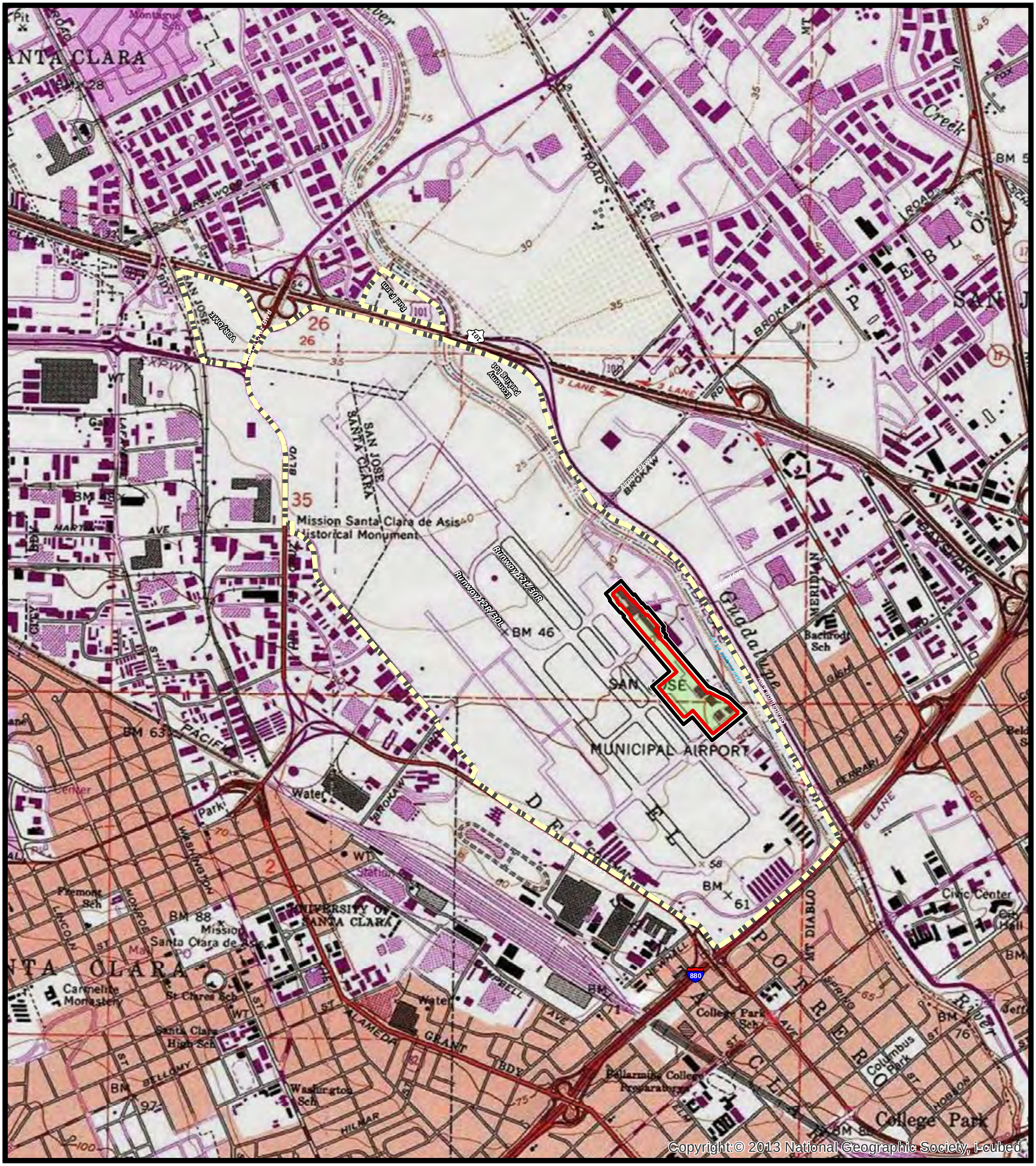
Area of Potential Effects (APE)

N

0 250 500 1,000 Feet

Sources: SJC, Draft EIR, Nearmap

Norman Y. Mineta San José International Airport
Proposed Terminal B South Concourse Improvements Environmental Assessment



LEGEND

- Direct Area of Potential Effects
- Indirect Area of Potential Effects
- Airport Property Line

Figure 4
USGS Quad Map (San Jose West / Milpitas)

N

Feet
0 500 1,000 2,000

Source: 2013 National Geographic Society

Improvements would occur while the terminal and apron area remain operational, any temporary indirect effects would not be substantial and limited in nature.

The APEs have been previously disturbed, and the overall sensitivity of the sites with respect to buried resources is low. Neither of the APEs are within SJC's identified Archaeologically Sensitive Areas (ASAs), discussed further under *Archaeological Resources*.

Three buildings within the Direct APE and one building within the Indirect APE are over 45 years in age. However, as discussed in the Project Description, the removal of the buildings have independent utility unrelated to the Proposed Project. The buildings include the SJPD Hangar (ACM/Pestana), Support Hangar (ACM/Pestana Support Hangar), and Air Freight Hangar – Belly Freight within the Direct APE and the Fire and Rescue Building within the Indirect APE. The buildings were included in a reconnaissance level survey of the Airport as part of an evaluation of SJC as a district for potential National Register of Historic Places (NRHP) eligibility in 2020. For the district boundaries and location of the Airport's historic-age buildings, refer to the Historic Properties Map (**Figure 5**).

IDENTIFICATION OF ARCHAEOLOGICAL RESOURCES

METHODOLOGY

A Northwest Center of the California Historical Resources Information System (CHRIS) records search was conducted in April 2020 and again to request additional archaeology records in June 2020. A literature review examined previous studies completed for environmental compliance, most notably the 1999 EIS prepared for SJC.

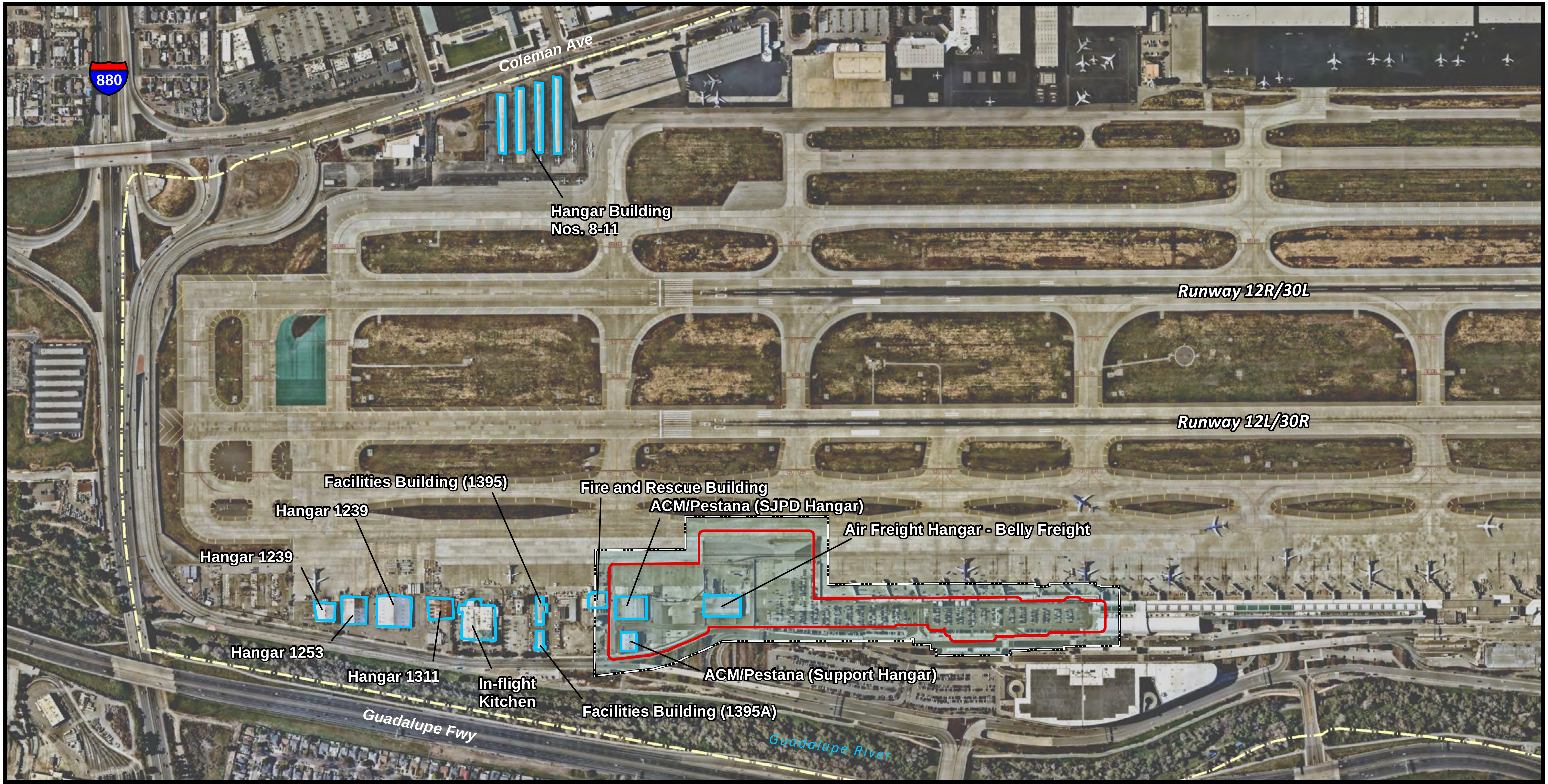
ARCHAEOLOGICAL RESOURCES

The CHRIS records search conducted in April 2020 did not reveal any previously recorded archaeological sites within the APEs. As shown on Figure 3, one archaeological resource, the Fuel Farm Site (CA-SCL-000828), occurs on airport property, approximately one mile from the APEs in the northern portion of airport property.

A literature review examined previous studies completed for environmental compliance, most notably the 1999 EIS prepared for SJC. The EIS notes the occurrence of two previously recorded archaeological sites (CA-SCL-311H and CA-SCL-430) and the establishment of several archaeologically sensitive areas within the Airport property. As shown on Figure 3, CA-SCL-311H is northeast of Airport property and Site CA-SCL-430 is on the west side of the Airport, all outside of the APEs. These sites were recommended eligible for listing in the NRHP according to the 1999 EIS.

Additionally, the 1999 EIS references a cultural resources study conducted by Cartier and Detlefs (1980) entitled, *Archaeological Evaluation of the San José Municipal Airport* **(Appendix B)**. The study was undertaken as part of an Environmental Impact Report (EIR) for the 1980 Airport Master Plan. This investigation involved surface reconnaissance and

Norman Y. Mineta San José International Airport Terminal B South Concourse Environmental Assessment



Legend

🟥 Direct Area of Potential Effects

▭ Indirect Area of Potential Effects

🟦 Historic-Age Building

▬ Airport Property Line

Figure 5
Historic Properties

Sources: SJC, Nearmap, Draft EIR

the excavation of 327 exploratory test trenches that resulted in the designation of five Archaeological Sensitive Areas (ASA), shown on Figure 3. The three previously recorded archaeological sites and ASAs are not within the APEs. ASA 5 is adjacent to, but not within the Indirect APE.

Overall, the APE locations have long been, and are currently being utilized for airport purposes. These locations have been previously disturbed, and the potential for buried resources is low. Therefore, no adverse effects to archaeological resources are anticipated.

IDENTIFICATION OF HISTORIC PROPERTIES

METHODOLOGY

A Northwest Center of the CHRIS records search was conducted in April 2020. A literature review was also conducted.

In 2020, a reconnaissance level survey was conducted of historic-age buildings (45 years or older) on SJC property, and the Airport was evaluated as a district for its potential for listing on the NRHP. Cultural Resources professionals meeting the Secretary of the Interior's (SOI) Professional Qualification Standards conducted a review of available information, including the NRHP listings; historic aerial imagery; and information derived from online research at various other sources. As part of that effort, review of historic aerial imagery and a 1999 Environmental Impact Statement (EIS) revealed 15 buildings on airport property that were 45 years or older. Although the buildings were identified, evaluated, and recommended not eligible in the 1999 EIS, they were not 50 years of age at the time of the report. Due to the 22-year time lapse, these buildings were resurveyed as part of the SJC district evaluated for NRHP eligibility in 2020.

PROPERTIES SURVEYED

See Figure 5 for the district boundaries and location of the historic-age buildings, which includes three buildings within the Direct APE that would be demolished as independent actions: SJPD Hangar (ACM/Pestana), Support Hangar (ACM/Pestana Support Hangar) and the Air Freight Hangar – Belly Freight; and one building within the Indirect APE: Fire and Rescue Building.

As the buildings are all over 45 years in age (c. 1963-1970), the 2020 SJC district survey is used for the evaluation of the buildings. A description of the buildings within the Direct and Indirect APE for the Proposed Project is extracted from the DPR Survey and Evaluation Forms in **Appendix C** and included below in **Tables 1 through 4**, followed by **Photos 1-2** (SJPD Hangar [ACM/Pestana]), **Photos 3-4** (Support Hangar [ACM/Pestana Support Hangar]), **Photos 5-7** (Air Freight Hangar – Belly Freight), and **Photos 8-9** (Fire and Rescue Building). Note that the Fire and Rescue Building was evaluated as part of a Categorical Exclusion prepared by FAA in 2018 and determined not individually eligible. For current photographs and a full description of the SJC District, please see Appendix C for the Department of Parks and Recreation (DPR) 523 Survey and Evaluation Forms.

Table 1 – SJPD Hangar (ACM/Pestana)

(NOTE: Separate review - *Demolition and Construction of San José Police Department Facilities* submitted to SHPO by FAA on 3/7/2022)

<table>
<tr><th>Name</th><th>Date</th><th>Type</th><th>Description</th></tr>
<tr><td>ACM / Pestana (SJPD Hangar and offices)</td><td>c. 1970</td><td>Hangar</td><td>Two story with a low pitch gable roof and metal telescoping sliding hangar doors on the southwest and northeast elevations; exterior is comprised of metal sheeting; Pestana addition on the southeast elevation is now used for SJPD offices and is two stories with large fixed pane aluminum and glass windows. The exterior is comprised of tile on the lower level and stucco on the upper level.</td></tr>
<tr><td colspan="4">

Photo 1. SJPD Hangar (ACM/Pestana) southeast elevation, view to the northwest

Photo 2. SJPD Hangar (ACM/Pestana) southwest elevation, view to the north

</td></tr>
</table>

Table 2 – ACM/Pestana Support Hangar (Support Hangar)

(NOTE: Separate review - *Demolition and Construction of San José Police Department Facilities* submitted to SHPO by FAA on 3/7/2022)

Name	**Date**	**Type**	**Description**
Support Hangar (ACM/Pestana Support Hangar)	c. 1970	Hangar	Two story with a low pitch gable roof and metal telescoping sliding hangar doors on the southwest elevation; exterior is comprised of metal sheeting on all other elevations; the northwest elevation has one garage bay with a metal roll-up garage door.

Photo 3. Support Hangar (ACM/Pestana Support Hangar) southwest elevation, view to the north

Photo 4. Support Hangar (ACM/Pestana Support Hangar) northwest elevation, view to the east

Table 3– Air Freight Hangar - Belly Freight

(NOTE: Not within FAA jurisdiction per FAA Reauthorization Act of 2018 (P.L. 115-254) determination dated 11/18/2021)

<table>
<tr><th>Name</th><th>Date</th><th>Type</th><th>Description</th></tr>
<tr><td>Air Freight Hangar - Belly Freight</td><td>1969</td><td>Hangar</td><td>One story with a low pitch gable roof and metal sheeting exterior; multiple garage bays with metal doors on northeast and southwest elevations; when present, windows are aluminum horizontal sliding sash and doors are steel.</td></tr>
<tr><td colspan="4">

Photo 5. Air Freight Hangar – Belly Freight southeast elevation, view to the west

Photo 6. Air Freight Hangar – Belly Freight northeast elevation, view to the south

</td></tr>
</table>

Photo 7. Air Freight Hangar – Belly Freight southwest elevation, view to the northeast

Table 4– Fire and Rescue Building

(NOTE: Determined not individually eligible in a Categorical Exclusion prepared by FAA in 2018)

<table>
<tr><th>Name</th><th>Date</th><th>Type</th><th>Description</th></tr>
<tr><td>Fire and Rescue Building</td><td>1963</td><td>Building</td><td>Consists of single story living quarters and a taller 4 bay garage with roll-up doors that houses the fire engines; the roof is flat and the exterior is stucco; the windows are fixed pane and inset into the stucco; an addition to the south elevation was added in 2001 to provide additional living quarters.</td></tr>
<tr><td colspan="4">

Photo 8. Aircraft Rescue and Firefighting Building northeast elevation, view to the west

(Photo courtesy of the Evaluation of San Jose International Airport Aircraft Rescue and Firefighting Building Memorandum, 2018)

Photo 9. Aircraft Rescue and Firefighting Building southwest elevation, view to the northeast

(Photo courtesy of the Evaluation of San Jose International Airport Aircraft Rescue and Firefighting Building Memorandum, 2018)

</td></tr>
</table>

EVALUATION OF ELIGIBILITY

Since the Airport's initial construction in 1949, the Airport site has been significantly modified. The existing terminals at SJC are non-historic buildings constructed in 1990 (Terminal A) and 2010 (Terminal B). Terminal B replaced an older terminal, Terminal C, which was constructed in 1965. The original terminal constructed in 1949 (also referred to historically as the General Aviation Building) was demolished in 2000 to allow for runway expansions. Additionally, infrastructure improvements such as the addition of non-historic parking decks, surface parking lots, runway modifications, and non-historic auxiliary support buildings have altered the historic setting of the Airport. Only 15 historic-age buildings remain on the property. Of these buildings, 11 are non-descript metal hangars that are not architecturally significant and were common for the era. The remaining four buildings feature material alterations or additions and are not good or representative examples of any known architectural type or style.

SJC was evaluated as a district for NRHP eligibility and was determined not eligible under Criteria A, B, C, or D.[2] Refer to Appendix C for the Department of Parks and Recreation (DPR) 523 Survey and Evaluation Forms.

NATIONAL REGISTER OF HISTORIC PLACES CRITERION A

The SJC District was evaluated under Criterion A for its associations with community planning, development, aviation, and commerce in Santa Clara County and the City of San José. According to an EIS completed by the FAA in 1999, "the Airport developed quite late in the history of aviation in the region. This airport was not the earliest airport in the County or the first airport in the City of San José." According to a history written by Patricia Loomis, transcontinental flights were not available until 1969 and the airport did not reach international status until the 1970s and 1980s.[3] Additionally, the airport currently exhibits little historic material from its earliest days, and less than 50% of its existing buildings and structures are 45 years or older. Therefore, the SJC District is recommended not eligible for the National Register under Criterion A.

NATIONAL REGISTER OF HISTORIC PLACES CRITERION B

The SJC District was evaluated under Criterion B for its association with James Nissen, the first general manager of the airport. According to Loomis, Nissen was involved with the SJC airport as early as 1945 when he leased land from the City of San José for a small aviation company. He resigned his position with this company in 1946 when the City of San José asked him to be manager of what would eventually become the San José Municipal Airport.[4] Nissen remained manager of the airport until his retirement in 1975. Throughout his tenure the airport went through multiple

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[2] The Fire and Rescue Building was determined not individually eligible in a Categorical Exclusion prepared by FAA in 2018.

[3] Patricia Loomis, "San José International Airport," 1991, pp. 48-49.

[4] Patricia Loomis, "San José International Airport," 1991, pp. 14-16.

expansions and saw the addition of a new terminal (Terminal C), new runways, and the first transcontinental flights in 1969. According to the SJC website, passenger traffic grew from 1 million in 1968 to 2 million by 1973 (flysanjose.com). Although Nissen was arguably an important figure in the SJC airport history, little infrastructure remains from his time as the manager, and the airport reached its zenith after his retirement. The newest Terminal, Terminal B, is named in his memory but this was done posthumously, and the building is not historic. Additionally, his contributions to the early days of SJC were no more or less significant that those made by other managers of similar airports at the time. Therefore, the SJC District is recommended not eligible for the National Register under Criterion B.

NATIONAL REGISTER OF HISTORIC PLACES CRITERION C

The SJC District was evaluated under Criterion C for its association with architecture. The majority of the historic-age buildings remaining on the airport property consist of nondescript, prefabricated metal hangars that do not exhibit any unique architectural features. The historic-age support buildings (including the Facilities buildings, Fire and Rescue building, and In-Flight Kitchen) have all been non-historically altered and are not good or representative examples of known architectural types. Additionally, a large percentage of buildings associated with the airport at the time it was constructed and through the 1960s are no longer extant. The original 1949 terminal and subsequent 1965 terminal have been demolished along with various support buildings including hangars and an associated flight simulator facility operated by San José State University from 1960-2010.Therefore, the SJC District is recommended not eligible for the National Register under Criterion C and none of the remaining historic-age buildings are recommended individually eligible.

NATIONAL REGISTER OF HISTORIC PLACES CRITERION D

There is no evidence to indicate the SJC District is likely to yield information on important research questions in history or prehistory. Additionally, the property does not appear to have the potential to be the principal source of important information. Therefore, there was no basis for evaluating the property under Criterion D.

The SJC District possesses integrity in the areas of location and association. The airport site has not moved and remains in its original location. SJC was historically associated with aviation activities and continues to serve as an active airport, thus retaining integrity of association.

The SJC District does not possess integrity in the areas of materials, design, workmanship, setting, or feeling. After years of numerous expansions and alterations, both historic terminals have been demolished and original roadways, entrances, and exits have been re-routed. Additionally, the historic runways have been expanded non-historically to accommodate larger aircraft and many of the historic hangars and support buildings are no longer extant. These losses to the historic fabric of the district represent a loss of integrity of materials, design, workmanship, and setting. Consequently, the district lacks integrity of feeling as the addition of two non-historic terminals and associated parking no longer lend the feeling of a mid-twentieth century airport.

CONCLUSIONS

SJC is not eligible as a district under NRHP Criteria A, B, C, or D. Further, the Direct and Indirect APEs for the Proposed Project are highly disturbed areas that have long been, and are currently being, utilized for airport purposes. The APE locations have been previously disturbed, and no historic or cultural resources have been located. Additionally, the overall sensitivity of the sites with respect to buried resources is low.

PRINCIPAL INVESTIGATORS

Ashley Baumann

Environmental Planner and Senior Historian

Education

M.H.P., Historic Preservation, University of Georgia, College of Environment and Design, 2007
B.A., Anthropology and Archaeology, Mercer University, 2004

Experience

Ashley Baumann is an Environmental Planner and Senior Historian with 14 years of experience in environmental compliance and linear project planning. She is a task manager, NEPA specialist, and qualified architectural historian (meeting the NPS qualifications and 36 CFR Part 61) who has worked on projects ranging from small area studies to major road and utility corridors. She specializes in environmental compliance and history studies for transportation, utility, and transit planning projects.

Relevant Certifications & Training

- **2008** Section 106 Training, Advisory Council for Historic Preservation
- **2011** Advanced Section 106 Training, Advisory Council for Historic Preservation
- **2012** Cultural Landscapes and TCP's, National Preservation Institute
- **2012** Native American Consultation, National Preservation Institute
- **2013** Recent Past Identification and Evaluation, National Preservation Institute
- **2013** Planning and Policy for Historic Roads, National Preservation Institute

Recent Employment History

2017 - 2021	HNTB, Environmental Planner and Architectural Historian
2007 – 2017	Georgia Transmission Corporation (GTC), Environmental Specialist II

Relevant Project Experience

Major Mobility Investment Program (MMIP), GDOT, Multiple Counties, GA—Technical ME and SME for Section 4(f) and cultural resources for this 10-year/$11 billion contract; other responsibilities include: QA/QC reviews of historic resource survey reports, developing programmatic approaches for historic resource evaluation, and assisting in the development of the PRO-PEL GIS tool for reviewing potential historic and Section 4(f) resources for early ROW acquisition.

State-Funded IDIQ Review Contract, GDOT, Statewide, GA—Cultural Resource SME for the 7-year/$10 million-dollar IDIQ contract for the review and production of history reports for multiple state-funded projects. Projects have included a proposed road widening along SR 17 in Franklin County with 42 resources, roadway improvements along SR 35 in Irwin and Tift Counties with 18 resources, and roadway improvements along SR 17 in Elbert and Wilkes Counties with 100 resources.

Regional Environmental IDIQ, Districts 3 & 6, GDOT, GA – Senior Historian, Task Manager, and NEPA Analyst for the 5-year/$25 million-dollar IDIQ contract for GDOT Districts 3 & 6. Performs all duties associated with historic resource surveys including research, fieldwork, and reporting for state and federally funded projects in compliance with Section 106 of the National Historic Preservation Act (NHPA). The on-call service includes multiple task orders ranging from minor bridge projects to complex roadway widenings. NEPA duties include public involvement activities and preparation of PCE and CE documentation.

SR 15 Widening and Bypass, GDOT, Washington County, GA—Historian and co-author responsible for researching, surveying, and completing GEPA documentation for these state-funded projects. Also served as the Public Involvement lead for both projects, and the GEPA lead for the bypass project.

Hillsborough 131st Avenue Improvements, Hillsborough County, Tampa, FL—Lead Historian responsible for overseeing survey work and the preparation of technical documentation for this county funded project. The project study area included 31 previously unidentified properties in the APE.

IH 30/Canyon Improvements, TxDOT, Dallas, TX-Principal Investigator responsible for overseeing the research, survey, and Section 106 documentation for this federally funded project. The project study area included 9 NRHP listed resources with 34 previously unidentified historic-age properties in the APE.

Interstate 49 (Highway 22 to I-40), Sebastian and Crawford Counties, AR—Lead historian responsible for updating Section 106 documentation, assessment of effects, and Section 4(f) documentation for this federally funded, new location interstate project. The project is approximately 13.7 miles.

Hutto Grade Separation and Intersection Improvement Projects, City of Hutto/TxDOT, Hutto, TX—Principal Investigator responsible for completing Section 106 documentation for these three locally funded projects for the City of Hutto. These include three intersection improvements and one new location grade separation project.

US Highway 80 Improvements, TxDOT, Dallas and Kaufman Counties, TX—Principal Investigator responsible for researching, surveying, and completing Section 106 documentation for this federally funded 11-mile highway reconstruction and widening project. The project corridor included 45 resources and a National Register eligible bridge.

North Lamar Mobility Hub, Capital Metro Transportation Authority, Austin, TX—Principal Investigator responsible for researching, surveying, and completing Section 106 documentation for this federally funded (FTA) bus facility upgrade. The project included an architect designed structure that required documentation under Criterion Consideration G.

San Jose Airport Improvements, San Jose, CA – Lead Historian responsible for researching, surveying, and completing Section 106 documentation for these federally funded (FAA) improvements to the Norman Y. Mineta San Jose International Airport. Also contributed to the cultural resource portions of the Environmental Assessment document.

Pacific Northwest Platform Replacement Projects, AMTRAK, Dunsmuir, CA/Truckee, CA/Centralia, WA- Lead Historian responsible for completing Section 106 documentation and assessment of effects for proposed platform replacement projects at the Dunsmuir, Truckee, and Centralia AMTRAK train stations. These projects are federally funded through the FRA.

Milepost AP 103.9 Slope Stabilization Project, AMTRAK, Baltimore County, MD—Lead historian responsible for completing Section 106 documentation and assessment of effects for proposed slope stabilization project in Halethorpe, MD. The project was federally funded through the FRA.

Binford Boulevard Improvements, INDOT/Indianapolis Dept. of Public Works, Marion County, IN—Historian responsible for writing a historic resources survey report and assessment of effects for Section 106 compliance for 6 miles of intersection improvements on Binford Boulevard in Indianapolis, IN. The project corridor included a National Register Listed District and several recommended eligible properties.

Merrimon Avenue (US 25) Intersection Improvements, NCDOT, Buncombe County, NC—Historian and co-author responsible for researching, surveying, and writing a historic resources survey report for Section 106 compliance for a 0.6-mile corridor in Asheville, NC. The project corridor included two intersections, approximately 30 resources, and a National Register Listed Historic District.

Windy Hill Road-Terrell Mill Road Connector, GDOT/Cobb County DOT, Cobb County, GA-Lead Historian responsible for historic resources survey and assessment of effects for a 1-mile new location roadway that would connect Windy Hill Road to Terrell Mill Road in Cobb County. This project will utilize a combination of local and state funding and includes a Section 404 permit.

Mount Vernon Road Improvements, City of Sandy Springs, Fulton County, GA-Lead Historian responsible for historic resources survey and recommendations for potential improvements along Mount Vernon Road beginning at Johnson Ferry Road and ending just northeast of the intersection with Abernathy Road. The project will be funded through TSPLOST.

The Stitch, Central Atlanta Progress/Atlanta Downtown Improvement District, Fulton County, GA-Historian and NEPA SME responsible for providing Central Atlanta Progress with existing environmental data and recommendations for NEPA documentation for capping the I-75/85 downtown connector between West Peachtree Street and the intersection of Baker Street and Piedmont Avenue. The project includes 47 historic resources with 7 of those properties currently listed on the National Register.

Alvin J. Banguilan, RPA

Project Manager/Senior Archaeologist

Education

M.A., Anthropology, University of Montana, 2001
B.S., Anthropology, College of Charleston, 1992

Experience

Alvin Banguilan, RPA, serves as a Project Manager and Senior Archaeologist. He brings 31 years of cultural resource management experience in the Southeast, Middle Atlantic, Southwest, Northern Plains, Columbia Plateau, Puerto Rico, and the U.S. Virgin Islands. He has directed and conducted archaeological research to assist various clients and agencies whose projects or permit requirements have fallen under Sections 106 and 110 review. He possesses a clear understanding of the NHPA, NAGPRA, and NEPA and has experience working with various federal agencies including the USACE, FERC, FEMA, FAA, HUD, FHWA, USFS, NRCS, NPS, USNG, DHS, USCG, CPB, DOD, and DPAA. Alvin's specialties include prehistoric archaeology, forensic archaeology & human osteology, coastal & shoreline resources, disaster & emergency response, and oil & gas projects.

Professional Registrations

- Register of Professional Archaeologists, #12306

Relevant Certifications & Training

- FERC, Environmental Review and Compliance for Natural Gas Facilities
- BP Alaska, Shoreline Oil Spill Response/SCAT Training
- TRC Academy, Excellence in Project Management

Recent Employment History

2020 - 2021	HNTB, Project Manager/Senior Archaeologist
2017 - 2020	LG2 Environmental Solutions, Inc, Senior Archaeologist
2014 – 2017	URS Corporation, Senior Project Archaeologist
2008-2012	HDR, Southeast Archaeology Program Manager

Relevant Project Experience

Principal Investigator. TDOT (2021) Phase I Archaeological Resource Survey of the Proposed S.R. 357 Extension from I-81 to S.R. 126, Sullivan County, Tennessee.

Principal Investigator. GDOT (2020) Phase I Archaeological Survey of Approximately 15 acres of Surplus Parcel (No. 131001043) North of US Route 80, Muscogee County, Georgia.

Principal Investigator. GDOT (2020) Phase I Archaeological Resources Survey of Surplus Property Transfer PM 3391 in Jones County, Georgia

Project Manager/Principal Investigator (2020). Phase I Cultural Resource Assessment Survey in Support of the Environmental Assessment (EA) for the Extension of Runway 1-19 and Associated Improvements at Zephyrhills Municipal Airport (ZPH), Pasco County, Florida

Scientific Recovery Expert. (2019) Forensic Recovery Operations at an F-4C Aircraft Crash Site (VN-02172), Possibly Associated with REFNO 0806, 19-4VN (136th) Joint Field Activity (JFA), Quang Ninh District, Quang Binh Province, Socialist Republic of Vietnam. Defense POW/MIA Accounting Agency (DPAA)

Project Manager/Principal Investigator. USACE, Savannah District, (2019) Phase I Archaeological Survey of 1,200 Acres in Training Areas CC2, Fort Bragg, Hoke County, North Carolina

Project Manager/Principal Investigator. USDA NRCS (2019). Phase I Cultural Resources Assessment Survey for the Natural Resources Conservation Service Wetland Reserve Easement at the Durrance Study Area, Hardee County, Florida

Project Manager/Principal Investigator. USDA Forest Service (2017). Phase I Cultural Resources Survey of approximately 3,000 acres in Support of Southern Pine Beetle Suppression, Bienville Ranger District, National Forests in Mississippi, Scott and Smith Counties, Mississippi

Project Manager/Principal Investigator. Geosyntec/Georgia Power Company, Atlanta, GA (2016-17), Wallace Dam Hydroelectric Project, Cultural Resources Assessment and Phase II Site Evaluations for the FERC relicensing of Wallace Dam, Hancock, Putnam, Greene, and Morgan Counties, Georgia.

Program Manager. Gulf Coast Restoration Organization/BP Global, (2010–2012). Cultural Resources Lead Coordinator for the MC252 Deepwater Horizon Oil Spill Response, New Orleans, Louisiana.

Appendix A

FAA Reauthorization Act of 2018 (Public Law 115-254), Section 163 Determination

November 18, 2021

U.S Department
of Transportation
**Federal Aviation
Administration**

Western-Pacific Region
Office of Airports
San Francisco Airports District Office

Federal Aviation Administration
1000 Marina Blvd, Suite 220
Brisbane, CA 94005

November 18, 2021

Ryan Sheelen
Airport Planner IV
Planning and Development Division
1701 Airport Blvd. Ste. B-1130
San Jose, CA 95110

Dear Mr. Sheelen:

Re: FAA Approval Authority Review – Norman Y. Mineta San Jose International Airport (SJC), San Jose, CA - Terminal Expansion Project

This letter is in response to SJC Airport’s email dated July 7, 2021 requesting review of Section 163 applicability for new South Concourse project and connected actions to accommodate the new facility.

Recent changes in federal law have required the Federal Aviation Administration (FAA) to revisit whether FAA approval is needed for certain types of airport projects throughout the nation. On October 5, 2018, HR 302, the “FAA Reauthorization Act of 2018” (the Act) was signed into law (P.L. 115-254). In general, Section 163(a) limits the FAA’s authority to directly or indirectly regulate an airport operator’s transfer or disposal of certain types of airport land. However, Section 163(b) identifies exceptions to this general rule. The FAA retains authority:

1. To ensure the safe and efficient operation of aircraft or safety of people and property on the ground related to aircraft operations;
2. To regulate land or a facility acquired or modified using federal funding;
3. To ensure an airport owner or operator receives not less than fair market value (FMV) in the context of a commercial transaction for the use, lease, encumbrance, transfer, or disposal of land, any facilities on such land, or any portion of such land or facilities;
4. To ensure that that airport owner or operator pays not more than fair market value in the context of a commercial transaction for the acquisition of land or facilities on such land;
5. To enforce any terms contained in a Surplus Property Act instrument of transfer; and
6. To exercise any authority contained in 49 U.S.C. § 40117, dealing with Passenger Facility Charges.

In addition, Section 163(c) preserves the statutory revenue use restrictions regarding the use of revenues generated by the use, lease, encumbrance, transfer, or disposal of the land, as set forth in 49 U.S.C. §§ 47107(b) and 47133.

Section 163(d) of the Act limits the FAA's review and approval authority for Airport Layout Plans (ALPs) to those portions of ALPs or ALP revisions that:

1. Materially impact the safe and efficient operation of aircraft at, to, or from the airport;
2. Adversely affect the safety of people or property on the ground adjacent to the airport as a result of aircraft operations; or
3. Adversely affect the value of prior Federal investments to a significant extent.

Proposed Project

The proposed project is:

1) Construct 16 airline gates with jet bridges and up to 750,000SF of terminal building space
2) Reconstruct up to 300,000SF of deteriorated airfield apron at the south end of the Terminal B South Concourse to support aircraft parking
3) Construct a new On-Airport Business Hotel (up to 300,000SF, 330 guest rooms and 300 parking spaces)
4) Construct a new terminal area multi-level parking structure (up to 5,000 parking spaces)
5) Demolish the former San Jose Police Department (SJPD) building and associated hangar buildings and construct replacement SJPD hangar in the Southwest quadrant
6) Demolish existing Belly Freight Building and construct new Belly Freight Building in the Southeast quadrant
7) Demolish Facilities/Maintenance buildings and construct two new facilities/maintenance buildings in the Southwest quadrant
8) Demolish two existing 10,000-gallon underground fuel (unleaded/diesel) storage tanks and conduct remediation (if any), construct new fueling station consisting of one (1) 20,000 gallon diesel and one (1) 10,000 gallon unleaded above ground double wall fuel storage tanks for the City Airport Vehicles in the Northeast quadrant adjacent existing Airline jet fuel facility
9) Demolish existing Waste Disposal Facility and construct new Waste Disposal Facility in the Northeast quadrant adjacent existing airline jet fuel facility
10) Decommission existing compressed natural gas (CNG) station, including: Removal compressor and associated equipment

The FAA's Determination Regarding Changes to the Airport Layout Plan

For the purpose of determining whether the proposed project requires FAA ALP approval, we have made the following determinations:

1. Because portions of the proposed development may have a material impact on aircraft operations, at, to, or from the airport; may affect the safety of people and property on the ground; would have an adverse effect on the value of prior Federal investments to a significant extent, the FAA retains the legal authority to approve or disapprove the following changes to the SJC ALP:

    a. Construct 16 airline gates with jet bridges and up to 750,000SF of terminal building space

   b. Reconstruct up to 300,000SF of deteriorated airfield apron at the south end of Terminal B South Concourse to support aircraft parking
   c. Demolish the SJPD associated hangar buildings and construct replacement SJPD hangar in the Southwest quadrant

2. Because the remaining portions of the proposed development would have no material impact on aircraft operations at, to, or from the airport, would not affect the safety of people and property on the ground, and would not have an adverse effect on the value of prior Federal investments to a significant extent, the FAA lacks the legal authority to approve or disapprove changes to the SJC ALP for the following project components:

   a. Construct a new On-Airport Business Hotel (up to 300,000SF, 330 guest rooms and 300 parking spaces)
   b. Construct a new terminal area multi-level parking structure (up to 5,000 parking spaces)
   c. Demolish existing Belly Freight Building and construct new Belly Freight Building in the Southeast quadrant
   d. Demolish the former SJPD building
   e. Demolish Facilities/Maintenance buildings and construct two new facilities/maintenance buildings in the Southwest quadrant
   f. Demolish two existing 10,000-gallon underground fuel (unleaded/diesel) storage tanks and conduct remediation (if any), construct new fueling station consisting of one (1) 20,000 gallon diesel and one (1) 10,000 gallon unleaded above ground double wall fuel storage tanks for the City Airport Vehicles in the Northeast quadrant adjacent existing airline jet fuel facility
   g. Decommission existing compressed natural gas station, including removal of compressor and associated equipment

FAA's Authority to Regulate Land Use

Because portions of the proposed project may affect the safe and efficient operation of aircraft or safety of people and property on the ground related to aircraft operations, the FAA retains the authority to regulate the use of the land associated with construct 16 airline gates with jet bridges and up to 750,000SF of terminal building space, reconstruct up to 300,000SF of deteriorated airfield apron at the south end of Terminal B South Concourse to support aircraft parking and demolish the SJPD associated hangar buildings and construct replacement SJPD hangar in the Southwest quadrant. But because these portions of the proposed project are for aeronautical purposes, no change in land use is required. Therefore, FAA approval is not needed for the proposed uses of land associated with these projects.

Applicability of the National Environmental Policy Act (NEPA)

The FAA's ALP approval authority for portions of the proposed project, and any other Federal approvals associated with the project, such as funding under the AIP or PFC programs, is a federal action subject to the National Environmental Policy Act (NEPA). Therefore, the sponsor will be required to perform an appropriate level of environmental review for the proposed project. Contact the SFO ADO for guidance on preparing the environmental document for these actions.

Sponsor Obligations Still In Effect

This determination only addresses FAA's approval authority for this project. It is not a determination that the project complies with the sponsor's federal grant assurances. The sponsor must continue to comply with all of its Federal grant obligations, including but not limited to Grant Assurance #5, Preserving Rights and Powers; Grant Assurance #19, Operation and Maintenance; Grant Assurance #20, Hazard Removal and Mitigation; Grant Assurance #21, Compatible Land Use; and Grant Assurance #25 Airport Revenue.

Section 163 and Grant Assurance 25 require the airport sponsor to receive not less than fair market value for the use, lease, encumbrance, transfer, or disposal of land, any facilities on such land, or any portion of such land or facilities. The sponsor must ensure that all revenues generated as a result of this project may only be expended for the capital or operating costs of the airport; the local airport system; or other local facilities which are owned or operated by the owner or operator of the airport and which are directly and substantially related to the actual air transportation of passengers or property; or for noise mitigation purposes on or off the airport.

The sponsor also has the responsibility to comply with all federal, state, and local environmental laws and regulations.

Additionally, any development on this parcel is still subject to airspace review under the requirements of 14 CFR part 77, and, Grant Assurance 29 still requires the airport to update and maintain a current ALP. An updated ALP should be submitted to the SFO ADO if the project is completed.

This is a preliminary determination, and does not constitute a final agency action or an "order issued by the Secretary of Transportation" under 49 U.S.C. § 46110.

If you have further questions or need for clarification, please feel free to contact me at 650-827-7601.

Sincerely,

X

Laurie Suttmeier
Manager

Laurie J. Suttmeier
Manager
San Francisco Airports District Office

Appendix B

Cartier and Detlefs, *"Archaeological Evaluation of the San José Municipal Airport," 1980.*

Report is withheld from public review as confidential. To request the 1980 report, please contact:

Ryan Sheelen, C.M., Airport Planner IV
Planning and Development Division
Mineta San José International Airport 1701
Airport Blvd. Ste B-1130
San José, CA 95110
Email: rsheelen@sjc.org
408-392-3600

Appendix C

State of California ✍ The Resources Agency
DEPARTMENT OF PARKS AND RECREATION

PRIMARY RECORD

Primary #
HRI #
Trinomial
NRHP Status Code
Other Listings
Review Code Reviewer Date

Page 1 **of** 36
***Resource Name or #:** (Assigned by recorder) Norman Y. Mineta San José International Airport
P1. Other Identifier:

***P2. Location:** ☐ **Not for Publication** ☒ **Unrestricted**
***a. County** Santa Clara **and** (P2c, P2e, and P2b or P2d. Attach a Location Map as necessary.)
***b. USGS 7.5' Quad** San Jose West **Date** 2015 **T** 6S **; R** 1E ; ☐ **of** ☐ **of Sec** 1 ; **B.M.**
c. Address 1701 Airport Boulevard City San José Zip 95110
d. UTM: (Give more than one for large and/or linear resources) Zone , mE/ mN
e. Other Locational Data: (e.g., parcel #, directions to resource, elevation, decimal degrees, etc., as appropriate)

***P3a. Description:** (Describe resource and its major elements. Include design, materials, condition, alterations, size, setting, and boundaries)

The Norman Y. Mineta San Jose International Airport (SJC) is a 1,000-acre site located two miles north of downtown San Jose. The airport consists of two non-historic terminals constructed in 1990 (Terminal A) and 2010 (Terminal B), two non-historic parking decks (1990 and 2010), non-historic surface parking lots to the south of the terminals, and a network of runways and various support buildings and hangars that date from the 1960s to 2016. The general setting surrounding the terminals, parking areas, and main entrances/exits consists of landscaped beds and trees. The setting surrounding the support buildings, hangars, and runways consists primarily of pavement (concrete or asphalt) and grass with some trees and small shrubs. The airport is generally bounded by Guadalupe Freeway and US 101 on the northwest, Interstate 880 on the southeast, Coleman Avenue on the southwest, and De La Cruz Boulevard on the Northwest.

A review of historic aerials demonstrates that over time the airport has changed significantly since it was established in 1949. The original 1949 terminal and another terminal (Terminal C) constructed in 1965 were demolished in favor of the non-historic Terminals A, B, and associated surface parking lots. While the airport saw tremendous growth from the 1950s through the 1970s, only 15 buildings remain on the site from this time Although generally in good condition, the majority of these buildings are nondescript hangar facilities, while the others are support buildings that feature some material alterations.

P5a. Photograph or Drawing (Photograph required for buildings, structures, and objects.)

See Continuation sheets.

***P3b. Resource Attributes:** (List attributes and codes) HP39
***P4. Resources Present:** ☐ Building ☐ Structure ☐ Object ☐ Site ☒ District ☐ Element of District ☐ Other (Isolates, etc.)
P5b. Description of Photo: (view, date, accession #) See Continuation Sheets
***P6. Date Constructed/Age and Source:** ☒ Historic ☐ Prehistoric ☐ Both 1949-1975
***P7. Owner and Address:**
City of San José
1701 Airport Blvd
San José, CA 95110
***P8. Recorded by:** (Name, affiliation, and address) Ashley Baumann, HNTB,
191 Peachtree Street, Suite 3300,
Atlanta, GA 30303
***P9. Date Recorded:** 4/23/2020

***P10. Survey Type:** (Describe)
Reconnaissance

State of California ♁ The Resources Agency
DEPARTMENT OF PARKS AND RECREATION

PRIMARY RECORD

Primary #
HRI #
Trinomial
NRHP Status Code

Other Listings
Review Code Reviewer Date

Page 2 **of** 36
***Resource Name or #:** (Assigned by recorder) Norman Y. Mineta San José International Airport
P1. Other Identifier:

***P11. Report Citation:** (Cite survey report and other sources, or enter "none.")

George, Shannon. Evaluation of San José International Airport Aircraft Rescue and Firefighting Building. David J. Powers & Associates, Inc. 2018

U.S. Department of Transportation, Federal Aviation Administration. San José International Airport Master Plan Update Improvements: Final Environmental Impact Statement, Volume 3. San Jose, CA: FAA, October 1999.

***Attachments:** ☐NONE ☐Location Map ☒Continuation Sheet ☐Building, Structure, and Object Record
☐Archaeological Record ☒District Record ☐Linear Feature Record ☐Milling Station Record ☐Rock Art Record
☐Artifact Record ☐Photograph Record ☐ Other (List):

Primary #
HRI #
Trinomial

***NRHP Status Code** 5S

***Resource Name or # (Assigned by recorder)**

D1. Historic Name: San José Municipal Airport

D2. Common Name: Norman Y. Mineta San José International Airport

***D3. Detailed Description** (Discuss overall coherence of the district, its setting, visual characteristics, and minor features. List all elements of district.):

The Norman Y. Mineta San José International Airport (SJC) consists of an approximately 1,000-acre site comprised of two non-historic terminal buildings, a network of runways, non-historic parking areas consisting of parking decks and surface lots, and various historic and non-historic support buildings and hangars. Although the airport was constructed in 1949, a review of historic aerials reveals that very few buildings 45 years or older remain on the site. The original airport terminal (also known as the General Aviation Terminal) that was constructed in 1949 was demolished c.2000. Terminal C, constructed in 1965, was demolished in 2010. The current terminals, parking decks, and surface lots serving airport passengers were constructed in 1990 (Terminal A and associated parking deck) and 2010 (Terminal B and associated parking deck and surface parking lots). The runways that historically served the airport have been expanded multiple times since the 1950s and no longer appear as they did historically. Only 15 buildings constructed within the last 45 years remain on the site. Of these 15 buildings, 11 are airplane hangar facilities that date to the 1960s. The remaining four buildings are the Fire and Rescue Building (1963), two buildings referred to historically as the Facilities Buildings (c.1970), and the In-Flight Kitchen (1974). Descriptions of these buildings, mapping, and photographs are included in the continuation sheets.

The immediate setting surrounding the terminals, parking areas, and main entrances/exits consists of landscaped beds and trees. The setting surrounding the support buildings, hangars, and runways consists primarily of pavement (concrete or asphalt) and grass with some trees and small shrubs. The larger setting of the airport is in an urban area two miles north of the City of San José.

***D4. Boundary Description** (Describe limits of district and attach map showing boundary and district elements.):

The airport is currently bounded by Guadalupe Freeway and US 101 on the northwest, Interstate 880 on the southeast, Coleman Avenue on the southwest, and De La Cruz Boulevard on the Northwest. See location map found on continuation sheets.

***D5. Boundary Justification:**

The boundaries described above conform to the legal parcel boundary.

D6. Significance: Theme Aviation, Commerce, Planning, and Development **Area**

Period of Significance 1949-1975 **Applicable Criteria**

(Discuss district's importance in terms of its historical context as defined by theme, period of significance, and geographic scope. Also address the integrity of the district as a whole.)

The SJC District was evaluated under Criterion A for its associations with community planning, development, aviation, and commerce in Santa Clara County and the City of San José. According to an Environmental Impact Statement completed by the Federal Aviation Association (FAA) in 1999, "the Airport developed quite late in the history of aviation in the region. This airport was not the earliest airport in the County or the first airport in the City of San José" (FAA 1999). According to a history written by Patricia Loomis, transcontinental flights were not available until 1969 and the airport did not reach international status until the 1970s and 1980s (Loomis 48-49). Additionally, the airport currently exhibits little historic material from its earliest days, and less than 50% of its existing buildings and structures are 45 years or older. Therefore, the SJC District is recommended not eligible for the National Register under Criterion A.

The SJC District was evaluated under Criterion B for its association with James Nissen, the first general

***Resource Name or # (Assigned by recorder)**
D1. Historic Name: San José Municipal Airport
D2. Common Name: Norman Y. Mineta San José International Airport

manager of the airport. According to Loomis, Nissen was involved with the SJC airport as early as 1945 when he leased land from the City of San José for a small aviation company. He resigned his position with this company in 1946 when the City of San José asked him to be manager of what would eventually become the San José Municipal Airport (Loomis 14-16). Nissen remained manager of the airport until his retirement in 1975. Throughout his tenure the airport went through multiple expansions and saw the addition of a new terminal (Terminal C), new runways, and the first transcontinental flights in 1969. According to the SJC website, passenger traffic grew from 1 million in 1968 to 2 million by 1973 (flysanjose.com). Although Nissen was arguably an important figure in the SJC airport history, little infrastructure remains from his time as the manager, and the airport reached its zenith after his retirement. The newest Terminal, Terminal B, is named in his memory but this was done posthumously, and the building is not historic. Additionally, his contributions to the early days of SJC were no more or less significant that those made by other managers of similar airports at the time. Therefore, the SJC District is recommended not eligible for the National Register under Criterion B.

The SJC District was evaluated under Criterion C for its association with architecture. The majority of the historic-age buildings remaining on the airport property consist of nondescript, prefabricated metal hangars that do not exhibit any unique architectural features. The historic-age support buildings (including the Facilities buildings, Fire and Rescue building, and In-Flight Kitchen) have all been non-historically altered and are not good or representative examples of known architectural types. Additionally, a large percentage of buildings associated with the airport at the time it was constructed and through the 1960s are no longer extant. The original 1949 terminal and subsequent 1965 terminal have been demolished along with various support buildings including hangars and an associated flight simulator facility operated by San José State University from 1960-2010. Therefore, the SJC District is recommended not eligible for the National Register under Criterion C and none of the remaining historic-age buildings are recommended individually eligible.

There is no evidence to indicate the SJC District is likely to yield information on important research questions in history or prehistory. Additionally, the property does not appear to have the potential to be the principal source of important information. Therefore, there was no basis for evaluating the property under Criterion D.

The SJC District possesses integrity in the areas of location and association. The airport site has not moved and remains in its original location. SJC was historically associated with aviation activities and continues to serve as an active airport, thus retaining integrity of association.

The SJC District does not possess integrity in the areas of materials, design, workmanship, setting, or feeling. After years of numerous expansions and alterations, both historic terminals have been demolished and original roadways, entrances, and exits have been re-routed. Additionally, the historic runways have been expanded non-historically to accommodate larger aircraft and many of the historic hangars and support buildings are no longer extant. These losses to the historic fabric of the district represent a loss of integrity of materials, design, workmanship, and setting. Consequently, the district lacks integrity of feeling as the addition of two non-historic terminals and associated parking no longer lend the feeling of a mid-twentieth century airport.

***D7. References** (Give full citations including the names and addresses of any informants, where possible.):

https://earthexplorer.usgs.gov/. Accessed 4/23/20

George, Shannon. Evaluation of San José International Airport Aircraft Rescue and Firefighting Building. David J. Powers & Associates, Inc. 2018

https://www.historicaerials.com/viewer. Accessed 4/23/20.

***NRHP Status Code** 5S

***Resource Name or # (Assigned by recorder)**
D1. Historic Name: San José Municipal Airport
D2. Common Name: Norman Y. Mineta San José International Airport

https://www.flysanjose.com/sites/default/files/about/history/nissenplaqufin.pdf. Accessed 4/23/20.

https://www.flysanjose.com/sjc_timeline. Accessed 4/23/20.

Loomis, Patricia. San José International Airport, 1991.

Personal Communication with Ryan Sheelen, Airport Planner, April 2020.

U.S. Department of Transportation, Federal Aviation Administration. San José International Airport Master Plan Update Improvements: Final Environmental Impact Statement, Volume 3. San José, CA: FAA, October 1999.

***D8.** **Evaluator:** Ashley Baumann, Architectural Historian
Date: 4/23/20

Affiliation and Address:
HNTB Corporation, 191 Peachtree Street, Suite 3300, Atlanta, GA 30303

Continuation of P5a.

Image 1: SJC District Boundary

Source: Google Earth Pro, Image dated 11/3/2019 (not to scale, north at top)

Image 2: SJC historic building locations

Source: Google Earth Pro, Image dated 2020 (not to scale, north at top)

CONTINUATION SHEET

Continuation of D3.

Table 1: Historic-Age Buildings Within the SJC District

Name	Date	Type	Description
Air Freight (aka Belly Freight)	1969	Hangar	One story with a low pitch gable roof and metal sheeting exterior; multiple garage bays with metal doors on northeast and southwest elevations; when present, windows are aluminum horizontal sliding sash and doors are steel.
ACM and Pestana (aka SJPD Hangar and offices)	c.1970	Hangar	Two story with a low pitch gable roof and metal telescoping sliding hangar doors on the southwest and northeast elevations; exterior is comprised of metal sheeting; Pestana addition on the southeast elevation is now used for SJPD offices and is two stories with large fixed-pane aluminum and glass windows. The exterior is comprised of tile on the lower level and stucco on the upper level.
ACM/Pestana Support Hangar	c.1970	Hangar	Two story with a low pitch gable roof and metal telescoping sliding hangar doors on the southwest elevation; exterior is comprised of metal sheeting on all other elevations; the northwest elevation has one garage bay with a metal roll-up garage door.
Fire and Rescue Building*	1963	Building	Consists of single story living quarters and a taller 4 bay garage with roll-up doors that houses the fire engines; the roof is flat and the exterior is stucco; the windows are fixed pane and inset into the stucco; an addition to the south

			elevation was added in 2001 to provide additional living quarters.
Facilities Building (1395)	c.1970	Building	Single story with a flat roof; exterior material is stucco featuring brick veneer columns that divide the east and west elevations into six bays; two of the bays on the east and west elevations feature non-historic roll-up metal garage doors; several bays feature double metal doors with large transom windows. In the center of the west elevation is a flat roof portico supported by brick columns that houses two gas pumps. On the northeast elevation is a second flat roof portico that appears to house repair equipment.
Facilities Building (1395A)	c.1970	Building	Single story with a flat roof; exterior material is stucco featuring brick veneer columns that divide the east and west elevations into five bays; three of the bays on each elevation feature non-historic metal and glass roll-up garage doors; the northern bays on the east and west elevations feature a small shed roof supported by brick columns sheltering double metal doors. Single entry metal doors are also present and windows are single or paired fixed pane.
In-Flight Kitchen	1974	Building	Two-story stucco building with a flat roof; windows are large multi-pane metal and glass; main entrance is denoted by a hipped roof porch supported by concrete columns and features double metal and

			glass doors. A large non-historic addition was added to the southeast elevation c.1987; non-historic additions were also added to the southwest and southeast elevations c.1998. The southwest elevation features several bays that serve as a loading dock.
Hangar 1311	c.1960	Hangar	Two story with a low pitch gable roof; northeast and southwest elevations feature metal telescoping sliding hangar doors; exterior siding consists of metal sheeting; windows consist of either multi-pane or 2/2 awning windows, some of which have been completely enclosed or altered to house air conditioning units or; doors are metal with a single upper fixed light.
Hangar 1277	c.1960	Hangar	Two story with a low pitch gable roof; northeast and southwest elevations feature metal telescoping sliding hangar doors; windows generally consist of multi-pane awning windows (two of which have been replaced); doors are metal with a single upper fixed light.
Hangar 1253	c.1960	Hangar	Two story with a gable roof and metal sheeting exterior; northeast and southwest elevations feature metal telescoping sliding hangar doors; windows throughout are multi-pane awning windows, and doors are metal with a single upper fixed light.
Hangar 1239	c.1968	Hangar	Two story with a gable roof and metal sheeting exterior; the southwest elevation

			features metal telescoping sliding hangar doors with one large sliding metal door in the center of the gable; doors are metal and windows are horizontal sliding sash with either two or three panes. Additionally, the southeast elevation features a single bay garage opening, and the northeast elevation has a small shed addition.
Hangar Building No. 8	c.1968	Hangar	Low-pitch (almost flat) gable roof with metal telescoping sliding hangar doors on the west and east elevations; southwest and northeast elevations feature a metal door and one horizontal sliding aluminum sash window.
Hangar Building No.9	c.1968	Hangar	Low-pitch (almost flat) gable roof with metal telescoping sliding hangar doors on the west and east elevations; northeast elevation features two metal doors with two double-hung aluminum sash windows; southwest elevation features a metal door with one horizontal sliding aluminum sash window.
Hangar Building No. 10	c.1968	Hangar	Low-pitch (almost flat) gable roof with metal telescoping sliding hangar doors on the west and east elevations; southwest elevation features a metal door with one horizontal sliding aluminum sash window and the northeast elevation features a metal door with one fixed multi-pane window.
Hangar Building No. 11	c.1968	Hangar	Low-pitch (almost flat) gable roof with metal telescoping sliding hangar

			doors on the west and east elevations; northeast elevation features a metal door with a fixed multi-pane window and southwest elevation features a metal door with one horizontal sliding sash aluminum window

*Determined not individually eligible in a Categorical Exclusion prepared by FAA in 2018

Photographs and Historic Aerials

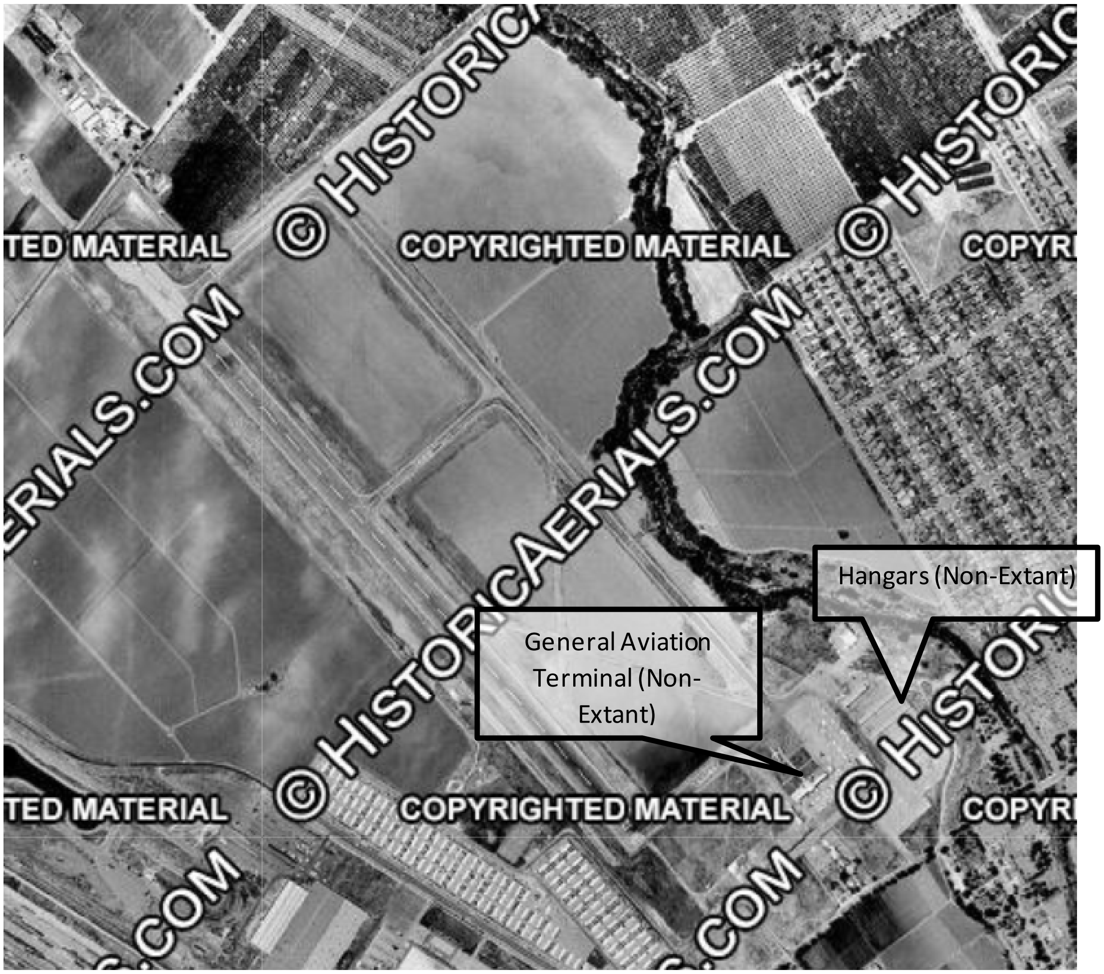

Image 3: 1956 Aerial

Source: https://www.historicaerials.com/viewer

State of California Natural Resources Agency
DEPARTMENT OF PARKS AND RECREATION

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HRI #
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CONTINUATION SHEET

Property Name: Norman Y. Mineta San José International Airport

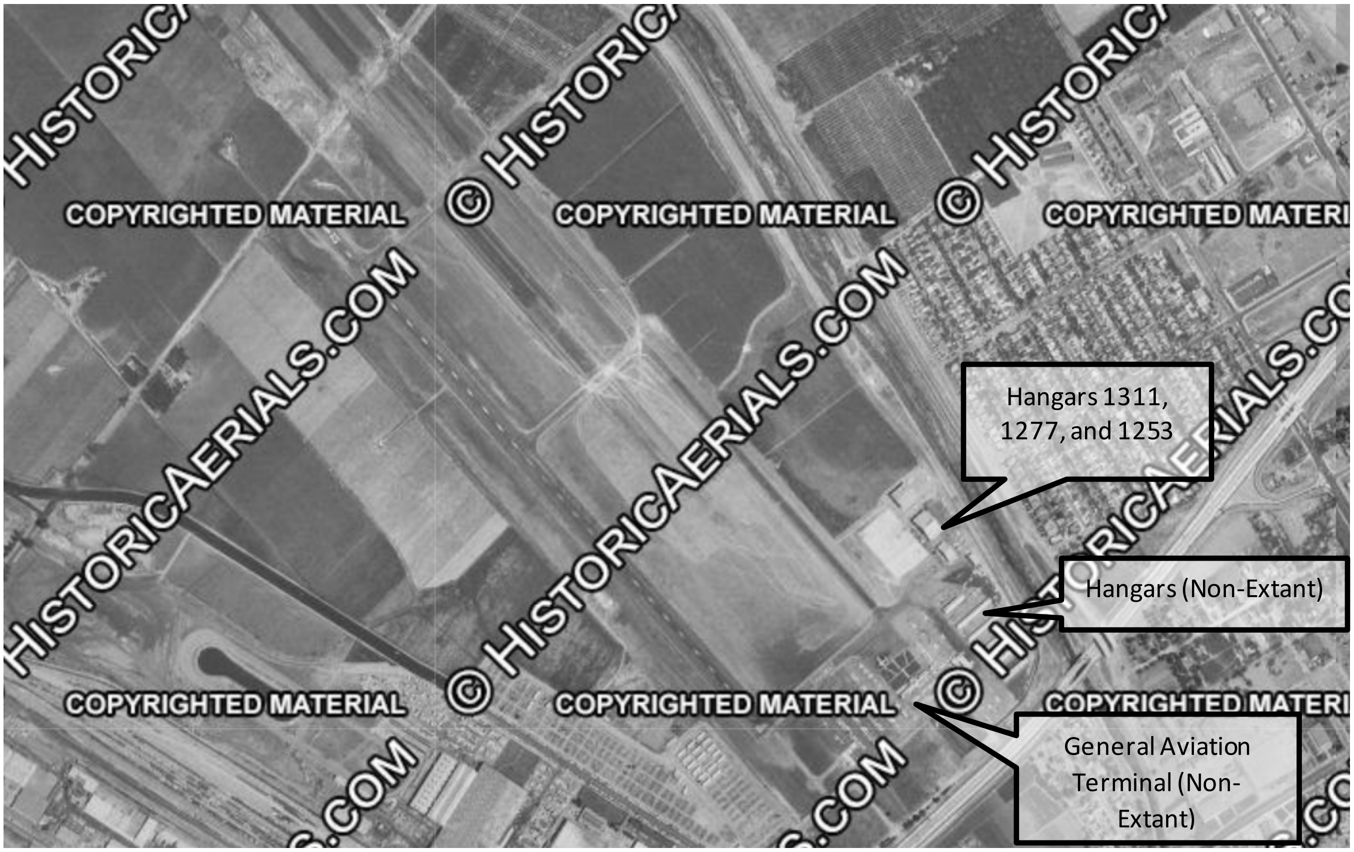


Image 4: 1960 Aerial

Source: https://www.historicaerials.com/viewer

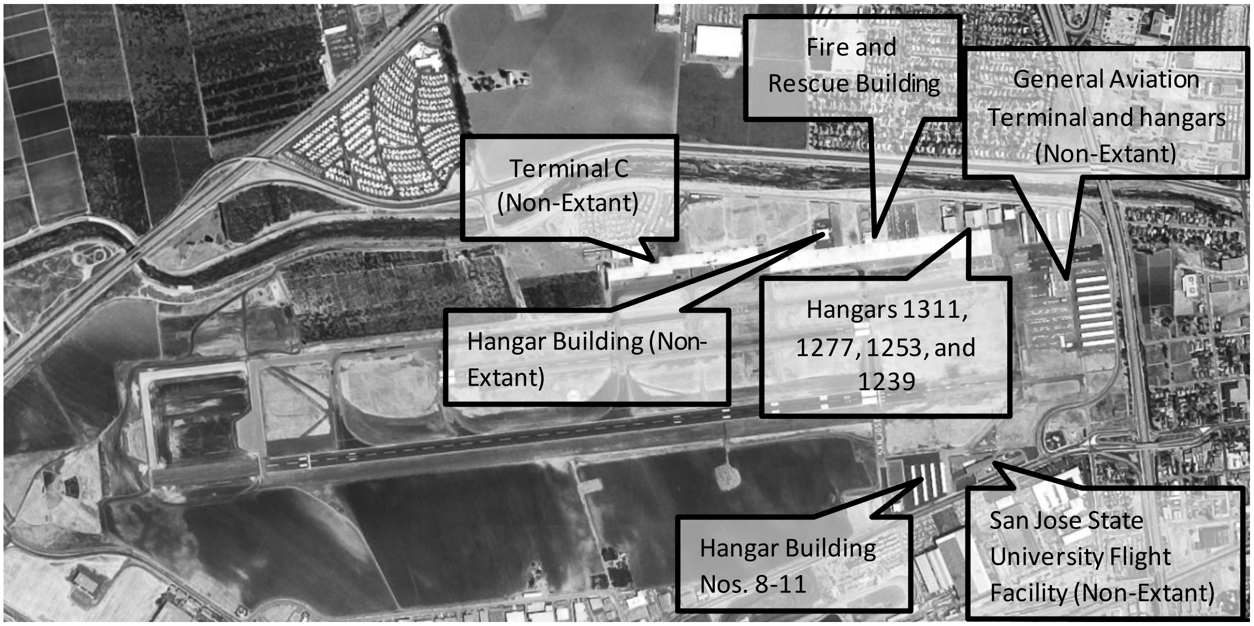


Image 5: 1968 Historic Aerial

Source: https://earthexplorer.usgs.gov/

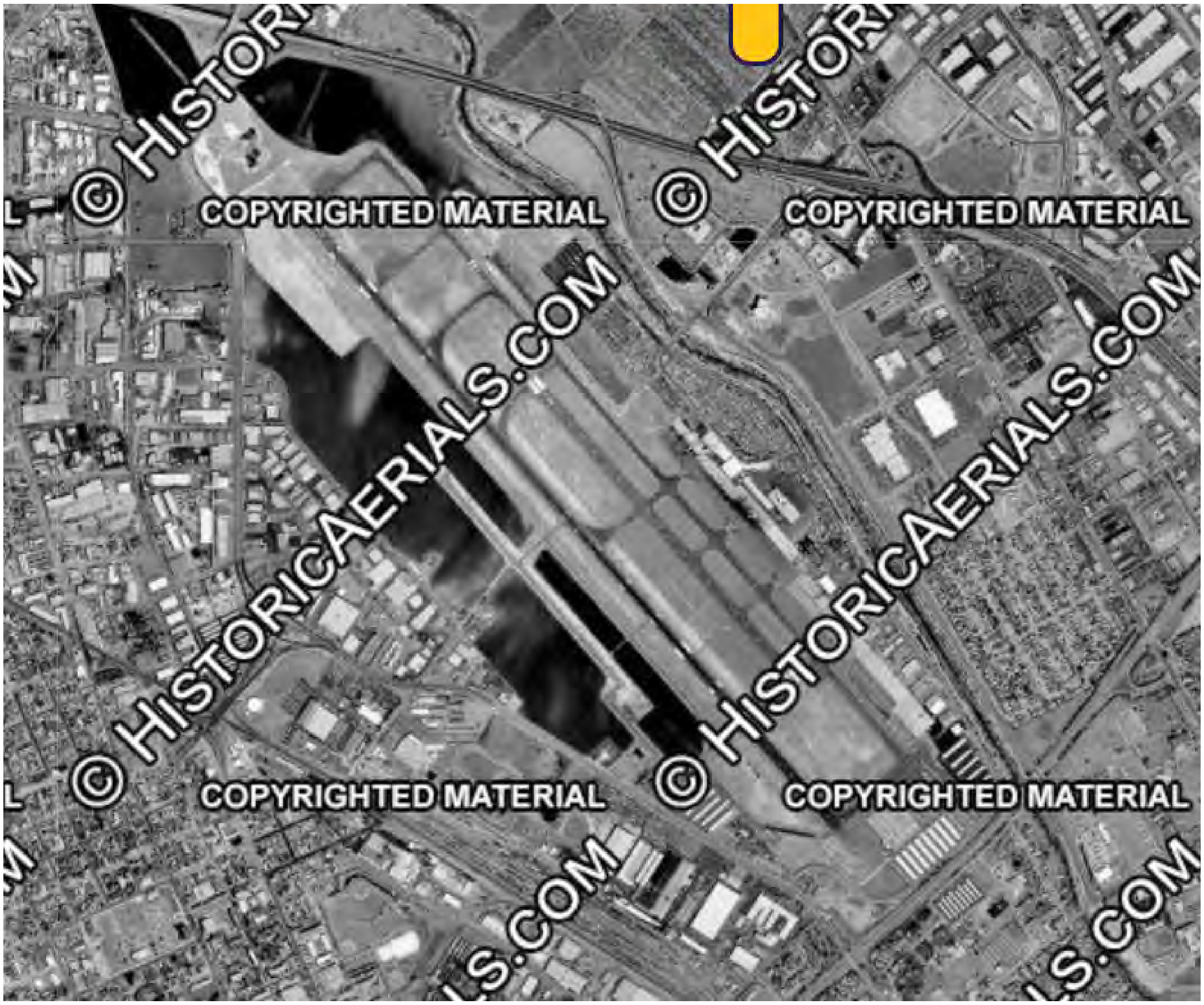


Image 6: 1980 Aerial

Source: https://www.historicaerials.com/viewer

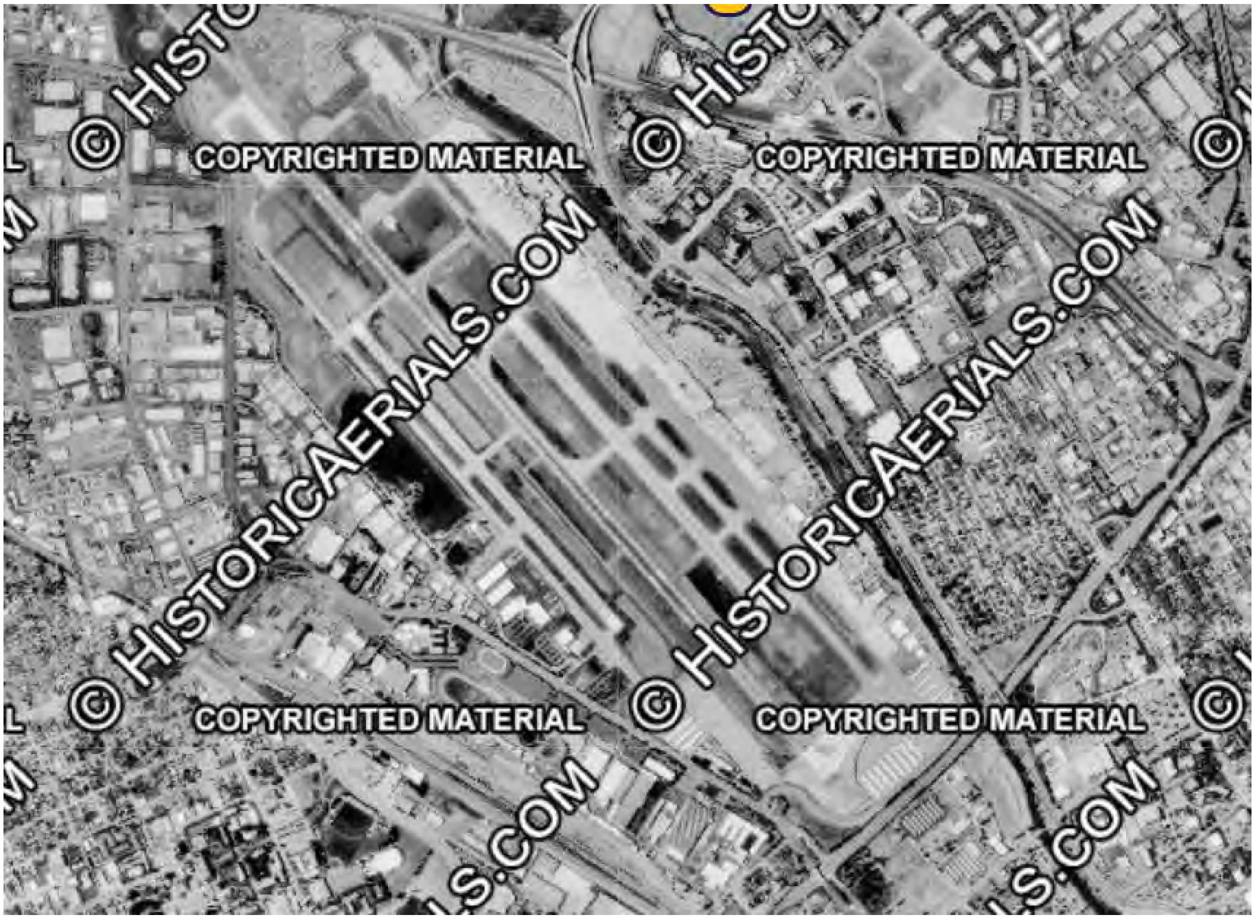


Image 7: 1993 Aerial

Source: https://www.historicaerials.com/viewer

Image 8: 2005 Aerial

Source: Source: https://www.historicaerials.com/viewer

Image 9: Air Freight Building southeast elevation, view to the west

Image 10: Air Freight Building northeast elevation, view to the south

Image 11: Air Freight Building southwest elevation, view to the northeast

Image 12: ACM/Pestana Building southeast elevation, view to the northwest

Image 13: ACM/Pestana southwest elevation, view to the north

Image 14: ACM/Pestana Support Hangar southwest elevation, view to the north

Image 15: ACM/Pestana Support Hangar northwest elevation, view to the east

Image 16: Aircraft Rescue and Firefighting Building northeast elevation, view to the west

(Photo courtesy of the Evaluation of San Jose International Airport Aircraft Rescue and Firefighting Building Memorandum, 2018)

CONTINUATION SHEET

Image 17: Aircraft Rescue and Firefighting Building southwest elevation, view to the northeast

(Photo courtesy of the Evaluation of San Jose International Airport Aircraft Rescue and Firefighting Building Memorandum, 2018)

Image 18: Facilities Building (1395A) west elevation, view to the northeast

Image 19: Facilities Building (1395A) east elevation, view to the northwest

Image 20: Facilities Building (1395) east elevation, view to the southwest

CONTINUATION SHEET

Image 21: Facilities Building (1395) west elevation, view to the east

Image 22: In-Flight Kitchen northeast elevation, view to the southwest

Image 23: In-Flight Kitchen southwest elevation, view to the northeast

Image 24: Hangar 1311 southwest elevation, view to the northeast

Image 25: Hangar 1311 southeast elevation, view to the southwest

Image 26: Hangar 1311 northeast elevation, view to the west

State of California ♁ Natural Resources Agency Primary#
DEPARTMENT OF PARKS AND RECREATION HRI #
Trinomial

CONTINUATION SHEET

Property Name: _Norman Y. Mineta San José International Airport_______________
Page __27__ of _36__

Image 27: Hangar 1277 southwest elevation, view to the north

Image 28: Hangar 1277 southeast elevation, view to the west

Image 29: Hangar 1277 northwest elevation, view to the east

Image 30: Hangar 1253 southwest elevation, view to the northeast

Image 31: Hangar 1253 southeast elevation, view to the northeast

Image 32: Hangar 1239 southwest elevation, view to the northeast

Image 33: Hangar 1239 southeast elevation, view to the northwest

Image 34: Hangar 1239 northeast elevation, view to the southwest

Image 35: Hangar No. 8 southwest elevation, view to the southeast

Image 36: Hangar 8 southeast elevation, view to the northeast

Image 37: Hangar Nos. 8-11 southeast elevations, view to the northwest

Image 38: Hangar No. 9 northeast elevation oblique, view to the southwest

Image 39: Hangar 10 northeast oblique, view to the southwest

Image 40: Hangar 11 northeast oblique, view to the southwest

Image 41: Terminals A, B, and Customs, view to the northwest

Image 42: Terminal A, view to the southeast

Image 43: Terminal A, view to the southwest

Image 44: Terminal B and runways, view to the northwest

Image 45: Terminal B and surface parking, view to the south

Attachment 3:

FAA Consultation with
Tribes, April 2022

U.S. Department
of Transportation
**Federal Aviation
Administration**

Western-Pacific Region
San Francisco Airports District Office

1000 Marina Boulevard, Suite 115
Brisbane, CA 94005-1835

April 7, 2022

VIA EMAIL amahmutsuntribal@gmail.com

Irenne Zwierlein
Chairperson
Amah Mutsun Tribal Band of Mission San Juan Bautista
789 Canada Road
Woodside, CA 94062

Dear Chairperson Zwierlein:

Subject: Proposed Terminal B South Concourse Improvement Project at Norman Y. Mineta San Jose International Airport, San Jose, California

Native American Consultation Initiation

The Federal Aviation Administration (FAA) and the City of San Jose, are preparing federal environmental documentation under the National Environmental Policy Act (NEPA) of 1969, as amended, for the Proposed Terminal B South Concourse Improvement Project at San Jose International Airport, San Jose, CA (SJC/Airport). The City of San Jose is the sponsor for SJC.

City of San Jose is proposing to implement its Terminal B South Concourse Improvements Project (Proposed Project), which includes the following major components:

- Terminal B would be improved by constructing a proposed 750,000 square foot modern South Concourse extension comprised of 16 airline gates with jet bridges;
    - Eight of the airline gate would replace the existing eight interim gates;
    - Two of the airline gates would be relocated from elsewhere in Terminals A and B; and
    - Six airline gates would be added;
- The existing airfield pavement adjacent to the concourse would be reconstructed and strengthened as a Terminal Apron for movement and parking of aircraft at the airline gates.

The FAA is the lead Federal Agency for Native American consultation for the proposed project. Your name and contact information was provided to us by State of California, Native American Heritage Commission. Tribal sovereignty, culture, traditional values and customs will be respected at all times during the consultation process.

Consultation Initiation

With this letter, the FAA is seeking input on concerns that uniquely or significantly affect your Tribe related to proposed airport improvements. Early identification of Tribal concerns, or known properties of traditional, religious, and cultural importance, will allow the FAA to consider ways to avoid or minimize potential impacts to Tribal resources as project planning and alternatives are developed and refined. We are available to discuss the details of the proposed project with you.

Project Information

Terminal B is located adjacent to Airport Boulevard at SJC. The Proposed Project would improve the Terminal B South Concourse by replacing an undersized existing six-gate interim facility; including two airline gates to relocate two existing gates from Terminal A and B; and add six new gates. All gates would include jet bridges. The existing airfield pavement in the area would be reconstructed and strengthened as a Terminal Apron to accommodate movement of aircraft and parking of aircraft at gates for transfer of passengers to and from the terminal.

The Proposed Project location and the direct and indirect Areas of Potential Effect (APE) are shown on the enclosed Figure 1. Figure 2, enclosed, depicts the APEs and Airport boundary on a USGS Quad Map. The direct APE is approximately 18.8 acres and the indirect APE is approximately 31.0 acres. Within the direct APE a depth of disturbance of approximately 5 feet below ground surface (bgs) is estimated for the reconstruction of airfield pavement for the Terminal Apron, and a depth of approximately 25 feet bgs is estimated for the concourse improvements. Additionally, where necessary, concourse structural supports reaching approximately 80 feet bgs would be installed via pile driving.

Confidentiality

We understand that you may have concerns about the confidentiality of information on areas or resources of traditional, religious, and cultural importance to your Tribe. We are available to discuss these concerns and develop procedures to ensure the confidentiality of such information is maintained.

FAA Contact Information

Your timely response within 30-days of receipt of this correspondence will greatly assist us in incorporating your concerns into project planning. If you wish to provide comments related to this proposed project, please contact me at the San Francisco Airports District Office by phone at (405) 666-1068 or by e-mail at Camille.Garibaldi@faa.gov.

Sincerely,

Camille Garibaldi
Environmental Protection Specialist

Enclosures

cc:
Ryan Sheelen, Norman Y. Mineta San Jose International Airport

Norman Y. Mineta San José International Airport Proposed Terminal B South Concourse Improvements Environmental Assessment

Legend

🟥 Area of Potential Effect (APE)

▭ Indirect Area of Potential Effect (APE)

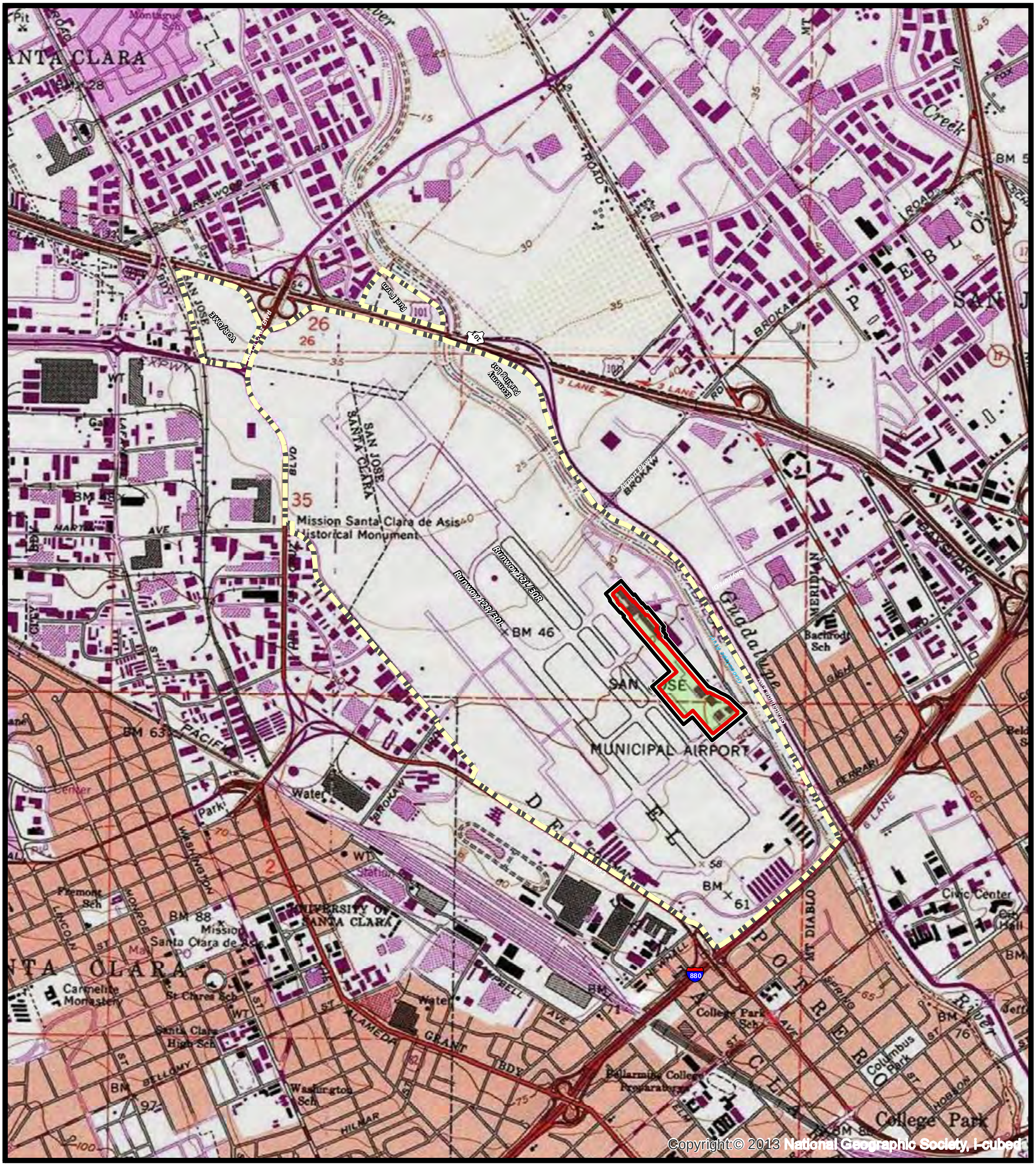
Airport Property Line

Figure 1
Area of Potential Effect (APE)

N 0 250 500 1,000 Feet

Sources: SJC, Draft EIR, Nearmap

Norman Y. Mineta San José International Airport
Proposed Terminal B South Concourse Improvements Environmental Assessment



Copyright:© 2013 National Geographic Society, i-cubed

LEGEND

- 🟥 Area of Potential Effect (APE)
- ⬛ Indirect Area of Potential Effect (APE)
- ▬ Airport Property Line

Figure 2
USGS Quad Map (San Jose West / Milpitas)

N

0 500 1,000 2,000 Feet

Source: 2013 National Geographic Society

U.S. Department
of Transportation
**Federal Aviation
Administration**

Western-Pacific Region
San Francisco Airports District Office

1000 Marina Boulevard, Suite 115
Brisbane, CA 94005-1835

April 7, 2022

VIA EMAIL vlopez@amahmutsun.org

Valentin Lopez
Chairperson
Amah Mutsun Tribal Band
P. O. Box 5272
Galt, CA 95632

Dear Chairperson Lopez:

Subject: Proposed Terminal B South Concourse Improvement Project at Norman Y. Mineta San Jose International Airport, San Jose, California

Native American Consultation Initiation

The Federal Aviation Administration (FAA) and the City of San Jose, are preparing federal environmental documentation under the National Environmental Policy Act (NEPA) of 1969, as amended, for the Proposed Terminal B South Concourse Improvement Project at San Jose International Airport, San Jose, CA (SJC/Airport). The City of San Jose is the sponsor for SJC.

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    - Six airline gates would be added;
- The existing airfield pavement adjacent to the concourse would be reconstructed and strengthened as a Terminal Apron for movement and parking of aircraft at the airline gates.

The FAA is the lead Federal Agency for Native American consultation for the proposed project. Your name and contact information was provided to us by State of California, Native American Heritage Commission. Tribal sovereignty, culture, traditional values and customs will be respected at all times during the consultation process.

Consultation Initiation

With this letter, the FAA is seeking input on concerns that uniquely or significantly affect your Tribe related to proposed airport improvements. Early identification of Tribal concerns, or known properties of traditional, religious, and cultural importance, will allow the FAA to consider ways to avoid or minimize potential impacts to Tribal resources as project planning and alternatives are developed and refined. We are available to discuss the details of the proposed project with you.

Project Information

Terminal B is located adjacent to Airport Boulevard at SJC. The Proposed Project would improve the Terminal B South Concourse by replacing an undersized existing six-gate interim facility; including two airline gates to relocate two existing gates from Terminal A and B; and add six new gates. All gates would include jet bridges. The existing airfield pavement in the area would be reconstructed and strengthened as a Terminal Apron to accommodate movement of aircraft and parking of aircraft at gates for transfer of passengers to and from the terminal.

The Proposed Project location and the direct and indirect Areas of Potential Effect (APE) are shown on the enclosed Figure 1. Figure 2, enclosed, depicts the APEs and Airport boundary on a USGS Quad Map. The direct APE is approximately 18.8 acres and the indirect APE is approximately 31.0 acres. Within the direct APE a depth of disturbance of approximately 5 feet below ground surface (bgs) is estimated for the reconstruction of airfield pavement for the Terminal Apron, and a depth of approximately 25 feet bgs is estimated for the concourse improvements. Additionally, where necessary, concourse structural supports reaching approximately 80 feet bgs would be installed via pile driving.

Confidentiality

We understand that you may have concerns about the confidentiality of information on areas or resources of traditional, religious, and cultural importance to your Tribe. We are available to discuss these concerns and develop procedures to ensure the confidentiality of such information is maintained.

FAA Contact Information

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Sincerely,

Camille Garibaldi
Environmental Protection Specialist

Enclosures

cc:
Ryan Sheelen, Norman Y. Mineta San Jose International Airport

U.S. Department
of Transportation
**Federal Aviation
Administration**

Western-Pacific Region
San Francisco Airports District Office

1000 Marina Boulevard, Suite 115
Brisbane, CA 94005-1835

April 7, 2022

VIA EMAIL ams@indiancanyon.org

Ann Marie Sayers
Chairperson
Indian Canyon Mutsun Band of Costanoan
P. O. Box 28
Hollister, CA 95024

Dear Chairperson Sayers:

Subject: Proposed Terminal B South Concourse Improvement Project at Norman Y. Mineta San Jose International Airport, San Jose, California

Native American Consultation Initiation

The Federal Aviation Administration (FAA) and the City of San Jose, are preparing federal environmental documentation under the National Environmental Policy Act (NEPA) of 1969, as amended, for the Proposed Terminal B South Concourse Improvement Project at San Jose International Airport, San Jose, CA (SJC/Airport). The City of San Jose is the sponsor for SJC.

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Confidentiality

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FAA Contact Information

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Sincerely,

Camille Garibaldi
Environmental Protection Specialist

Enclosures

cc:
Ryan Sheelen, Norman Y. Mineta San Jose International Airport

U.S. Department
of Transportation
**Federal Aviation
Administration**

Western-Pacific Region
San Francisco Airports District Office

1000 Marina Boulevard, Suite 115
Brisbane, CA 94005-1835

April 14, 2022

VIA EMAIL ams@indiancanyons.org

Ann Marie Sayers
Chairperson
Indian Canyon Mutsun Band of Costanoan
P. O. Box 28
Hollister, CA 95024

Dear Chairperson Sayers:

Subject: Proposed Terminal B South Concourse Improvement Project at Norman Y. Mineta San Jose International Airport, San Jose, California

Native American Consultation Initiation

The Federal Aviation Administration (FAA) and the City of San Jose, are preparing federal environmental documentation under the National Environmental Policy Act (NEPA) of 1969, as amended, for the Proposed Terminal B South Concourse Improvement Project at San Jose International Airport, San Jose, CA (SJC/Airport). The City of San Jose is the sponsor for SJC.

City of San Jose is proposing to implement its Terminal B South Concourse Improvements Project (Proposed Project), which includes the following major components:

- Terminal B would be improved by constructing a proposed 750,000 square foot modern South Concourse extension comprised of 16 airline gates with jet bridges;
    - Eight of the airline gate would replace the existing eight interim gates;
    - Two of the airline gates would be relocated from elsewhere in Terminals A and B; and
    - Six airline gates would be added;
- The existing airfield pavement adjacent to the concourse would be reconstructed and strengthened as a Terminal Apron for movement and parking of aircraft at the airline gates.

The FAA is the lead Federal Agency for Native American consultation for the proposed project. Your name and contact information was provided to us by State of California, Native American Heritage Commission. Tribal sovereignty, culture, traditional values and customs will be respected at all times during the consultation process.

Consultation Initiation

With this letter, the FAA is seeking input on concerns that uniquely or significantly affect your Tribe related to proposed airport improvements. Early identification of Tribal concerns, or known properties of traditional, religious, and cultural importance, will allow the FAA to consider ways to avoid or minimize potential impacts to Tribal resources as project planning and alternatives are developed and refined. We are available to discuss the details of the proposed project with you.

Project Information
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The Proposed Project location and the direct and indirect Areas of Potential Effect (APE) are shown on the enclosed Figure 1. Figure 2, enclosed, depicts the APEs and Airport boundary on a USGS Quad Map. The direct APE is approximately 18.8 acres and the indirect APE is approximately 31.0 acres. Within the direct APE a depth of disturbance of approximately 5 feet below ground surface (bgs) is estimated for the reconstruction of airfield pavement for the Terminal Apron, and a depth of approximately 25 feet bgs is estimated for the concourse improvements. Additionally, where necessary, concourse structural supports reaching approximately 80 feet bgs would be installed via pile driving.

Confidentiality
We understand that you may have concerns about the confidentiality of information on areas or resources of traditional, religious, and cultural importance to your Tribe. We are available to discuss these concerns and develop procedures to ensure the confidentiality of such information is maintained.

FAA Contact Information
Your timely response within 30-days of receipt of this correspondence will greatly assist us in incorporating your concerns into project planning. If you wish to provide comments related to this proposed project, please contact me at the San Francisco Airports District Office by phone at (405) 666-1068 or by e-mail at Camille.Garibaldi@faa.gov.

Sincerely,

Camille Garibaldi
Environmental Protection Specialist

Enclosures

cc:
Kanyon Sayers-Roods, Indian Canyon Mutsun Band of Costanoan
Ryan Sheelen, Norman Y. Mineta San Jose International Airport

U.S. Department
of Transportation
**Federal Aviation
Administration**

Western-Pacific Region
San Francisco Airports District Office

1000 Marina Boulevard, Suite 115
Brisbane, CA 94005-1835

April 7, 2022

VIA EMAIL kanyon@kanyonkonsulting.com

Kanyon Sayers-Roods, MLD
1615 Pearson Court
San Jose, CA 95122

Dear Ms. Sayers-Roods:

Subject: Proposed Terminal B South Concourse Improvement Project at Norman Y. Mineta San Jose International Airport, San Jose, California

Native American Consultation Initiation

The Federal Aviation Administration (FAA) and the City of San Jose, are preparing federal environmental documentation under the National Environmental Policy Act (NEPA) of 1969, as amended, for the Proposed Terminal B South Concourse Improvement Project at San Jose International Airport, San Jose, CA (SJC/Airport). The City of San Jose is the sponsor for SJC.

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    - Six airline gates would be added;
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The FAA is the lead Federal Agency for Native American consultation for the proposed project. Your name and contact information was provided to us by State of California, Native American Heritage Commission. Tribal sovereignty, culture, traditional values and customs will be respected at all times during the consultation process.

Consultation Initiation
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the FAA to consider ways to avoid or minimize potential impacts to Tribal resources as project planning and alternatives are developed and refined. We are available to discuss the details of the proposed project with you.

Project Information
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The Proposed Project location and the direct and indirect Areas of Potential Effect (APE) are shown on the enclosed Figure 1. Figure 2, enclosed, depicts the APEs and Airport boundary on a USGS Quad Map. The direct APE is approximately 18.8 acres and the indirect APE is approximately 31.0 acres. Within the direct APE a depth of disturbance of approximately 5 feet below ground surface (bgs) is estimated for the reconstruction of airfield pavement for the Terminal Apron, and a depth of approximately 25 feet bgs is estimated for the concourse improvements. Additionally, where necessary, concourse structural supports reaching approximately 80 feet bgs would be installed via pile driving.

Confidentiality
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FAA Contact Information
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Sincerely,

Camille Garibaldi
Environmental Protection Specialist

Enclosures

cc:
Ryan Sheelen, Norman Y. Mineta San Jose International Airport

U.S. Department
of Transportation
**Federal Aviation
Administration**

Western-Pacific Region
San Francisco Airports District Office

1000 Marina Boulevard, Suite 115
Brisbane, CA 94005-1835

April 7, 2022

VIA EMAIL cnijmeh@muwekma.org

Charlene Nijmeh
Chairperson
Muwekma Ohlone Indian Tribe of the
San Francisco Bay Area
20885 Redwood Road, Suite 232
Castro Valley, CA 94546

Dear Chairperson Nijmeh:

Subject: Proposed Terminal B South Concourse Improvement Project at Norman Y. Mineta San Jose International Airport, San Jose, California

Native American Consultation Initiation

The Federal Aviation Administration (FAA) and the City of San Jose, are preparing federal environmental documentation under the National Environmental Policy Act (NEPA) of 1969, as amended, for the Proposed Terminal B South Concourse Improvement Project at San Jose International Airport, San Jose, CA (SJC/Airport). The City of San Jose is the sponsor for SJC.

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    - Two of the airline gates would be relocated from elsewhere in Terminals A and B; and
    - Six airline gates would be added;
- The existing airfield pavement adjacent to the concourse would be reconstructed and strengthened as a Terminal Apron for movement and parking of aircraft at the airline gates.

The FAA is the lead Federal Agency for Native American consultation for the proposed project. Your name and contact information was provided to us by State of California, Native American Heritage Commission. Tribal sovereignty, culture, traditional values and customs will be respected at all times during the consultation process.

Consultation Initiation

With this letter, the FAA is seeking input on concerns that uniquely or significantly affect your Tribe related to proposed airport improvements. Early identification of Tribal concerns, or known properties of traditional, religious, and cultural importance, will allow the FAA to consider ways to avoid or minimize potential impacts to Tribal resources as project planning and alternatives are developed and refined. We are available to discuss the details of the proposed project with you.

Project Information

Terminal B is located adjacent to Airport Boulevard at SJC. The Proposed Project would improve the Terminal B South Concourse by replacing an undersized existing six-gate interim facility; including two airline gates to relocate two existing gates from Terminal A and B; and add six new gates. All gates would include jet bridges. The existing airfield pavement in the area would be reconstructed and strengthened as a Terminal Apron to accommodate movement of aircraft and parking of aircraft at gates for transfer of passengers to and from the terminal.

The Proposed Project location and the direct and indirect Areas of Potential Effect (APE) are shown on the enclosed Figure 1. Figure 2, enclosed, depicts the APEs and Airport boundary on a USGS Quad Map. The direct APE is approximately 18.8 acres and the indirect APE is approximately 31.0 acres. Within the direct APE a depth of disturbance of approximately 5 feet below ground surface (bgs) is estimated for the reconstruction of airfield pavement for the Terminal Apron, and a depth of approximately 25 feet bgs is estimated for the concourse improvements. Additionally, where necessary, concourse structural supports reaching approximately 80 feet bgs would be installed via pile driving.

Confidentiality

We understand that you may have concerns about the confidentiality of information on areas or resources of traditional, religious, and cultural importance to your Tribe. We are available to discuss these concerns and develop procedures to ensure the confidentiality of such information is maintained.

FAA Contact Information

Your timely response within 30-days of receipt of this correspondence will greatly assist us in incorporating your concerns into project planning. If you wish to provide comments related to this proposed project, please contact me at the San Francisco Airports District Office by phone at (405) 666-1068 or by e-mail at Camille.Garibaldi@faa.gov.

Sincerely,

Camille Garibaldi
Environmental Protection Specialist

Enclosures

cc:
Monica Arellano, Muwekma Ohlone Indian Tribe of the SF Bay Area
Ryan Sheelen, Norman Y. Mineta San Jose International Airport

U.S. Department
of Transportation
**Federal Aviation
Administration**

Western-Pacific Region
San Francisco Airports District Office

1000 Marina Boulevard, Suite 115
Brisbane, CA 94005-1835

April 7, 2022

VIA EMAIL canutes@verizon.net

Katherine Perez
Chairperson
North Valley Yokuts Tribe
P. O. Box 717
Linden, CA 95236

Dear Chairperson Perez:

Subject: Proposed Terminal B South Concourse Improvement Project at Norman Y. Mineta San Jose International Airport, San Jose, California

Native American Consultation Initiation

The Federal Aviation Administration (FAA) and the City of San Jose, are preparing federal environmental documentation under the National Environmental Policy Act (NEPA) of 1969, as amended, for the Proposed Terminal B South Concourse Improvement Project at San Jose International Airport, San Jose, CA (SJC/Airport). The City of San Jose is the sponsor for SJC.

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    - Six airline gates would be added;
- The existing airfield pavement adjacent to the concourse would be reconstructed and strengthened as a Terminal Apron for movement and parking of aircraft at the airline gates.

The FAA is the lead Federal Agency for Native American consultation for the proposed project. Your name and contact information was provided to us by State of California, Native American Heritage Commission. Tribal sovereignty, culture, traditional values and customs will be respected at all times during the consultation process.

Consultation Initiation

With this letter, the FAA is seeking input on concerns that uniquely or significantly affect your Tribe related to proposed airport improvements. Early identification of Tribal concerns, or known properties of traditional, religious, and cultural importance, will allow the FAA to consider ways to avoid or minimize potential impacts to Tribal resources as project planning and alternatives are developed and refined. We are available to discuss the details of the proposed project with you.

Project Information

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The Proposed Project location and the direct and indirect Areas of Potential Effect (APE) are shown on the enclosed Figure 1. Figure 2, enclosed, depicts the APEs and Airport boundary on a USGS Quad Map. The direct APE is approximately 18.8 acres and the indirect APE is approximately 31.0 acres. Within the direct APE a depth of disturbance of approximately 5 feet below ground surface (bgs) is estimated for the reconstruction of airfield pavement for the Terminal Apron, and a depth of approximately 25 feet bgs is estimated for the concourse improvements. Additionally, where necessary, concourse structural supports reaching approximately 80 feet bgs would be installed via pile driving.

Confidentiality

We understand that you may have concerns about the confidentiality of information on areas or resources of traditional, religious, and cultural importance to your Tribe. We are available to discuss these concerns and develop procedures to ensure the confidentiality of such information is maintained.

FAA Contact Information

Your timely response within 30-days of receipt of this correspondence will greatly assist us in incorporating your concerns into project planning. If you wish to provide comments related to this proposed project, please contact me at the San Francisco Airports District Office by phone at (405) 666-1068 or by e-mail at Camille.Garibaldi@faa.gov.

Sincerely,

Camille Garibaldi
Environmental Protection Specialist

Enclosures

cc:
Timothy Perez, North Valley Yokuts Tribe
Ryan Sheelen, Norman Y. Mineta San Jose International Airport

U.S. Department
of Transportation
**Federal Aviation
Administration**

Western-Pacific Region
San Francisco Airports District Office

1000 Marina Boulevard, Suite 115
Brisbane, CA 94005-1835

April 7, 2022

VIA EMAIL chochenyo@AOL.com

Andrew Galvan
The Ohlone Indian Tribe
P. O. Box 3388
Fremont, CA 94539

Dear Mr. Galvan:

Subject: Proposed Terminal B South Concourse Improvement Project at Norman Y. Mineta San Jose International Airport, San Jose, California

Native American Consultation Initiation

The Federal Aviation Administration (FAA) and the City of San Jose, are preparing federal environmental documentation under the National Environmental Policy Act (NEPA) of 1969, as amended, for the Proposed Terminal B South Concourse Improvement Project at San Jose International Airport, San Jose, CA (SJC/Airport). The City of San Jose is the sponsor for SJC.

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The FAA is the lead Federal Agency for Native American consultation for the proposed project. Your name and contact information was provided to us by State of California, Native American Heritage Commission. Tribal sovereignty, culture, traditional values and customs will be respected at all times during the consultation process.

Consultation Initiation
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Sincerely,

Camille Garibaldi
Environmental Protection Specialist

Enclosures

cc:
Ryan Sheelen, Norman Y. Mineta San Jose International Airport

U.S. Department
of Transportation
**Federal Aviation
Administration**

Western-Pacific Region
San Francisco Airports District Office

1000 Marina Boulevard, Suite 115
Brisbane, CA 94005-1835

April 14, 2022

VIA EMAIL qgeary@tamien.org

Quirina Luna Geary
Chairperson
Tamien Nation
P. O. Box 8053
San Jose, CA 95155

Dear Chairperson Geary:

Subject: Proposed Terminal B South Concourse Improvement Project at Norman Y. Mineta San Jose International Airport, San Jose, California

Native American Consultation Initiation

The Federal Aviation Administration (FAA) and the City of San Jose, are preparing federal environmental documentation under the National Environmental Policy Act (NEPA) of 1969, as amended, for the Proposed Terminal B South Concourse Improvement Project at San Jose International Airport, San Jose, CA (SJC/Airport). The City of San Jose is the sponsor for SJC.

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Sincerely,

Camille Garibaldi
Environmental Protection Specialist

Enclosures

cc:
Johnathan Wasaka Costillas, Tamien Nation
Ryan Sheelen, Norman Y. Mineta San Jose International Airport

U.S. Department
of Transportation
**Federal Aviation
Administration**

Western-Pacific Region
San Francisco Airports District Office

1000 Marina Boulevard, Suite 115
Brisbane, CA 94005-1835

April 14, 2022

VIA EMAIL kwood8934@aol.com

Kenneth Woodrow
Chairperson
Wuksache Indian Tribe – Eshom Valley Band
1179 Rock Haven Court
Salinas, CA 93906

Dear Chairperson Woodrow:

Subject: Proposed Terminal B South Concourse Improvement Project at Norman Y. Mineta San Jose International Airport, San Jose, California

Native American Consultation Initiation

The Federal Aviation Administration (FAA) and the City of San Jose, are preparing federal environmental documentation under the National Environmental Policy Act (NEPA) of 1969, as amended, for the Proposed Terminal B South Concourse Improvement Project at San Jose International Airport, San Jose, CA (SJC/Airport). The City of San Jose is the sponsor for SJC.

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Sincerely,

Camille Garibaldi
Environmental Protection Specialist

Enclosures

cc:
Ryan Sheelen, Norman Y. Mineta San Jose International Airport

Attachment 4:

Tamien Nation Response to FAA,
May 4, 2022
(received by FAA November 2, 2022).

From: Quirina Geary <qgeary@tamien.org>
Sent: Wednesday, November 2, 2022 11:10 AM
To: Garibaldi, Camille (FAA)
Cc: thpo@tamien.org
Subject: Re: SJC: Native American Consultation Initiation - Proposed Terminal B South Concourse Improvement Project, Norman Y. Mineta, San Jose International Airport
Attachments: TN-20220414-01 San Jose Airport New Terminal.pdf

Dear Ms. Garibaldi,

Good morning. I am following up on our letter requesting consultation sent in May. I have attached our original letter for reference.

Thank you for your time and we look forward to hearing from you.

Best,

Quirina Luna Geary
Chairwoman
Tamien Nation
www.tamien.org

.

On Thu, Apr 14, 2022 at 12:01 PM Garibaldi, Camille (FAA) <Camille.Garibaldi@faa.gov> wrote:

> Dear Chairperson Geary,
>
> The Federal Aviation Administration is initiating consultation with the Tamien Nation regarding a proposed Terminal B South Concourse Improvement Project at Norman Y. Mineta, San Jose International Airport. The attached letter provides project information and graphics of the Area of Potential Effect.
>
> I am available to answer any questions that you may have regarding the proposed project. My email address is Camille.Garibaldi@faa.gov. My phone number is (405) 666-1068.

Sincerely,

Camille Garibaldi

Camille Garibaldi

Environmental Protection Specialist

Federal Aviation Administration

Western Pacific Region

San Francisco Airports District Office

1000 Marina Blvd., Suite 115

Brisbane, CA 94005-1835

Phone: 1 (405)666-1068

TN-20220414-01

TAMIEN NATION
P.O. Box 8053, San Jose, California 95155
(707) 295-4011 tamien@tamien.org

May 4, 2022

Camille Garibaldi, Environmental Protection Specialist

Federal Aviation Administration

(405) 666-1068

Sent Via Email: Camille.Garibaldi@faa.gov

RE: Request for Tribal Consultation

Project: Terminal B Improvement Project at Norman Y. Mineta San Jose International Airport, San Jose

Dear Ms. Garibaldi

Thank you for reaching out to our Tribe. Your time and effort is appreciated. This letter constitutes a formal request for tribal consultation under the provisions of the California Environmental Quality Act (CEQA) (Public Resources Code section 21080.3.1 subdivisions (b), (d) and (e)) for the mitigation of potential project impacts to tribal cultural resource for the above referenced project.

Tamien Nation requests consultation on the following topics checked below, which shall be included in consultation if requested (Public Resources Code section 21080.3.2

- ☑ Alternatives to the project
- ☑ Recommended mitigation measures
- ☑ Significant effects of the project

Tamien Nation also requests consultation on the following discretionary topics checked below (Public Resources Code section 21080.3.2(, subd. (a):

- ☑ Type of environmental review necessary
- ☑ Significance of tribal cultural resources, including any regulations, policies standards used by you agency or to determine significance of tribal cultural resources
- ☑ Significance of the project's impacts on tribal cultural resources

Project alternatives and/or appropriate measures for preservation or mitigation that we may recommend, including, but not limited to:

(1) Avoidance and preservation of the resources in place, pursuant to Public Resources Code section 21084.3, including, but not limited to, planning and construction to avoid the resources and protect the cultural and natural context, or planning greenspace, parks or other open space, to incorporate the resources with culturally appropriate protection and management criteria;
(2) Treating the resources with culturally appropriate dignity taking into account the tribal cultural values and meaning of the resources, including but not limited to the following:
    a. Protecting the cultural character and integrity of the resource;
    b. Protection the traditional use of the resource; and
    c. Protecting the confidentiality of the resource.
(3) Permanent conservation easements or other interests in real property,with culturally appropriate management criteria for the purposes of preserving or utilizing the resources or places.
(4) Protecting the resource.

Additionally, Tamien Nation would like to receive any cultural resources assessments or other assessments that have been completed on all or part of the project's potential "area of project effect" (APE), including, but not limited to:

1. The results of any record search that may have been conducted at an Information Center of the California Historical Resources Information System(CHRIS), including, but not limited to:

    - A listing of any and all known cultural resources have already been recordedon or adjacent to the APE;

    - Copies of any and all cultural resource records and study reports that may have been provided by the Information Center as part of the records searchresponse;

    - If the probability is low, moderate, or high that cultural resources are locatedin the APE.

    - Whether the records search indicates a low, moderate or high probability that unrecorded cultural resources are located in the potential APE; and

    - If a survey is recommended by the Information Center to determine whether previously unrecorded cultural resources are present.

2. The results of any archaeological inventory survey that was conducted, including:

    - Any report that may contain site forms, site significance, and suggested mitigation measures.

All information regarding site locations, Native American human remains, andassociated funerary objects should be in a separate confidential addendum, and not be made available for public disclosure in accordance with Government Code Section 6254.10.

3. The results of any Sacred Lands File (SFL) check conducted through Native American Heritage Commission. The request form can be found at http://www.nahc.ca.gov/slf_request.html. USGS 7.5-minute quadrangle name, township, range, and section required for the search.

4. Any ethnographic studies conducted for any area including all or part of the potential APE; and

5. Any geotechnical reports regarding all or part of the potential APE.

We would like to remind your agency that CEQA Guidelines section 15126.4, subdivision (b)(3) states that preservation in place is the preferred manner of mitigating impacts to archaeological sites. Section 15126.4, subd. (b)(3) of the CEQA Guidelines has been interpreted by the California Court of Appeal to mean that "feasible preservation in place must be adopted to mitigate impacts to historical resources of an archaeological nature unless the lead agency determines that another form of mitigation is available and provides superior mitigation of impacts." *Madera Oversight Coalition v. County of Madera* (2011) 199 Cal.App.4th 48, disapproved on other grounds, *Neighbors for Smart Rail v. Exposition Metro Line Construction Authority* (2013) 57 Cal.4th 439.

Tamien Nation expects to begin consultation within 30 days of your receipt of this letter. Please contact Tamien Nation lead contacts:

Quirina Geary,
Chairwoman
PO Box 8053
San Jose, CA 95155
(707) 295-4011
qgeary@tamien.org

Johnathan Costillas
Tamien Nation, THPO
PO Box 866
Clearlake Oaks, CA 95423
(925) 336-5359
jcostillas@tamien.org

Please refer to identification number TN-20220414-01 in any correspondence concerning this project. Thank you for providing us with this notice and the opportunity to comment.

Sincerely,

Quirina Geary
Chairwoman

cc: Native American Heritage Commission

Attachment 5:

FAA Response to Tamien Nation,
November 14, 2022

U.S. Department
of Transportation
**Federal Aviation
Administration**

Western-Pacific Region
San Francisco Airports District Office

1000 Marina Boulevard, Suite 115
Brisbane, CA 94005-1835

November 14, 2022

VIA EMAIL: qgeary@tamien.org

Quirina Geary
Chairwoman
Tamien Nation
P. O. Box 8053
San Jose, CA 95155

Subject: Proposed Norma Y. Mineta San Jose International Airport, Terminal B South Concourse Improvement Project, San Jose, California (TN-20220414-01)

Dear Chairwoman Geary:

On November 2, 2022, I received the Tamien Nation's May 4, 2022 response to the Federal Aviation Administration's (FAA) April 14, 2022 letter initiating Native American consultation for the Proposed Terminal B South Concourse Improvement Project at Norman Y. Mineta San Jose International Airport (SJC), San Jose, California. The Tamien Nation response specifies provisions of the California Environmental Quality Act and requests consultation on project alternatives, significant effects, and mitigation pursuant to California Public Resource Code. These State requirements differ from the federal National Environmental Policy Act (42 United States Code [U.S.C.] §§ 4321-4335), and Nation Historic Preservation Act (NEPA) (54 U.S.C. § 300101 et seq.) under which the FAA initiated its consultation. However, the intent of being protective of potential tribal cultural resources is understood.

Enclosed is a copy of the FAA's consultation with the California State Historic Preservation Officer (SHPO) which includes the *Proposed Terminal B South Concourse Improvements at Norman Y. Mineta San Jose International Airport Cultural Resource Evaluation Report* dated June 2022 (Cultural Resource Report) for your information. The Cultural Resource Report evaluated the Area of Potential Effect for the proposed undertaking. The FAA determined that there are no historic properties within the APE, and issued a finding of *No Historic Properties Affected* for the undertaking. On August 31, 2022, the NHPA process concluded with the enclosed SHPO's concurrence that the undertaking will not affect historic properties.

I am available to answer any additional questions that you may have. I can be reached by email at Camille.Garibaldi@faa.gov or by phone at (405) 666-1068.

Sincerely,

CAMILLE A GARIBALDI
Digitally signed by CAMILLE A GARIBALDI
Date: 2022.11.14 12:56:08 -08'00'

Camille Garibaldi
Environmental Protection Specialist

Enclosures

cc: w/enclosures
Johnathan Costillas, Tamien Nation, jcostillas@tamien.org
Ryan Sheelen, Norman Y. Mineta San Jose International Airport, rsheelen@sjc.org

SHPO consultation included in Attachment 1.

Cultural Resource Report **included in Attachment 2.**

Appendix G

Land Use Assurance Letter

NORMAN Y. MINETA
SAN JOSE
INTERNATIONAL
AIRPORT
SILICON VALLEY'S AIRPORT

September 25, 2020

Federal Aviation Administration
San Francisco Airports District Office
Ms. Laurie Suttmeier, Manager
1000 Marina Blvd., Suite 220
Brisbane, CA 94005-1835

RE: LAND USE ASSURANCE LETTER – MINETA SAN JOSE INTERNATIONAL AIRPORT

Dear Ms. Suttmeier,

The City of San Jose makes the following statement of compatible land use assurance as required by 49 United States Code Section 47107(a)(10).

The City of San Jose provides assurance that appropriate action, including the adoption of zoning laws, has been or will be taken to the extent reasonable to restrict the use of land next to or near the airport to uses that are compatible with normal airport operations, pursuant to 49 United States Code Section 47107(a)(10).

In addition, the City continues to support and encourage compatible land uses surrounding the airport boundaries through regular communication with the Santa Clara County Airport Land Use Commission.

Sincerely,

John Aitken, A.A.E.
Director of Aviation

cc: EA File

Appendix H

Noise

Existing Conditions and Future Alternatives Noise Analysis

Final EA for Terminal B South Concourse Improvements at SJC

September 30, 2022

Prepared for:

City of San José

Prepared by:

HNTB

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1 Introduction

The City of San José is preparing an Environmental Assessment (EA) to evaluate the potential environmental effects associated with the Terminal B South Concourse Improvements at Norman Y. Mineta San José International Airport (SJC or Airport). This technical memorandum summarizes the assumptions and methodologies used to develop noise contours for the EA. Noise contours were developed for the Existing Conditions (2019) and the two future years considered in the EA: 2029, the first year of implementation, and 2034, five years after implementation.

2 Existing Conditions

The EA uses 2019 as the existing condition as that was the last full year of passenger activity levels prior to COVID-19. The 2019 Existing Conditions noise contour was based on the SJC Airport Noise Monitoring System (ANOMS) radar data from 2019, and FAA's Traffic Flow Management System Count (TFMSC). Passenger air carriers, air taxi, and General Aviation (GA) operations were obtained from the 2019 ANOMS data. Military operations were obtained from the 2019 FAA TFMSC data. Noise impacts were evaluated in terms of the Community Noise Equivalent Level (CNEL) in decibels (dB). The FAA permits the use of CNEL in California in lieu of Day Night Average Sound Level (DNL), the FAA's primary noise metric, to assess cumulative noise (i.e., multiple aircraft events) near airports.[1] The CNEL is a cumulative metric with a 5- dB penalty applied to evening aircraft events (7:00 pm – 9:59 pm) and 10-dB penalty applied to nighttime aircraft events (10:00 pm – 6:59 am).

2.1 Noise Model Inputs

Inputs to the noise model include facilities and runways at the Airport, aircraft types and operations (fleet mix), stage length, day/evening/night split, engine maintenance run-up operations, runway use, track geometry and use, weather, and terrain. The following sections describe inputs of the noise model for the Existing Conditions.

2.1.1 Facilities and Runways

SJC operates two parallel runways: Runway 12R-30L and Runway 12L-30R. Both runways are 11,000 feet long and 150 feet wide. Runway 12L has an arrival displaced threshold of 1,307 feet and Runway 30R has an arrival displaced threshold of 2,537 feet. Runway 12R has an arrival displaced threshold of 1,297 feet and Runway 30L has an arrival displaced threshold of 2,537 feet. The Airport does not have a designated helipad and therefore helicopter operations arrive and depart SJC using the same arrival and departure patterns as fixed-wing aircraft. **Figure 1** depicts the terminals and runways at the Airport.

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[1] FAA Order 1050.1F, Appendix B, Paragraph B-1, and FAA Order 5050.4B, Paragraph 9(n).

2.1.2 Aircraft Types and Operations

Fleet mixes, including aircraft types, number and hours of operation, and flight distance, are the major components of modeling noise in the vicinity of an airport. The fleet mixes developed in *Attachment 1: Fleet Mix Development Technical Memorandum*, were applied in the modeling of the Existing Conditions and the future No Action and Proposed Action Alternatives noise contours. The fleet mixes were developed based on the FAA's Terminal Area Forecast (TAF) shown in *Attachment 2: TAF Forecast on Operations and Enplanements*. Detailed fleet mixes are included in *Attachment 3: Base Year (2019) and Future (2029/2034) Fleet Mixes*. Operations were grouped by passenger air carrier, all-cargo carrier, air taxi, GA, and military. In the noise model, operations are represented by the Average Annual Day (AAD) operations, which is equal to the total annual operations divided by 365.

2.1.3 Stage Length

The departure stage length is a noise modeling term used to refer to nonstop trip distance for an aircraft departure from origin to destination and is a surrogate for aircraft weight. The trip distance influences the take-off weight (and therefore the thrust and performance) of the aircraft, as more fuel is required to fly longer distances and therefore adds weight to the aircraft. The noise model uses twelve stage length brackets in increments of 500 or 1,000 nautical miles (nm) as well as a stage length for the maximum departure weight. For the Existing Conditions analysis, stage lengths were calculated based on the reported origin and destination included in the 2019 ANOMS data. A small portion of the departure stage length performance model is not available in Aviation Environmental Design Tool (AEDT) Version 3e.[2] In these cases, the closest stage lengths were applied. **Table 1** summarizes the distribution of the departure stage lengths in the Existing Conditions. Approximately half of the departures have a stage length of less than 500 nautical miles. A small percentage of flights have a stage length of more than 2,500 nautical miles.

Table 1: Departure Stage Length Distribution

Stage Length	Range (nautical miles)	Percentage
1	0 - 500	55.9%
2	501 - 1,000	23.4%
3	1,001 - 1,500	8.6%
4	1,501 - 2,500	11.0%
5	2,501 - 3,500	0.1%
6	3,501 - 4,500	0.4%
7	4,501 - 5,500	0.7%
8	5,501 - 6,500	0.0%
9	6,500 - 7,500	0.0%

Sources: 2019 Radar Data and HNTB Analysis, 2022.

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[2] AEDT Version 3e was the most current version of the model available at the time the analysis was conducted.

Figure 1: Norman Y. Mineta San José International Airport Facilities and Runways

Norman Y. Mineta San José International Airport
Proposed Terminal B South Concourse Improvements Environmental Assessment

0 250 500 1,000 Feet

N

Figure 1

Airport Facilities and Runways

Source: HNTB Analysis

2.1.4 Day/Evening/Night Split

The CNEL metric takes into consideration the time of day of aircraft operations. In the noise analysis, daytime is defined as 7:00 am to 6:59 pm, evening is defined as 7:00 pm to 9:59pm, and nighttime is defined as 10:00 pm to 6:59 am. The 5-dB and 10-dB penalties during evening and nighttime hours are intended to account for the added intrusiveness of aircraft noise during time periods when ambient noise due to vehicle traffic and other sources is typically less than during the daytime, and when people are more likely to be resting. For the Existing Conditions analysis, runway time for each operation was used to identify daytime, evening, and nighttime distribution for the noise analysis (day/evening/night split). **Table 2** summarizes the day/evening/night split by operation groups. In the Existing Conditions, approximately 72.7% of the arrivals occur during daytime hours, 17.4% during evening hours, and 9.9% during nighttime hours. For departures, approximately 75.9% of operations occur during daytime hours, 14.1% during evening hours, and 10.0% during nighttime hours.

Table 2: Existing Conditions Day/Evening/Night Split

Operation Group	**Arrival**				**Departure**			
	Day	**Evening**	**Night**	**Total**	**Day**	**Evening**	**Night**	**Total**[1]
Passenger Air Carrier	69.1%	19.8%	11.0%	100.0%	73.1%	15.5%	11.4%	100.0%
Air Taxi	81.8%	11.9%	6.4%	100.0%	85.5%	8.7%	5.8%	100.0%
All-Cargo Carrier	96.0%	2.1%	1.8%	100.0%	12.2%	86.0%	1.7%	100.0%
GA	81.3%	11.3%	7.4%	100.0%	84.4%	9.0%	6.6%	100.0%
Military	60.0%	0.0%	40.0%	100.0%	56.3%	5.6%	38.0%	100.0%
Total[1]	72.7%	17.4%	9.9%	100.0%	75.9%	14.1%	10.0%	100.0%

Note: Totals may not sum due to rounding.

Sources: 2019 Radar Data and HNTB Analysis, 2022.

2.1.5 Run-up Operations

Aircraft maintenance engine run-ups can be modeled in AEDT Version 3e (the most recent version available when this technical memorandum was written), and depending on their frequency and orientation, may influence the size and location of noise contours. The Airport provided detailed engine run-up logs for use in the engine run-up contour modeling. It was assumed the duration of a run-up operation to be 16 minutes when the duration information is missing from the run-up logs, which represents the average run-up duration in the log. **Table 3** summarizes the run-up input by aircraft types.

Table 3: Existing Conditions Run-up Operations

AEDT Aircraft	Operations
7378MAX	1
A320-211	2
CL600	2
CNA500	1
CNA510	3
CNA55B	11
CNA560U	6
CNA680	3
CNA750	1
EMB175	5
FAL900EX	1
G650ER	1
GIV	2
GV	3
IA1125	1
Grand Total	43

Source: 2019 ONT Run-up logs and HNTB analysis, 2022.

2.1.6 Runway Use

Runway use represents how aircraft utilize the runways and helipads at an airport and is a primary factor in the determination of noise exposure. For the Existing Conditions, runway use for each airline and aircraft combination was obtained from the 2019 ANOMS radar data and was used for the Existing Conditions (shown in **Table 4**).

Table 4: Existing Conditions Runway Use

Operation Type	Runway	Day	Evening	Night	Total[1]
Arrival	12L	1.2%	1.0%	1.1%	1.2%
	12R	16.9%	12.3%	15.2%	15.9%
	30L	71.9%	76.8%	71.6%	72.7%
	30R	9.9%	9.9%	12.1%	10.1%
Arrival Total[1]		100.0%	100.0%	100.0%	100.0%
Departure	12L	15.2%	11.3%	16.5%	14.7%
	12R	3.7%	1.9%	3.8%	3.5%
	30L	17.6%	10.5%	12.2%	16.0%
	30R	63.5%	76.4%	67.6%	65.8%
Departure Total[1]		100.0%	100.0%	100.0%	100.0%

[1]: Totals may not sum due to rounding.

Source: 2019 Radar Data and HNTB Analysis, 2022.

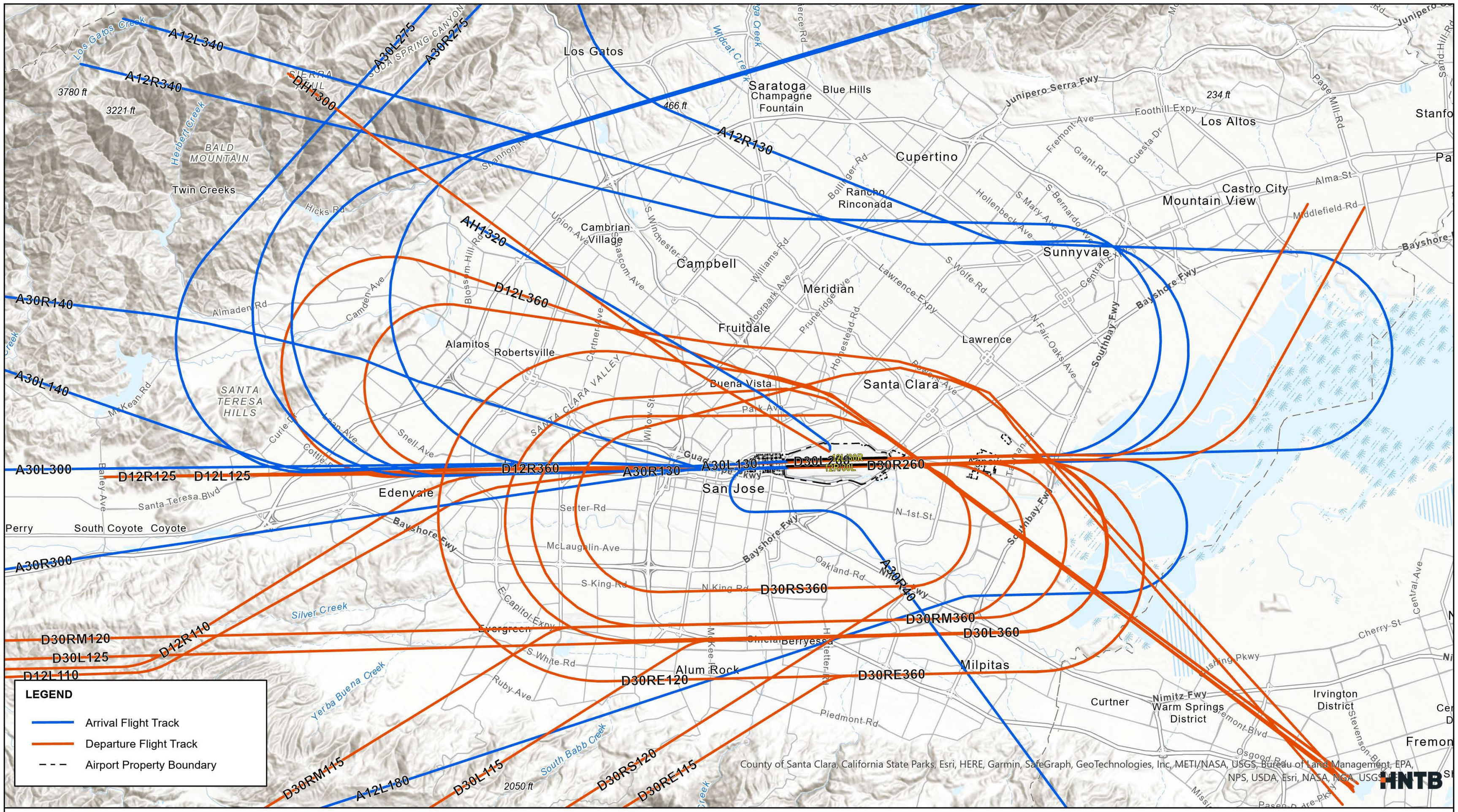
2.1.7 Track Geometry and Use

To determine projected noise levels on the ground, it is necessary to determine not only the frequency of aircraft operations, but also the altitude and location in which they fly. Flight routes to and from an airport are generally a function of the geometry of the airport's runways and the surrounding airspace structure near the airfield. To calculate average track usage, eight weeks of representative radar data were selected. The following weeks were used for the track use calculation:

- January 20th to February 2nd, 2019
- April 14th to April 27th, 2019
- August 11th to August 24th, 2019
- October 29th to November 12th, 2019

Figure 2 depicts the modeled arrival and departure flight tracks for the Existing Conditions. Track use was calculated based on four aircraft groups including passenger, cargo, GA, and military as well as three aircraft types including jets, propellers, and helicopters. Since there is no designated helipad, it was assumed that helicopters use the fixed-wing flight tracks to approach to and departure from the airport. **Table 4-1** in *Attachment 4: Flight Track Use* summarizes the track use.

Figure 2: Modeled Flight Tracks at SJC



Norman Y. Mineta San José International Airport
Proposed Terminal B South Concourse Improvements Environmental Assessment

Figure 2
Modeled Flight Tracks

Source: HNTB Analysis

2.1.8 Weather

AEDT allows for the modeling of atmospheric conditions in the calculation of noise exposure, taking into consideration temperature and humidity. For the Existing Conditions, parameters in **Table 5** were applied based on the AEDT 10-year (2012 – 2021) average weather parameters at the Airport.

Table 5: Weather Parameters for the Existing Conditions

Parameters	Existing Conditions (2019)
Temperature (ºF)	60.1
Dew Point (ºF)	47.8
Pressure (millibar)	1,014.8
Humidity (%)	63.9
Wind (knots)	5.4

Sources: AEDT v.3e; HNTB, 2022.

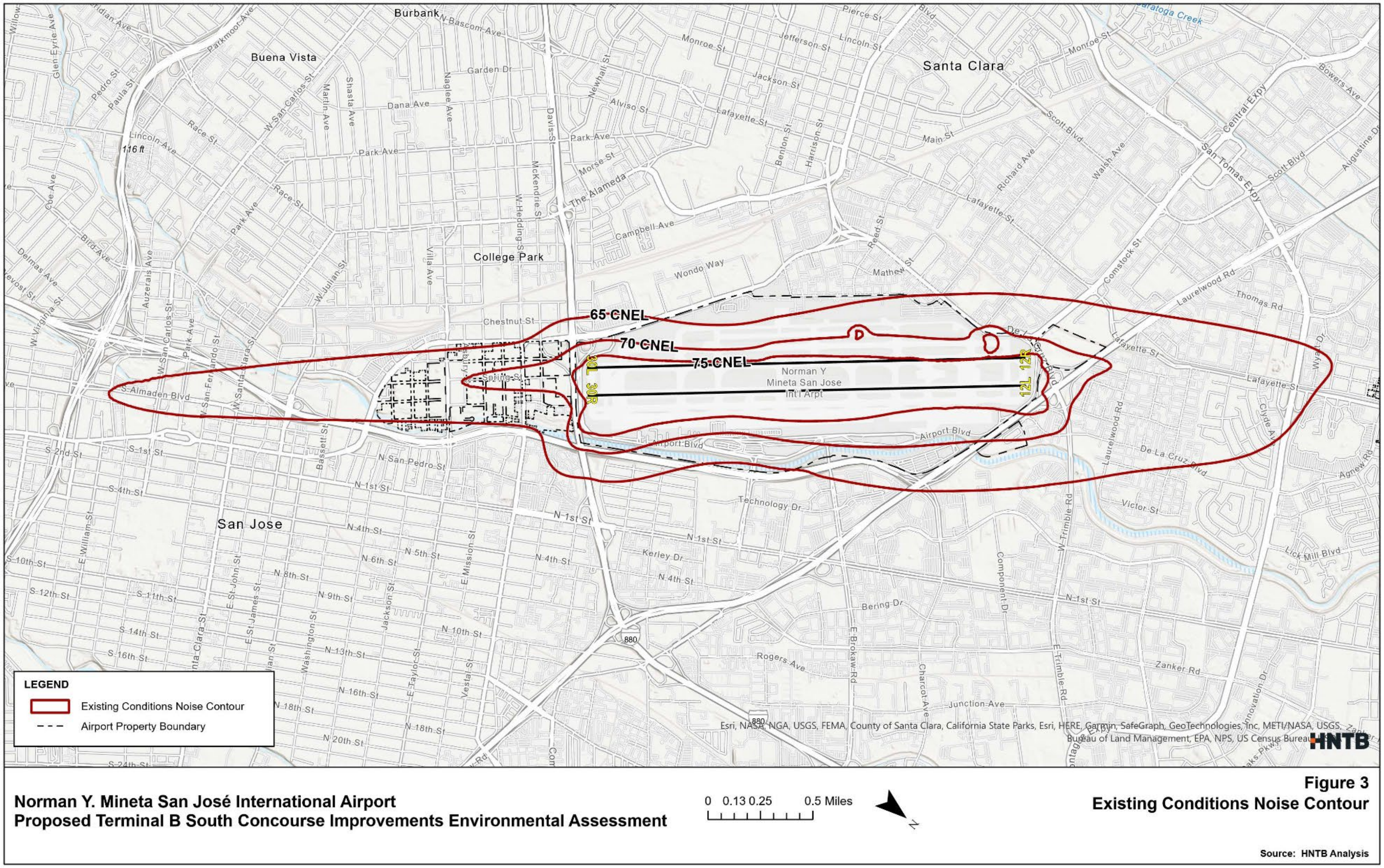
2.1.9 Terrain

Terrain data is used to account for effects that variations in terrain have on noise propagation. Terrain data was obtained from The National Map (TNM) v2.0 developed by the United States Geological Survey (USGS) and was used in the noise modeling.

2.2 Noise Model Outputs

Based on inputs described in Section 2.1, noise contours were modeled using AEDT 3e. **Figure 3** depicts the CNEL 65dB, 70dB, and 75dB noise contours for the Existing Conditions.

Figure 3: Existing Conditions (2019) Noise Exposure



Esri, NASA, NGA, USGS, FEMA, County of Santa Clara, California State Parks, Esri, HERE, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, Bureau of Land Management, EPA, NPS, US Census Bureau

Norman Y. Mineta San José International Airport
Proposed Terminal B South Concourse Improvements Environmental Assessment

Figure 3
Existing Conditions Noise Contour

Source: HNTB Analysis

3 Future Alternatives

The forecast years used for the EA include the first year of full implementation of the proposed improvements (2029) and five years thereafter (2034). The following section describes the Future Alternatives AEDT noise model inputs and outputs.

3.1 Noise Model Inputs

Several parameters, such as the facility and runways, stage length, day/evening/night split, track geometry and use, weather parameters and terrain were assumed to be the same as the Existing Conditions. Other inputs are described in the following sections.

3.1.1 Fleet Mixes

The 2029 and 2034 fleet mixes[3] were developed as part of the fleet mix forecast in *Attachment 1.* Since other parameters stay relatively consistent in the Future Alternatives as compared with the Existing Conditions, the fleet mixes are expected to be the main factor to drive the differences in the future noise contours.

In general, the total number of operations is expected to increase by 34.8% and 50.9% from 2019 to 2029 and 2034 respectively. The main changes projected in the Future Alternatives fleet mixes were the increases in the newer and quieter Boeing 737 MAX and Airbus A320 New Engine Option (NEO) family aircraft types to replace some of the relatively older and noisier Boeing 737 Next Generation (NG) and Airbus A320 Conventional Engine Option (CEO) family aircraft types. **Table 6** shows the number of AAD operations and percentage of operations by these aircraft in the Existing Conditions and Future Alternatives fleet mixes.

In 2019, the Airbus A320 CEO had 40.3 AAD operations, which accounted for approximately 7.1% of the total operations. During the same year, the Boeing B737 NG had 256.7 AAD operations which accounted for approximately 45.5% of the total operations. In comparison, the Airbus A320 NEO had 4.7 AAD operations, approximately 0.8% of the total operations. The Boeing B737 MAX had 1.1 AAD operations which reflected the global grounding of the Boeing 737 MAX aircraft starting in March 2019.

In 2029 and 2034, operations by the Airbus A320 CEO are projected to decrease to 30.9 and 32.6 AAD operation which would account for approximately 4.1% and 3.8% of the total operations. At the same time, operations by the Boeing B737 NG are expected to decrease significantly to 87.6 AAD and 52.8 AAD operations and their market share would decrease to 11.5% and 6.2% of the total operations. Operations by the Boeing B737 MAX are projected to fully recover from the global

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[3] FAA issued an updated Terminal Area Forecast (TAF) on 3/10/22, however due to the timing of the EA development, the FAA approved the use of the City's forecast in July 2021 (based on the 2020 TAF issued in May 2021). The difference in operations and enplaned passengers between the 2020 TAF and the 2021 TAF is within FAA allowable limits; forecasts differ by less than 10 percent in the 5-year forecast period, and 15 percent in the 10-year forecast period.

grounding in the Future Alternatives. Operations are projected to increase to 294.8 AAD in 2029 and 380.7 in 2034 which would account for 38.7% and 44.7% of the market share respectively.

Since the Airbus A320 NEO and Boeing 737 MAX have smaller noise signatures than the A320 CEO and B737 NG aircraft, it is expected that the increase of their operations would offset some of the noise impacts introduced by the total operation increase.

Table 6: Airbus A320 and Boeing 737 Operations

Aircraft Description			2019		2029		2034	
			Operations	**Percent**	**Operations**	**Percent**	**Operations**	**Percent**
A320 Family	A320 CEO	Airbus A319	14.9	2.6%	11.1	1.5%	12.6	1.5%
		Airbus A320	24.3	4.3%	17.8	2.3%	17.1	2.0%
		Airbus A321	1.1	0.2%	2.0	0.3%	2.9	0.3%
	A320 CEO Total[1]		40.3	7.1%	30.9	4.1%	32.6	3.8%
	A320 NEO	Airbus A320 NEO	0.9	0.2%	2.7	0.4%	5.1	0.6%
		Airbus A321 NEO	3.8	0.7%	9.8	1.3%	11.8	1.4%
		Airbus A321 XLR	-	0.0%	0.0	0.0%	0.0	0.0%
	A320 NEO Total[1]		4.7	0.8%	12.6	1.6%	16.9	2.0%
B737 Family	B737 NG	Boeing 737-700	153.1	27.1%	2.0	0.3%	2.3	0.3%
		Boeing 737-800	75.1	13.3%	64.1	8.4%	31.1	3.7%
		Boeing 737-900	28.6	5.1%	21.5	2.8%	19.4	2.3%
	B737 NG Total[1]		256.7	45.5%	87.6	11.5%	52.8	6.2%
	B737 MAX	Boeing 737 MAX 7	-	0.0%	211.7	27.8%	240.4	28.2%
		Boeing 737 MAX 8	1.1	0.2%	67.0	8.8%	117.8	13.8%
		Boeing 737 MAX 9	-	0.0%	16.1	2.1%	22.6	2.7%
		Boeing 737 MAX 10	-	0.0%	0.1	0.0%	0.1	0.0%
	B737 MAX Total[1]		1.1	0.2%	294.8	38.7%	380.7	44.7%

[1]: Totals may not sum due to rounding.

Source: ANOMS, FAA TFMSC, TAF, USDOT T100, and HNTB analysis, 2022.

3.1.2 AEE Coordination

The AEDT model includes a range of representative commercial, GA, and military aircraft types with certified noise signature data. Aircraft types in the fleet mixes were matched to the AEDT representative aircraft types. For those aircraft types that do not have a direct match in AEDT, a coordination effort was undertaken to seek approval or recommendation from the FAA Office of Environment and Energy (AEE). The AEE coordination letter and the FAA’s response are included in *Attachment 5: AEE Coordination*.

3.1.3 Runway Use

Runway uses by airline and aircraft were assumed to be consistent with the Existing Conditions. For aircraft not included in the Existing Conditions fleet mix, it was assumed that their runway uses would be the same as the aircraft they are expected to replace or similar aircraft types. **Table 7** and **Table 8** depict the modeled 2029 and 2034 runway uses.

Table 7: 2029 Runway Use

Operation Type	Runway	Day	Evening	Night	Total[1]
Arrival	12L	1.3%	1.1%	1.0%	1.2%
	12R	17.8%	13.9%	16.2%	17.0%
	30L	71.0%	75.0%	71.2%	71.7%
	30R	9.9%	10.0%	11.6%	10.1%
Arrival Total[1]		100.0%	100.0%	100.0%	100.0%
Departure	12L	16.5%	11.9%	16.8%	15.9%
	12R	3.4%	1.7%	3.5%	3.2%
	30L	15.7%	9.4%	11.1%	14.3%
	30R	64.4%	77.0%	68.6%	66.6%
Departure Total[1]		100.0%	100.0%	100.0%	100.0%

[1]: Totals may not sum due to rounding.

Source: 2019 Radar Data and HNTB Analysis, 2022.

Table 8: 2034 Runway Use

Operation Type	Runway	Day	Evening	Night	Total[1]
Arrival	12L	1.4%	1.2%	0.9%	1.3%
	12R	18.7%	14.9%	17.4%	17.9%
	30L	70.1%	74.2%	70.4%	70.9%
	30R	9.7%	9.7%	11.3%	9.9%
Arrival Total[1]		100.0%	100.0%	100.0%	100.0%
Departure	12L	17.6%	12.7%	16.9%	16.8%
	12R	3.3%	1.6%	3.4%	3.0%
	30L	15.0%	8.6%	10.6%	13.6%
	30R	64.2%	77.2%	69.1%	66.5%
Departure Total1		100.0%	100.0%	100.0%	100.0%

[1]: Totals may not sum due to rounding.

Source: 2019 Radar Data and HNTB Analysis, 2022.

3.1.4 Run-up Operations

It was assumed that run-up operation would grow at the same rate as the total operations. **Table 9** shows the modeled 2029 and 2034 run-up operations by aircraft types.

Table 9: 2029 and 2034 Run-up Operations

AEDT Aircraft	2029 Operations	2034 Operations
7378MAX	1.3	1.5
A320-211	2.7	3.0
CL600	2.7	3.0
CNA500	1.3	1.5
CNA510	4.0	4.5
CNA55B	14.8	16.6
CNA560U	8.1	9.1
CNA680	4.0	4.5
CNA750	1.3	1.5
EMB175	6.7	7.5
FAL900EX	1.3	1.5
G650ER	1.3	1.5
GIV	2.7	3.0
GV	4.0	4.5
IA1125	1.3	1.5
Grand Total[1]	58.0	64.9

[1]: Totals may not sum due to rounding.

Source: 2019 ONT Run-up logs and HNTB analysis, 2022.

3.2 Noise Model Outputs

Figure 4 and **Figure 5** illustrate the 2029 CNEL 65 dB, 70 dB, and 75 dB noise contours for the Proposed Action Alternative and No Action Alternative, respectively. **Figure 6** and **Figure 7** show the 2034 CNEL 65 dB, 70 dB, and 75 dB noise contours for the Proposed Action Alternative and No Action Alternative, respectively.

Figure 4: Proposed Action Alternative Noise Exposure – 2029

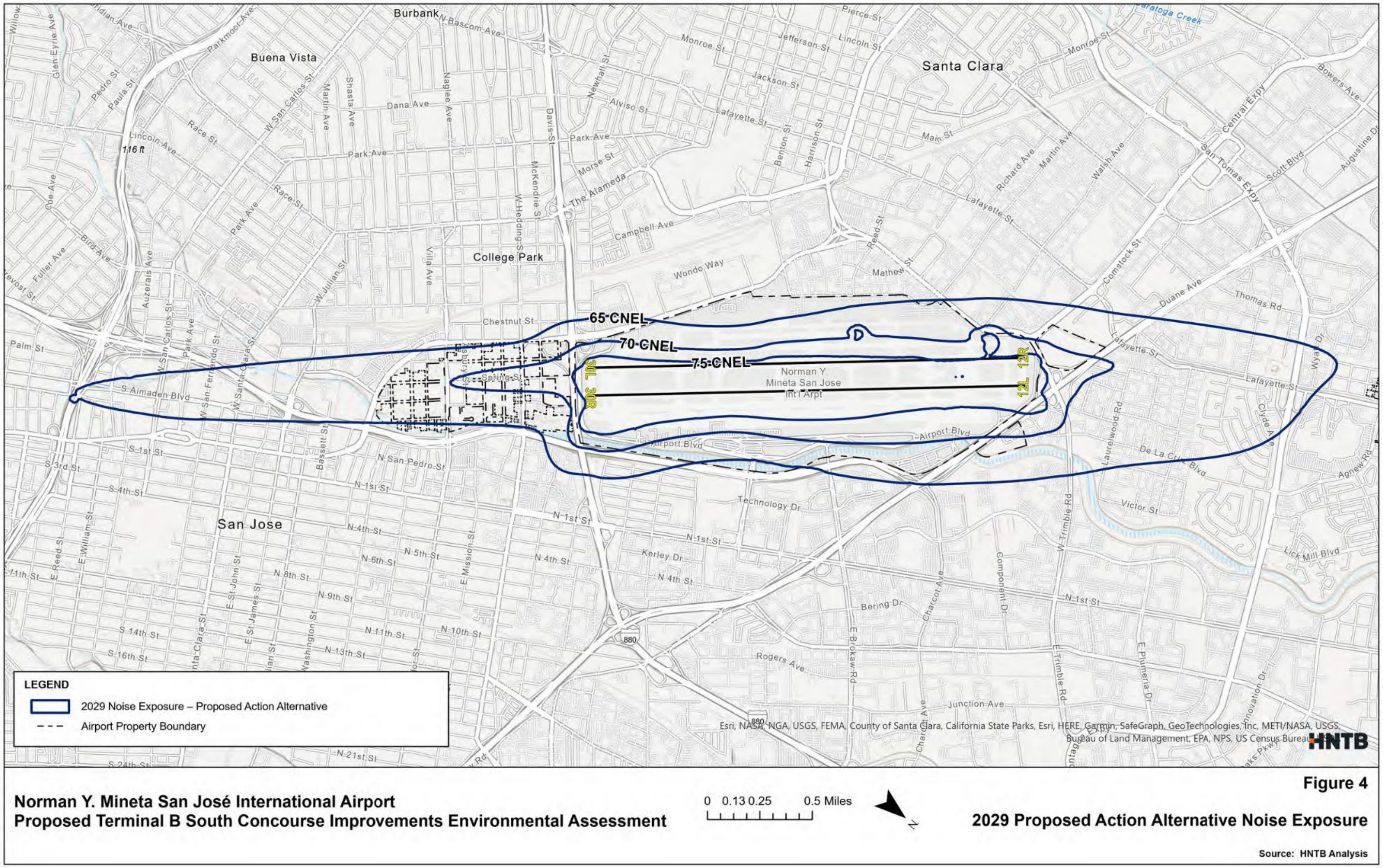
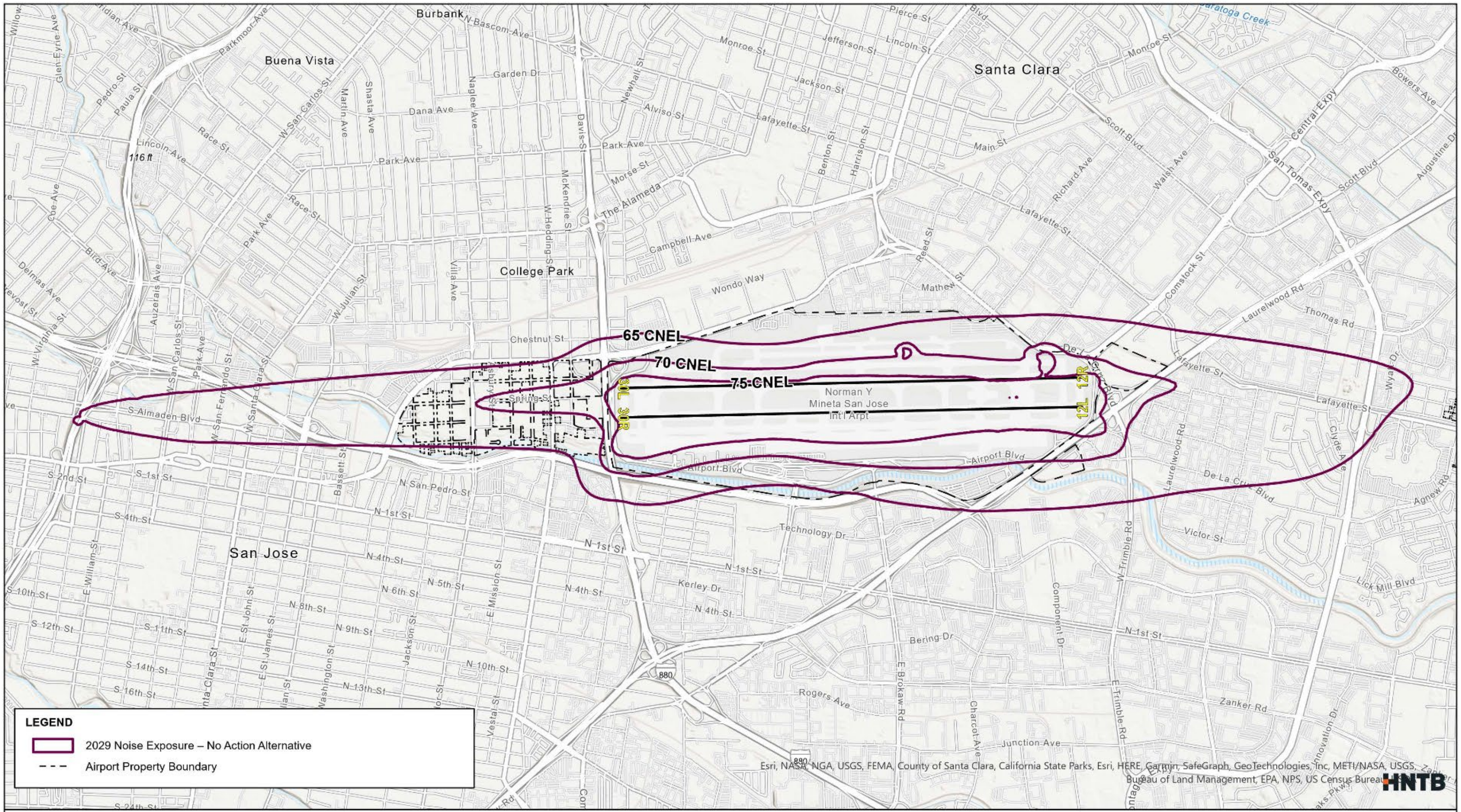


Figure 5: No Action Alternative Noise Exposure – 2029



Esri, NASA, NGA, USGS, FEMA, County of Santa Clara, California State Parks, Esri, HERE, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, Bureau of Land Management, EPA, NPS, US Census Bureau

Norman Y. Mineta San José International Airport
Proposed Terminal B South Concourse Improvements Environmental Assessment

0 0.13 0.25 0.5 Miles

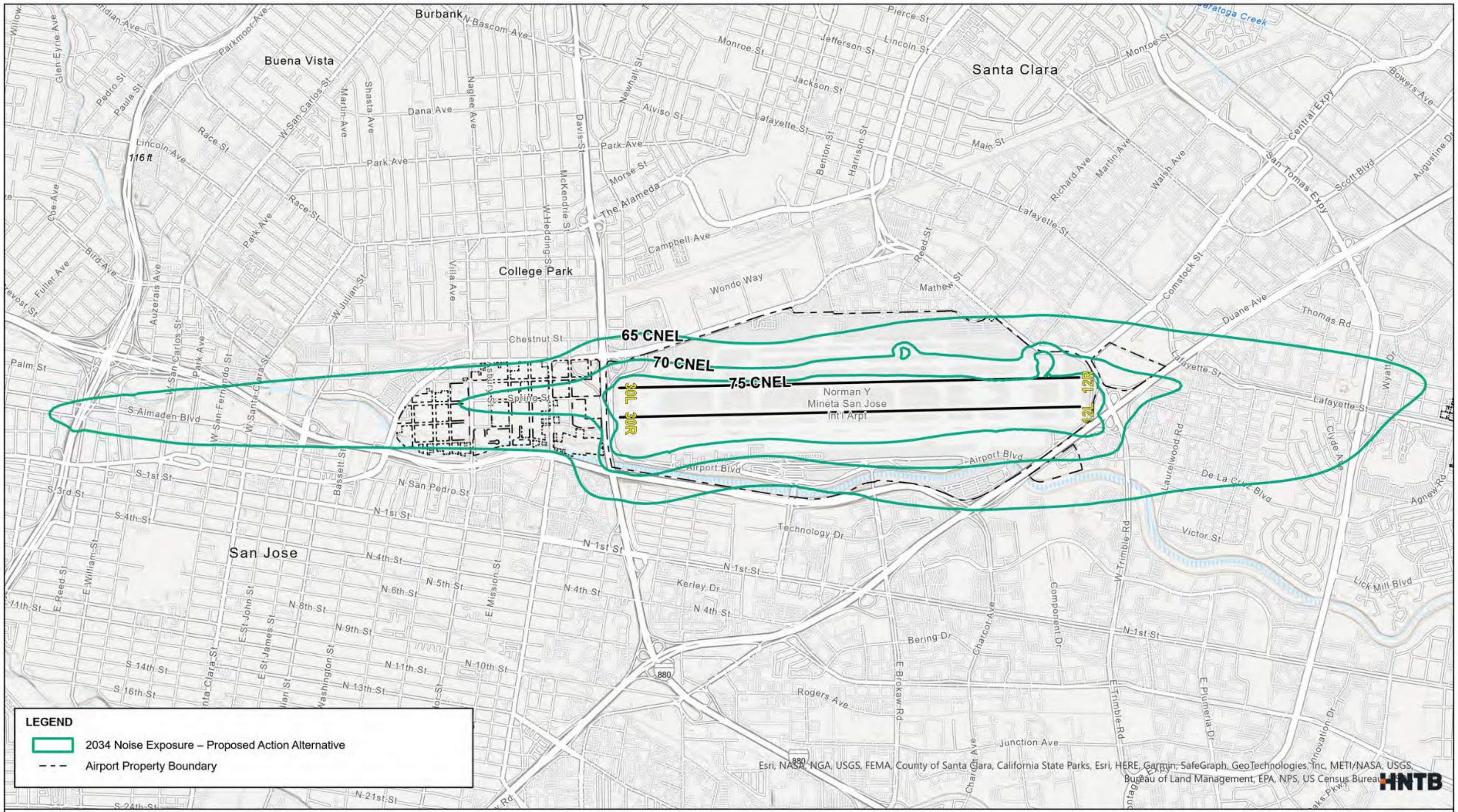
N

Figure 5

2029 No Action Alternative Noise Exposure

Source: HNTB Analysis

Figure 6: Proposed Action Alternative Noise Exposure – 2034



Esri, NASA, NGA, USGS, FEMA, County of Santa Clara, California State Parks, Esri, HERE, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, Bureau of Land Management, EPA, NPS, US Census Bureau

Norman Y. Mineta San José International Airport
Proposed Terminal B South Concourse Improvements Environmental Assessment

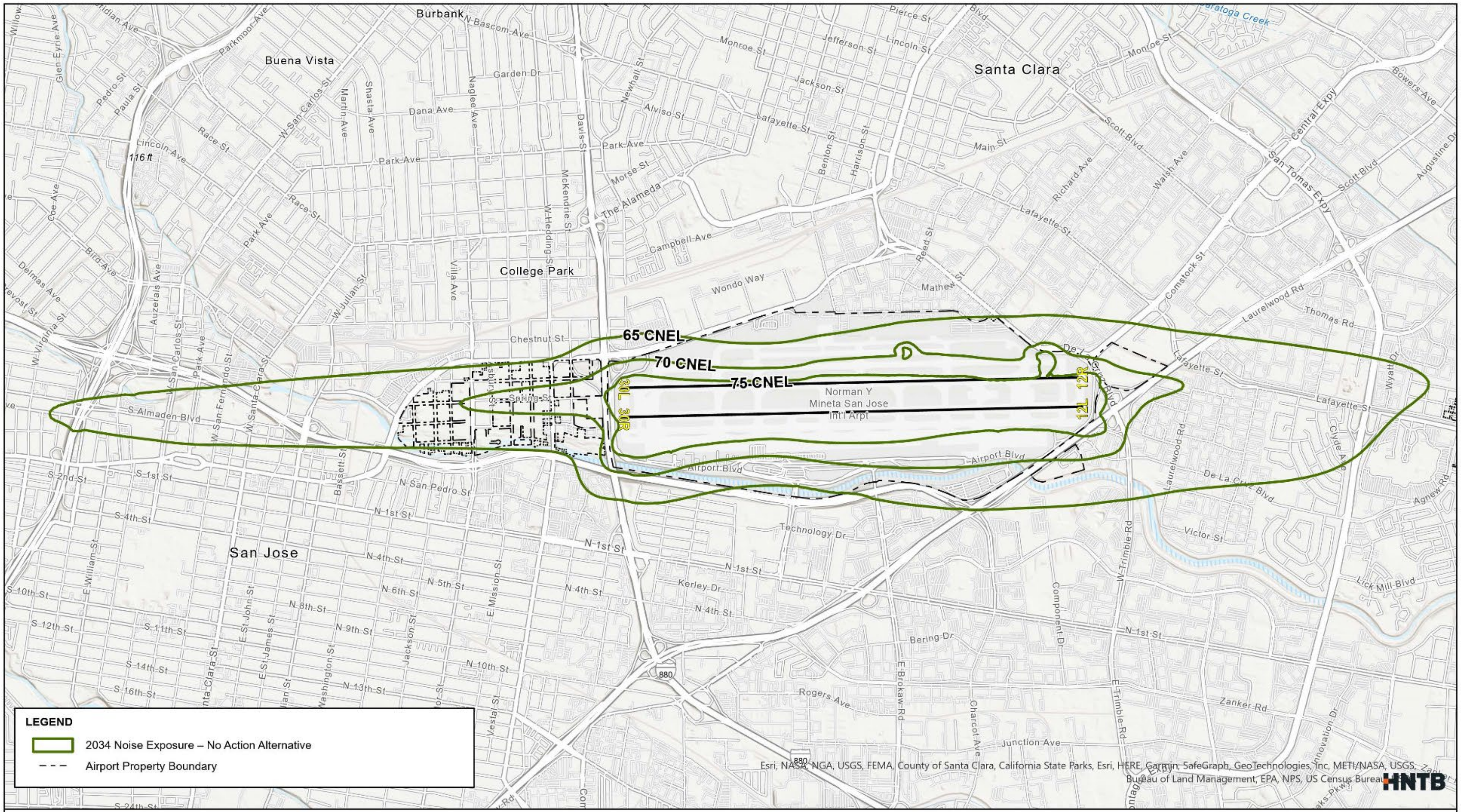
0 0.13 0.25 0.5 Miles

Figure 6

2034 Proposed Action Alternative Noise Exposure

Source: HNTB Analysis

Figure 7: No Action Alternative Noise Exposure – 2034



Norman Y. Mineta San José International Airport
Proposed Terminal B South Concourse Improvements Environmental Assessment

0 0.13 0.25 0.5 Miles

N

Figure 7

2034 No Action Alternative Noise Exposure

Source: HNTB Analysis

3.3 Noise Contours Comparison

Figure 8 compares the CNEL 65 dB and 70 dB noise contours of the Existing Conditions (2019) and the Future Alternatives (2029 and 2034).

In general, the shapes of the noise contours stay consistent. In 2029 and 2034, the CNEL 65 dB areas are expected to decrease 2.4% and 0.1%, respectively.

Table 10 shows the CNEL 65 dB area in the Existing Conditions (2019) and Future Alternatives (2029 and 2034).

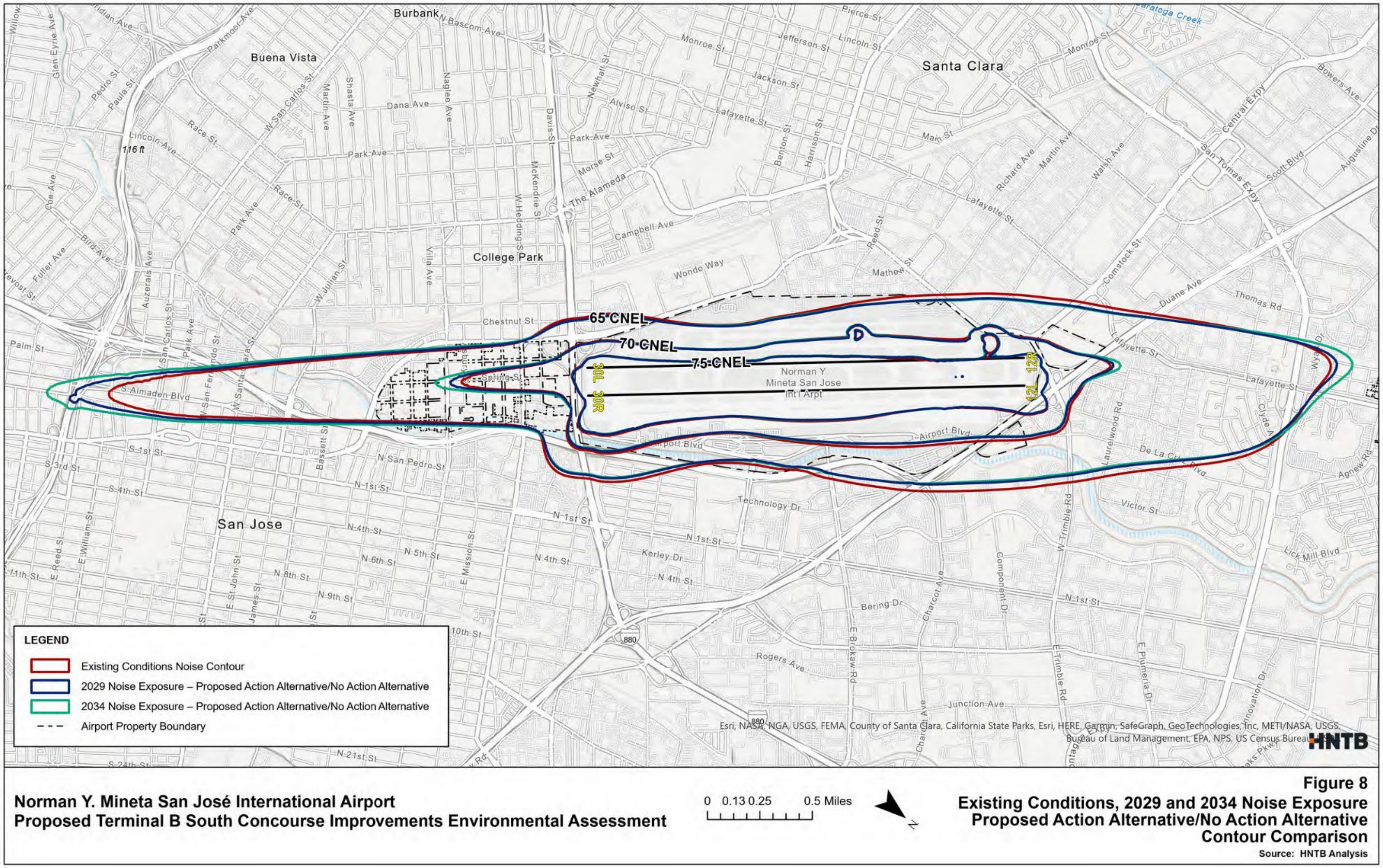
Table 10: Noise Area

Year	CNEL 65 dB (acres)	Change
2019	2,169.8	
2029	2,117.2	-2.4%
2034	2,166.2	-0.1%

Source: HNTB analysis, 2022.

The Future Alternatives noise contours are expected to be larger at the tips of the runway centerline extensions but smaller at either side of the runway centerline extension. The reason that the noise area of the Future Alternatives is smaller than the Existing Conditions is due to the grounding of the Boeing 737 MAX aircraft in the Existing Conditions and the increase of quieter aircraft operations in the Future Alternatives. As explained in Section 3.1.1, newer and quieter Airbus A320 NEO and Boeing B737 MAX family aircraft types are expected to replace a substantial amount of older and noisier Airbus A320 CEO and Boeing B737 NG family aircraft operations. Their smaller noise signature is projected to offset the increase in operations to some extent.

Figure 8: Noise Contours Comparison: Existing Conditions (2019) vs. 2029 vs. 2034



LEGEND

- 🟥 Existing Conditions Noise Contour
- 🟦 2029 Noise Exposure – Proposed Action Alternative/No Action Alternative
- 🟩 2034 Noise Exposure – Proposed Action Alternative/No Action Alternative
- - - - Airport Property Boundary

Esri, NASA, NGA, USGS, FEMA, County of Santa Clara, California State Parks, Esri, HERE, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, Bureau of Land Management, EPA, NPS, US Census Bureau

HNTB

Norman Y. Mineta San José International Airport
Proposed Terminal B South Concourse Improvements Environmental Assessment

Figure 8
Existing Conditions, 2029 and 2034 Noise Exposure
Proposed Action Alternative/No Action Alternative
Contour Comparison
Source: HNTB Analysis

4 Summary

In summary, the Proposed Action Alternative and the No Action Alternative noise contours are expected to be identical as the proposed projects would not impact on fleet mix or flight patterns. In addition, the 2029 and 2034 noise contours are slightly smaller than the 2019 noise contour, mainly as a result of changes in the fleet mixes. Due to the grounding of the Boeing 737 MAX aircraft, the Existing Condition fleet mix in 2019 included a larger portion of the Boeing 737 NG aircraft operations than in the 2029 and 2034 fleet mixes. Since the Boeing 737 MAX aircraft are quieter than the Boeing 737 NG and account for a substantial percentage of operations at SJC, the reintroduction of the Boeing 737 MAX aircraft into the future fleet mix is expected to offset the increase of the total operations in terms of noise impacts.

We appreciate the opportunity to provide noise analysis and support to the City of San José. Should you have any questions regarding the content of this technical memorandum, please do not hesitate to let me know.

Best regards,

Yue Xu, Ph.D., P.E.
Aviation/Environmental Planner
HNTB Corporation

Attachment 1:

Fleet Mix Development Technical Memorandum

MEMORANDUM

HNTB

To
Ryan Sheelen, C.M.
Planning and Development Division
Mineta San José International Airport
1701 Airport Blvd, Ste B-1130
San José, CA 95110

From
Yue Xu, HNTB
Kim Hughes, HNTB
Caroline Pinegar, HNTB

Subject
Fleet Mixes for Use in Terminal B South Concourse Improvement Project EA

Date
June 2, 2022

HNTB is tasked with assisting the City of San José (City), California, owner and operator of the Norman Y. Mineta San José International Airport (SJC or Airport) in the preparation of an Environmental Assessment for the proposed Terminal B South Concourse Improvement Project. This memorandum summarizes the methodologies and assumptions applied in developing the base year (2019) and two future years (2029 and 2034) scenario fleet mixes for the EA.

The base year (2019) fleet mix was based on the SJC Airport Noise Monitoring System (ANOMS) radar data in 2019 and FAA's Traffic Flow Management System Count (TFMSC). Passenger air carriers, all-cargo carrier, air taxi, and General Aviation (GA) operations were obtained from the 2019 ANOMS data. Military operations were obtained from the FAA TFMSC data. The future scenarios (2029 and 2034) fleet mixes were based on the base year fleet mix and supplemented with announced airline aircraft replacement and retirement plans. The FAA's 2020 Terminal Area Forecast (TAF) was used to identify 2029 and 2034 forecast of operations and enplanements. The 2020 TAF operations and enplanements forecasts are included in **Attachment 2**. Aircraft operations were adjusted to match both the projected 2029 and 2034 growth in operations and enplanements. The future scenario fleet mixes were developed based on industry information available through May 2022.

In addition, operations were categorized by the time of operation (day/evening/night split), including day (7:00am – 6:59pm), evening (7:00pm – 9:59pm), and nighttime (10:00pm – 6:59am). In the noise model, penalties are applied to evening and nighttime operation to account for additional annoyance experienced when the ambient noise level is low, and people are at rest.

The following section describes the methodologies and assumptions applied in developing the base year (2019) fleet mix, followed by the methodologies and assumptions for the future scenarios (2029 and 2034) fleet mixes. Detailed fleet mixes are included in **Attachment 3**.

Base Year (2019) Fleet Mix

General

- The total 2019 ANOMS operations were scaled up to match the 2019 FAA OPSNET operations by category (Air Carrier and Air Taxi, General Aviation, and Military).

Passenger Air Carriers, All-Cargo, and Air Taxi

- Fleet mix and day/evening/night split by airline and aircraft type were obtained from ANOMS.
- ANOMS data were adjusted so that arrivals and departures by airline and aircraft type were balanced. Imbalances between arrivals and departures were corrected by using the lower number scaled to match the higher number.

General Aviation and Military

- Fleet mix and day/evening/night split by aircraft type were obtained from ANOMS.
- ANOMS data were adjusted so that arrivals and departures by aircraft type were balanced. If there was an imbalance between arrivals and departures, the lower number was scaled upwards to match the higher number.
- Military operations were obtained from the FAA TFMSC data because the ANOMS data does not identify military operations whereas the FAA TFMSC does. Then military operations were deducted from the General Aviation operations by aircraft.

Future Scenario (2029) Fleet Mix

General

- The 2029 fiscal year operations forecast in the 2020 TAF were converted to calendar year operations. The converted 2029 forecasted operations and enplanements were used as the future scenario (2029) forecast of operations and enplanements.
- The fleet mix was developed based on the base year (2019) fleet mix and published fleet plans by the airlines serving SJC. It was subsequently adjusted to match both the 2020 TAF aircraft operations and enplanements forecasts.
- Generally, operations in the existing fleet mix were assumed to grow at the same rate as the 2020 TAF operation forecast from 2019 to 2029.
- The day/evening/night split by aircraft for scheduled passenger carriers was assumed to be the same as in 2019.
- The 2020 TAF projects that enplanements will grow at a faster pace than operations, which implies a general aircraft up-gauging trend. Therefore, it was assumed that larger aircraft would replace some operations by smaller aircraft to accommodate additional passenger demand. Airline-specific up-gauging assumptions are listed in the next section.
- New aircraft types were checked against the most recent nighttime noise curfew exempt list. If the aircraft is exempt, their day/evening/night split were assumed to the same as the aircraft they would replace. If the aircraft is not exempt, it was assumed that they would not operate at the nighttime noise curfew hours.

Passenger Air Carriers

- Air Canada
  - Retirement of the entire Airbus A319 fleet.
    - To be replaced by Airbus A220-300.
- Alaska Airlines
  - Retirement of the entire Airbus A319, Airbus A320-200, and Boeing 737-700 fleet.
    - To be replaced by Boeing 737 MAX 8.
  - Retirement of the entire Airbus A321 NEO fleet.
    - To be replaced by Boeing 737 MAX 10.
  - Some of the Boeing 737-800 operations are to be replaced by Boeing 737 MAX 8.
  - Some of the Boeing 737-900 operations are to be replaced by Boeing 737 MAX 9.
- American Airlines
  - Low Boeing 767-300 and Airbus A330-200 operations are to be replaced by Airbus A321 XLR.
  - Retirement of the entire Airbus A321 NEO and Boeing 757-200 fleet.
    - To be replaced by Airbus A321XLR.
  - Some of the Boeing 737-800 operations are to be replaced by Boeing 737 MAX 8.
- British Airways
  - Boeing 787-9 operations are to be replaced by Boeing 777.
- Delta Air Lines
  - Retirement of the entire Boeing 717-200 fleet by 2025.
    - To be replaced by Airbus A220-100, Airbus A319, and Boeing 737-800.
  - Retirement of the entire Boeing 767-300 fleet by 2025.
    - To be replaced by Airbus A321 NEO.
  - Retirement of the entire A330-200 fleet.
    - To be replaced by Airbus A321 NEO.
  - Some of the Boeing 737-900 operations are to be replaced by Airbus A321NEO.
  - Aged Boeing 757-200 to be replaced by Airbus A321 NEO.
- Hawaiian Airlines
  - Retirement of the entire Boeing 767-300 fleet.
    - To be replaced by Airbus A321 NEO.
  - Some of the Boeing 737-900 operations are to be replaced by Airbus A321 NEO.
  - Introduction of the Boeing 787-9 to replace low Boeing 767-300 operations and some of the Airbus A330-200 operations.
- JetBlue Airways
  - Reduction of Airbus A320-200 operations.
    - To be replaced by Airbus A321 and A321 NEO.
- Skywest Airlines
  - Retirement of the entire Bombardier CRJ-200 fleet.
    - To be replaced by Embraer E175.
  - Low Bombardier CRJ-700 and CRJ-900 operations will be replaced by Embraer E175.
- Southwest Airlines
  - Retirement of the entire Boeing 737-700 fleet.
    - To be replaced by Boeing 737 MAX 7 and Boeing 737 MAX 8.

    - Some of the Boeing 737-800 operations are to be replaced by Boeing 737 MAX 8.
- United Airlines
    - The Overture supersonic aircraft will not be incorporated in the fleet mix since their noise signature is largely unknown.
    - Retirement of the entire Boeing 757-200 fleet.
        - Low operations to be replaced by Airbus A321 NEO.
    - Some of the Boeing 737-900 operations are to be replaced by Boeing 737 MAX 9.
    - Aged Airbus A319, A320, Boeing 737-700, and Boeing 737-800 to retire by 2039.
        - To be replaced by Boeing 737 MAX 8 and Boeing 737 MAX 9.
    - United Express
        - Retirement of Bombardier CRJ-700 from GoJet Airlines.
            - To be replaced by Bombardier CRJ-550.
        - Retirement of Bombardier CRJ-700 from SkyWest Airlines.
            - To be replaced by Embraer ERJ-175.
- Volaris
    - Aged Airbus A319 will be replaced by Airbus A320-200 and Airbus A320 NEO.
- Airlines that no longer operate at SJC. Their operations were grouped into the 'Miscellaneous' category in the future scenario fleet mixes.
    - Hainan Airlines
    - All Nippon Airways
    - Aeromexico
    - Frontier Airlines
    - Swift Air
    - Sun Country
    - Compass Airlines (ceased operations)
        - Operations will be allocated to American Airlines and Delta Air Lines.

All-Cargo Airlines

- FedEx
    - Aged Airbus A300-600RF will be replaced by Boeing 767-300F.
- UPS
    - Aged Airbus A300-600RF and Boeing 757-200PF will be replaced by Boeing 767-300F.

Air Taxi

- Operations were adjusted with the air carrier and air taxi growth factors forecast in the 2020 TAF from 2019 to 2029.
- Total operations (along with passenger carriers and all-cargo) were scaled up on a prorated basis to match the total 2029 projected air carrier and air taxi operations in the 2020 TAF.

General Aviation and Military

- GA operations were adjusted by the specific aircraft model production duration and rate, as well as the FAA's 2021-2041 Aerospace Forecast on flight hours by categories which include single engine pistons, multiple engine pistons, turboprops, helicopters, and jets.
- Military operations were adjusted with the military operations growth factors forecasted in the 2020 TAF from 2019 to 2029.

- The total number of operations was adjusted on a prorated basis to sum to the total 2029 projected GA and military operations in the 2020 TAF.

Future Scenario (2034) Fleet Mix

In addition to the airline-specific assumptions applied in the 2029 fleet mix, the following assumptions were applied to the future scenario (2034) fleet mix.

- Alaska Airlines
  - More Boeing 737-800 operations are to be replaced by Boeing 737 MAX 8.
  - More Boeing 737-900 operations are to be replaced by Boeing 737 MAX 9.
- American Airlines
  - All the Boeing 737-800 operations are to be replaced by Boeing 737 MAX 8.
- Delta Air Lines
  - More Boeing 737-900 operations are to be replaced by Airbus A321 NEO.
- JetBlue Airways
  - More Airbus A320-200 operations are to be replaced by Airbus A321 and A321 NEO.
- Southwest Airlines
  - All the Boeing 737-800 operations are to be replaced by Boeing 737 MAX 8.
- United Airlines
  - More Boeing 737-900 operations are to be replaced by Boeing 737 MAX 9.
- Volaris
  - More Airbus A320-200 operations are to be replaced by Airbus A320 NEO.

Summary

Table 1 shows the total operations by category for 2019, 2029, and 2034. **Table 2** depicts the number of operations by aircraft types for 2019, 2029, and 2034. **Table 3** compares the day/evening/night distributions for 2019, 2029, and 2034. **Table 3-1** in **Attachment 3** compares the base year (2019) and future scenarios (2029 and 2034) fleet mixes. **Tables 3-2** through **3-4** in **Attachment 3** show the detailed fleet mixes including the airline, aircraft, and operations by daytime, evening, and nighttime, for 2019, 2029 and 2034, respectively.

Table 1: Operations by Scenarios and Categories

Year	Air Carrier + Air Taxi	GA	Military	Total	TAF Total[1]	Difference
2019	170,090	35,532	264	205,886	205,886[2]	N/A
2029	238,049	39,576	219	277,844	274,555	1.2%
2034	270,221	40,169	219	310,609	306,933	1.2%

[1]: TAF total represents fiscal year forecasts.

[2]: 2019 total represents FAA OPSNET total for calendar year 2019.

Source: FAA TAF and HNTB analysis, 2022.

Table 2: Operations by Aircraft Types

Aircraft ID	Aircraft Description	2019 Ops	2029 Ops	2034 Ops
A119	Agusta / AgustaWestland SPA A119	69	254	350
A20N	Airbus A320NEO Series	310	992	1,847
A21N	Airbus A321NEO Series	1,399	3,576	4,307
A21NY	Airbus A321 XLR	-	14	16
A306	Airbus A300-600/622R	398	-	-
A319	Airbus A319 series	5,432	4,062	4,613
A320	Airbus A320 series	8,868	6,493	6,228
A321	Airbus A321 series	396	741	1,053
A332	Airbus A330-200	90	120	136
AA5	Grumman AA-5A Cheetah; AA-5 Tiger	216	135	126
AC90	Rockwell Turbo Commander 690	4	4	4
AJET	Dassault Alpha Jet	22	18	18
AS50	Eurocopter AS-350	97	52	52
AS65	Aerospatiale SA-365N Dauphin (AS-365N)	4	4	4
ASTR	IAI 1125 Astra	107	96	100
B06	Agusta / AgustaWestland AB-206 LongRanger Helicopter	171	110	109
B350	Beechcraft Super King Air 350/300B	2,611	2,624	2,673
B37M	Boeing 737 MAX 7	-	77,262	87,736
B38M	Boeing 737 MAX 8	402	24,446	42,997
B39M	Boeing 737 MAX 9	-	5,878	8,235
B3XM	Boeing 737 MAX 10	-	42	47
B430	Bell Helicopter 430	59	21	21
B712	Boeing 717-200 / Extended Range	501	-	-
B734	Boeing 737-400	66	92	104
B735	Boeing 737-500	105	148	168
B737	Boeing 737-700	55,866	734	828
B738	Boeing 737-800	27,422	23,409	11,349
B739	Boeing 737-900	10,422	7,834	7,084
B752	Boeing 757-200	543	28	32
B763	Boeing 767-300	1,027	2,121	2,408
B773	Boeing 777-300	-	730	730
B788	Boeing 787 Dreamliner (800 Model)	746	1,045	1,187
B789	Boeing 787-9 Dreamliner	1,025	710	1,023
BCS1	Airbus A220-100	1,838	2,926	3,323
BCS3	Airbus A220-300	-	64	73

Aircraft ID	Aircraft Description	2019 Ops	2029 Ops	2034 Ops
BE20	Beechcraft Model 200 (Super) King Air 200	554	544	520
BE30	Beechcraft Super King Air 300	446	375	356
BE33	Beechcraft Model 33 Debonair/Bonanza	354	264	246
BE35	Beechcraft Model 35 Bonanza	790	358	334
BE36	Beechcraft Model 36 Bonanza	1,037	864	806
BE40	Beechcraft Beechjet 400	264	279	307
BE55	Beechcraft Model E-55	116	92	93
BE58	Beechcraft Model 58 Baron	539	566	573
BE60	Beechcraft Model 60 Duke	100	93	95
BE9L	Beechcraft Model 90 King Air	479	565	531
C152	Cessna 152 Single Engine SEPF	59	47	44
C170	Cessna 170 Single Engine SEPF	69	84	78
C172	Cessna 172 Single Engine SEPF	994	953	890
C182	Cessna 182 Skylane	584	560	523
C206	Cessna 206 Stationair	401	366	342
C210	Cessna 210 Centurion	648	393	367
C25A	Cessna CitationJet CJ2, 525A	454	401	443
C25B	Cessna CitationJet CJ3, 525B	746	963	1,017
C25C	Cessna CitationJet CJ4, 525C	170	326	331
C25M	Cessna CitationJet CJ1, 525	71	220	222
C310	Cessna 310 Twin Engine Piston aircraft	69	45	45
C340	Cessna 340 Twin Piston MEVP	164	166	168
C414	Cessna 414 Chancellor MEVP	116	113	115
C421	Cessna 421 Golden Eagle	157	147	149
C441	Cessna 441 (Conquest/Conquest2)	71	72	67
C500	Cessna Citation I Twin Jet	57	60	64
C501	Cessna Citation I Single Pilot Twin Jet	108	93	95
C510	Cessna Citation Mustang	167	108	110
C525	Cessna CitationJet CJ1, 525	640	526	542
C550	Cessna Citation 550 Citation II	261	256	267
C560	Cessna 560 Citation V, Ultra & Ultra Encore	665	543	570
C56X	Cessna 560XL Citation Excel	3,202	3,704	4,012
C650	Cessna Citation III	135	121	123
C680	Cessna 680 Citation Sovereign	1,116	1,515	1,673
C68A	Cessna Citation Latitude	1,021	1,550	1,736
C750	Cessna 750 series/Citation X	1,741	2,211	2,467
CL30	Bombardier Challenger 300	2,142	2,643	2,662
CL35	Bombardier Challenger 350	1,941	3,350	3,674

Aircraft ID	Aircraft Description	2019 Ops	2029 Ops	2034 Ops
CL60	Canadair Bombardier CL600/610 Challenger Twin Jet	1,451	1,507	1,647
CRJ2	Bombardier CRJ 200 Regional Jet	68	22	25
CRJ5	Bombardier CRJ-550	-	1,012	1,149
CRJ7	Bombardier CRJ 700 Regional Jet	951	64	73
CRJ9	Bombardier CRJ 900 Regional Jet	2,002	2,798	3,177
DA40	Diamond DA40 SEPF	57	98	111
DC10	McDonnell Douglas DC-10	17	14	14
E2	Grumman TE-2 Hawkeye	9	7	7
E35L	Embraer EMB-135 LR	54	64	67
E45X	Embraer EMB-145 EX (Extra Long Range)	3,635	5,092	5,782
E50P	Embraer EMB500 Phenom 100	919	1,143	1,289
E545	Embraer Legacy 545	251	366	414
E550	Embraer EMB550 Phenom 300	81	93	102
E55P	Embraer EMB550 Phenom 300	1,761	2,541	2,824
E75L	Embraer ERJ-175	28,454	40,176	45,587
E75S	Embraer ERJ-175	1,515	2,288	2,563
EC35	Eurocopter EC-135 COM & MIL	487	425	439
EPIC	Epic Aircraft LT Dynasty	100	763	1,002
F18S	McDonnell Douglas (Boeing) F/A-18 Hornet	4	4	4
F22	Boeing F-22 Raptor	4	4	4
F2TH	Dassault Falcon 2000	1,365	1,418	1,534
F900	Dassault Falcon 900	862	822	890
FA50	Dassault Falcon 50	345	302	310
FA7X	Dassault Falcon 7X	392	573	595
G150	Gulfstream G150	150	102	106
G280	Gulfstream G280	631	1,632	1,649
GALX	IAI 1126 Astra Galaxy/Gulfstream 200	969	881	973
GL5T	Bombardier Global 5000 BD-700	481	643	706
GLAS	Glasair III Single Engine Piston SEPV	66	43	40
GLEX	Bombardier BD-700 Global Express	1,233	1,397	1,508
GLF3	Gulfstream III	76	65	66
GLF4	Gulfstream IV	1,825	1,863	2,035
GLF5	Gulfstream V	1,848	2,361	2,464
GLF6	Gulfstream VI / G650	1,322	2,965	3,055
H25B	Hawker 800/800 XP/850 XP Twin Turbojet/Bae 125-800	485	525	572
H25C	Hawker 1000 / Bae 125-1000	91	98	109
H60	Sikorsky UH-60 Black Hawk Helicopter	4	4	4
HA4T	Hawker Beechcraft 4000 Horizon (Horizon 1000)	4	4	4

Aircraft ID	Aircraft Description	2019 Ops	2029 Ops	2034 Ops
HDJT	Honda Jet	48	174	201
HELO	Various Helicopter	1,564	1,845	1,853
J328	Fairchild Dornier 328 Jet	46	64	73
LJ31	Learjet 31 Twin Jet	97	83	87
LJ35	Learjet 35 Twin Jet	251	251	266
LJ40	Learjet 40 Twin Jet	86	116	127
LJ45	Learjet 45 Twin Jet	353	363	380
LJ60	Learjet 60 Twin Jet	496	377	408
LJ75	Learjet 75 Twin Jet	95	185	197
M20P	Mooney Mark 20 Series	472	266	248
M20T	Mooney Mark 20 Series	83	33	31
MO20	Mooney Mark 20 Series	62	31	29
NAVI	Ryan L-17/U-18 Navion	74	68	63
P180	Piaggio P180 Avanti	439	362	337
P28A	Piper PA-28-140/150/160/180 Cherokee	235	183	171
P28R	Piper PA-28R-180/200/201 Cherokee Arrow I/II/III	152	126	118
P46T	Piper PA-46-500TP Malibu Meridian	147	283	263
PA24	Piper PA-24 Comanche	183	83	77
PA28	Piper PA-28-151 Cherokee Warrior	100	51	48
PA31	Piper PA-31 Navajo	59	56	56
PA32	Piper PA-32 Cherokee Six	114	94	88
PA34	Piper PA-34 Seneca	64	65	66
PA46	Piper PA-46 Malibu	104	65	61
PC12	Pilatus PC-12	1,064	1,065	1,037
PRM1	Raytheon 390 Premier	177	90	93
RV10	Van's Aircraft RV-10	100	188	217
S22T	Cirrus SR22 Turbo	159	315	368
SBR1	Sabreliner 40/60/65 /North American Sabreliner	58	42	43
SF50	Cirrus Vision SF50	173	868	1,012
SR22	Cirrus SR22	1,412	2,538	2,888
SW3	Swearingen Merlin III /Fairchild Merlin III	64	67	62
T38	Northrop T-38 Talon	17	14	14
TB30	Socata TB 30 Epsilon	52	44	41
TBM7	Socata TBM 700	68	57	54
TBM8	Socata TBM 850 Single Engine Turboprop	126	78	73
TBM9	Daher TMB900	153	675	847
TEX2	Beechcraft T-6 Texan II	4	4	4
TUCA	Embraer A-27 Tucano	88	70	65

Aircraft ID	Aircraft Description	2019 Ops	2029 Ops	2034 Ops
WW24	IAI 1124 Westwind	13	11	11
Total[1]		205,886	277,844	310,609

[1]: Totals may not sum due to rounding.

Source: ANOMS, FAA TFMSC, TAF, USDOT T100, and HNTB analysis, 2022.

Table 3: Percentage of Operations by Day, Evening, and Nighttime

Operation Type	Time	2019	2029	2034
Arrival	Day	72.7%	72.5%	72.7%
	Evening	17.4%	17.5%	17.6%
	Nighttime	9.9%	10.0%	9.8%
Departure	Day	75.9%	76.1%	75.6%
	Evening	14.1%	14.0%	14.4%
	Nighttime	10.0%	9.9%	10.0%

Totals may not sum to 100% due to rounding.

Source: ANOMS, FAA TFMSC, TAF, USDOT T100, and HNTB analysis, 2022.

The City of San José has reviewed the draft fleet mix development technical memorandum and provided comments. This updated fleet mix development technical memorandum reflects revisions based on the comments. If you have any questions, please do not hesitate to reach me by email yxu@hntb.com or call me at 540-257-3728.

Best Regards,

Yue Xu, Ph.D., P.E.

Aviation Environmental Planner
HNTB Corporation

Attachment 2:
TAF Forecast on Operations and Enplanements

Table 2-1: FAA 2020 TAF Operations

Year[1]	Itinerant				Local		Total
	Air Carrier	Air Taxi	GA	Military	GA	Military	
1990	95,949	50,985	114,714	631	56,234	38	318,551
1991	101,040	54,868	115,098	606	65,292	24	336,928
1992	95,874	55,792	122,382	1,023	67,823	24	342,918
1993	88,984	46,116	110,504	1,027	65,774	-	312,405
1994	105,314	17,405	104,157	844	70,500	-	298,220
1995	103,373	20,135	85,805	729	60,477	-	270,519
1996	115,785	9,125	85,503	431	68,097	-	278,941
1997	126,790	7,225	91,035	266	77,667	531	303,514
1998	130,517	9,084	81,454	467	66,450	6	287,978
1999	145,321	6,475	89,495	407	62,662	4	304,364
2000	144,070	12,550	89,099	197	53,305	16	299,237
2001	155,755	20,665	71,633	252	38,017	7	286,329
2002	130,330	28,318	54,508	152	15,113	26	228,447
2003	121,539	35,371	50,636	143	11,894	-	219,583
2004	123,944	33,455	46,069	126	14,395	-	217,989
2005	125,916	29,908	45,618	77	18,660	-	220,179
2006	125,441	27,188	42,016	111	19,936	58	214,750
2007	123,447	28,441	40,207	89	15,250	18	207,452
2008	117,753	26,749	36,901	58	15,889	72	197,422
2009	94,214	27,351	30,049	375	16,976	16	168,981
2010	85,113	23,167	26,099	285	4,353	3	139,020
2011	84,294	23,035	25,320	245	4,918	2	137,814
2012	81,198	22,287	25,817	234	5,813	230	135,579
2013	84,388	20,883	26,674	232	4,210	64	136,451
2014	87,880	23,102	25,753	197	4,214	46	141,192
2015	89,714	23,507	29,241	220	4,634	54	147,370
2016	98,908	23,450	29,594	252	4,237	20	156,461
2017	115,361	23,289	29,550	240	4,630	8	173,078
2018	133,497	23,048	32,317	250	3,845	4	192,961
2019	146,401	21,586	32,885	212	3,363	56	204,503
2020	96,255	16,770	23,795	174	3,884	45	140,923
2021	85,311	17,529	21,986	174	3,884	45	128,929
2022	104,980	18,476	25,450	174	3,884	45	153,009
2023	137,093	19,487	29,596	174	3,884	45	190,279
2024	160,209	20,493	34,685	174	3,884	45	219,490
2025	180,246	21,536	34,800	174	3,884	45	240,685

Year[1]	Itinerant				Local		Total
	Air Carrier	Air Taxi	GA	Military	GA	Military	
2026	193,650	21,789	34,915	174	3,884	45	254,457
2027	201,127	22,027	35,031	174	3,884	45	262,288
2028	206,873	22,263	35,147	174	3,884	45	268,386
2029	212,688	22,501	35,263	174	3,884	45	274,555
2030	218,409	22,741	35,380	174	3,884	45	280,633
2031	224,301	22,984	35,497	174	3,884	45	286,885
2032	230,618	23,230	35,614	174	3,884	45	293,565
2033	237,002	23,478	35,732	174	3,884	45	300,315
2034	243,252	23,728	35,850	174	3,884	45	306,933
2035	249,397	23,980	35,969	174	3,884	45	313,449
2036	255,626	24,235	36,088	174	3,884	45	320,052
2037	261,874	24,492	36,208	174	3,884	45	326,677
2038	268,010	24,751	36,328	174	3,884	45	333,192
2039	274,114	25,012	36,448	174	3,884	45	339,677
2040	280,325	25,276	36,568	174	3,884	45	346,272
2041	286,754	25,543	36,690	174	3,884	45	353,090
2042	293,226	25,812	36,811	174	3,884	45	359,952
2043	299,753	26,084	36,933	174	3,884	45	366,873
2044	306,458	26,359	37,055	174	3,884	45	373,975
2045	313,309	26,637	37,178	174	3,884	45	381,227
2019 - 2029 CAGR[2]	3.8%	0.4%	0.7%	-2.0%	1.5%	-2.2%	3.0%
2019 - 2034 CAGR[2]	3.4%	0.6%	0.6%	-1.3%	1.0%	-1.4%	2.7%

[1]: Fiscal Year.

[2]: Compounded Annual Growth Rate (CAGR).

Source: 2020 FAA TAF.

Table 2-2: FAA 2020 TAF Enplanements

Year	Air Carrier	Air Taxi	Commuters	US Flag	Foreign Flag	Total
1,990	3,128,859	341	178,636	-	37,176	3,344,671
1,991	3,099,556	-	216,072	84,563	55,587	3,455,778
1,992	3,087,151	-	244,842	113,302	66,219	3,511,514
1,993	2,903,371	-	230,823	112,952	57,158	3,304,304
1,994	3,748,807	-	59,802	107,277	69,826	3,985,712
1,995	4,104,347	9	70,559	82,926	78,074	4,335,906
1,996	4,577,940	9	56,309	67,342	75,428	4,777,019
1,997	4,865,648	9	57,371	57,762	86,295	5,067,076
1,998	4,782,640	-	106,053	61,154	89,573	5,039,420
1,999	5,273,645	713	57,695	69,167	101,658	5,502,165
2,000	5,794,365	713	60,302	70,910	99,258	6,024,835
2,001	6,050,850	751	57,585	114,657	94,524	6,317,616
2,002	4,885,502	384	218,942	64,190	54,380	5,223,014
2,003	4,644,856	384	366,391	63,117	61,345	5,135,709
2,004	4,576,762	384	510,098	62,069	72,634	5,221,563
2,005	4,592,934	384	562,543	68,081	70,827	5,294,385
2,006	4,596,431	4,224	552,278	62,208	86,994	5,297,911
2,007	4,683,486	2,771	516,674	12,152	74,140	5,286,452
2,008	4,404,407	1,068	488,341	1,935	63,788	4,958,471
2,009	3,670,532	284	425,953	304	60,320	4,157,109
2,010	3,586,103	316	375,496	194	67,492	4,029,285
2,011	3,656,986	135	390,048	27,635	49,634	4,124,303
2,012	3,594,950	666	379,448	33,958	48,151	4,056,507
2,013	3,694,615	5,783	407,892	66,149	60,165	4,228,821
2,014	3,902,705	540	478,800	68,381	96,159	4,546,045
2,015	4,033,254	90	537,950	73,916	108,445	4,753,565
2,016	4,340,406	89	539,934	83,378	182,627	5,146,345
2,017	4,836,636	93	701,005	88,422	273,554	5,899,617
2,018	5,523,578	3,689	925,028	104,832	303,873	6,857,311
2,019	6,160,572	1,122	977,917	106,593	265,699	7,510,781
2,020	3,224,435	1,122	448,806	62,257	135,946	3,871,444
2,021	3,236,024	1,122	468,075	50,288	93,647	3,848,034
2,022	4,450,271	1,122	638,811	52,219	132,644	5,273,945
2,023	5,565,540	1,122	803,702	60,886	198,657	6,628,785
2,024	6,813,601	1,122	982,914	75,055	254,266	8,125,836
2,025	7,739,481	1,122	1,111,150	90,897	276,948	9,218,476

Year	Air Carrier	Air Taxi	Commuters	US Flag	Foreign Flag	Total
2,026	8,323,316	1,122	1,192,364	104,071	291,678	9,911,429
2,027	8,650,547	1,122	1,238,846	111,014	306,408	10,306,815
2,028	8,895,807	1,122	1,275,230	114,739	321,138	10,606,914
2,029	9,143,902	1,122	1,311,980	118,969	335,868	10,910,719
2,030	9,389,178	1,122	1,348,364	123,199	350,598	11,211,339
2,031	9,642,338	1,122	1,385,834	127,429	365,328	11,520,929
2,032	9,915,091	1,122	1,425,932	131,659	380,058	11,852,740
2,033	10,191,177	1,122	1,466,467	135,889	394,788	12,188,321
2,034	10,461,406	1,122	1,506,201	140,119	409,518	12,517,244
2,035	10,727,094	1,122	1,545,319	144,349	424,248	12,841,010
2,036	10,996,870	1,122	1,584,990	148,579	438,978	13,169,417
2,037	11,267,734	1,122	1,624,800	152,809	453,708	13,499,051
2,038	11,533,754	1,122	1,663,946	157,039	468,438	13,823,177
2,039	11,798,523	1,122	1,702,921	161,269	483,168	14,145,881
2,040	12,068,320	1,122	1,742,589	165,499	497,898	14,474,306
2,041	12,348,329	1,122	1,783,637	169,729	512,628	14,814,323
2,042	12,630,513	1,122	1,824,976	173,959	527,358	15,156,806
2,043	12,915,432	1,122	1,866,686	178,189	542,088	15,502,395
2,044	13,208,793	1,122	1,909,523	182,419	556,818	15,857,553
2,045	13,509,042	1,122	1,953,303	186,649	571,548	16,220,542
2019 - 2029 CAGR[2]	4.0%	0.0%	3.0%	1.1%	2.4%	3.8%
2019 - 2034 CAGR[2]	3.6%	0.0%	2.9%	1.8%	2.9%	3.5%

[1]: Fiscal Year.

[2]: Compounded Annual Growth Rate (CAGR).

Source: 2020 FAA TAF.

Attachment 3:
Base Year (2019)
and Future (2029/2034) Fleet Mixes

Table 3-1: Fleet Mix Comparison

Aircraft ID	Aircraft Description	2019 Operations	2029 Operations	2034 Operations
A119	Agusta / AgustaWestland SPA A119	69	254	350
A20N	Airbus A320NEO Series	310	992	1,847
A21N	Airbus A321NEO Series	1,399	3,576	4,307
A21NY	Airbus A321 XLR	-	14	16
A306	Airbus A300-600/622R	398	-	-
A319	Airbus A319 series	5,432	4,062	4,613
A320	Airbus A320 series	8,868	6,493	6,228
A321	Airbus A321 series	396	741	1,053
A332	Airbus A330-200	90	120	136
AA5	Grumman AA-5A Cheetah; AA-5 Tiger	216	135	126
AC90	Rockwell Turbo Commander 690	4	4	4
AJET	Dassault Alpha Jet	22	18	18
AS50	Eurocopter AS-350	97	52	52
AS65	Aerospatiale SA-365N Dauphin (AS-365N)	4	4	4
ASTR	IAI 1125 Astra	107	96	100
B06	Agusta / AgustaWestland AB-206 LongRanger Helicopter	171	110	109
B350	Beechcraft Super King Air 350/300B	2,611	2,624	2,673
B37M	Boeing 737 MAX 7	-	77,262	87,736
B38M	Boeing 737 MAX 8	402	24,446	42,997
B39M	Boeing 737 MAX 9	-	5,878	8,235
B3XM	Boeing 737 MAX 10	-	42	47
B430	Bell Helicopter 430	59	21	21
B712	Boeing 717-200 / Extended Range	501	-	-
B734	Boeing 737-400	66	92	104
B735	Boeing 737-500	105	148	168

Aircraft ID	Aircraft Description	2019 Operations	2029 Operations	2034 Operations
B737	Boeing 737-700	55,866	734	828
B738	Boeing 737-800	27,422	23,409	11,349
B739	Boeing 737-900	10,422	7,834	7,084
B752	Boeing 757-200	543	28	32
B763	Boeing 767-300	1,027	2,121	2,408
B773	Boeing 777-300	-	730	730
B788	Boeing 787 Dreamliner (800 Model)	746	1,045	1,187
B789	Boeing 787-9 Dreamliner	1,025	710	1,023
BCS1	Airbus A220-100	1,838	2,926	3,323
BCS3	Airbus A220-300	-	64	73
BE20	Beechcraft Model 200 (Super) King Air 200	554	544	520
BE30	Beechcraft Super King Air 300	446	375	356
BE33	Beechcraft Model 33 Debonair/Bonanza	354	264	246
BE35	Beechcraft Model 35 Bonanza	790	358	334
BE36	Beechcraft Model 36 Bonanza	1,037	864	806
BE40	Beechcraft Beechjet 400	264	279	307
BE55	Beechcraft Model E-55	116	92	93
BE58	Beechcraft Model 58 Baron	539	566	573
BE60	Beechcraft Model 60 Duke	100	93	95
BE9L	Beechcraft Model 90 King Air	479	565	531
C152	Cessna 152 Single Engine SEPF	59	47	44
C170	Cessna 170 Single Engine SEPF	69	84	78
C172	Cessna 172 Single Engine SEPF	994	953	890
C182	Cessna 182 Skylane	584	560	523
C206	Cessna 206 Stationair	401	366	342
C210	Cessna 210 Centurion	648	393	367
C25A	Cessna CitationJet CJ2, 525A	454	401	443

Aircraft ID	Aircraft Description	2019 Operations	2029 Operations	2034 Operations
C25B	Cessna CitationJet CJ3, 525B	746	963	1,017
C25C	Cessna CitationJet CJ4, 525C	170	326	331
C25M	Cessna CitationJet CJ1, 525	71	220	222
C310	Cessna 310 Twin Engine Piston aircraft	69	45	45
C340	Cessna 340 Twin Piston MEVP	164	166	168
C414	Cessna 414 Chancellor MEVP	116	113	115
C421	Cessna 421 Golden Eagle	157	147	149
C441	Cessna 441 (Conquest/Conquest2)	71	72	67
C500	Cessna Citation I Twin Jet	57	60	64
C501	Cessna Citation I Single Pilot Twin Jet	108	93	95
C510	Cessna Citation Mustang	167	108	110
C525	Cessna CitationJet CJ1, 525	640	526	542
C550	Cessna Citation 550 Citation II	261	256	267
C560	Cessna 560 Citation V, Ultra & Ultra Encore	665	543	570
C56X	Cessna 560XL Citation Excel	3,202	3,704	4,012
C650	Cessna Citation III	135	121	123
C680	Cessna 680 Citation Sovereign	1,116	1,515	1,673
C68A	Cessna Citation Latitude	1,021	1,550	1,736
C750	Cessna 750 series/Citation X	1,741	2,211	2,467
CL30	Bombardier Challenger 300	2,142	2,643	2,662
CL35	Bombardier Challenger 350	1,941	3,350	3,674
CL60	Canadair Bombardier CL600/610 Challenger Twin Jet	1,451	1,507	1,647
CRJ2	Bombardier CRJ 200 Regional Jet	68	22	25
CRJ5	Bombardier CRJ-550	-	1,012	1,149
CRJ7	Bombardier CRJ 700 Regional Jet	951	64	73
CRJ9	Bombardier CRJ 900 Regional Jet	2,002	2,798	3,177
DA40	Diamond DA40 SEPF	57	98	111

Aircraft ID	Aircraft Description	2019 Operations	2029 Operations	2034 Operations
DC10	McDonnell Douglas DC-10	17	14	14
E2	Grumman TE-2 Hawkeye	9	7	7
E35L	Embraer EMB-135 LR	54	64	67
E45X	Embraer EMB-145 EX (Extra Long Range)	3,635	5,092	5,782
E50P	Embraer EMB500 Phenom 100	919	1,143	1,289
E545	Embraer Legacy 545	251	366	414
E550	Embraer EMB550 Phenom 300	81	93	102
E55P	Embraer EMB550 Phenom 300	1,761	2,541	2,824
E75L	Embraer ERJ-175	28,454	40,176	45,587
E75S	Embraer ERJ-175	1,515	2,288	2,563
EC35	Eurocopter EC-135 COM & MIL	487	425	439
EPIC	Epic Aircraft LT Dynasty	100	763	1,002
F18S	McDonnell Douglas (Boeing) F/A-18 Hornet	4	4	4
F22	Boeing F-22 Raptor	4	4	4
F2TH	Dassault Falcon 2000	1,365	1,418	1,534
F900	Dassault Falcon 900	862	822	890
FA50	Dassault Falcon 50	345	302	310
FA7X	Dassault Falcon 7X	392	573	595
G150	Gulfstream G150	150	102	106
G280	Gulfstream G280	631	1,632	1,649
GALX	IAI 1126 Astra Galaxy/Gulfstream 200	969	881	973
GL5T	Bombardier Global 5000 BD-700	481	643	706
GLAS	Glasair III Single Engine Piston SEPV	66	43	40
GLEX	Bombardier BD-700 Global Express	1,233	1,397	1,508
GLF3	Gulfstream III	76	65	66
GLF4	Gulfstream IV	1,825	1,863	2,035
GLF5	Gulfstream V	1,848	2,361	2,464

Aircraft ID	Aircraft Description	2019 Operations	2029 Operations	2034 Operations
GLF6	Gulfstream VI / G650	1,322	2,965	3,055
H25B	Hawker 800/800 XP/850 XP Twin Turbojet/Bae 125-800	485	525	572
H25C	Hawker 1000 / Bae 125-1000	91	98	109
H60	Sikorsky UH-60 Black Hawk Helicopter	4	4	4
HA4T	Hawker Beechcraft 4000 Horizon (Horizon 1000)	4	4	4
HDJT	Honda Jet	48	174	201
HELO	Various Helicopter	1,564	1,845	1,853
J328	Fairchild Dornier 328 Jet	46	64	73
LJ31	Learjet 31 Twin Jet	97	83	87
LJ35	Learjet 35 Twin Jet	251	251	266
LJ40	Learjet 40 Twin Jet	86	116	127
LJ45	Learjet 45 Twin Jet	353	363	380
LJ60	Learjet 60 Twin Jet	496	377	408
LJ75	Learjet 75 Twin Jet	95	185	197
M20P	Mooney Mark 20 Series	472	266	248
M20T	Mooney Mark 20 Series	83	33	31
MO20	Mooney Mark 20 Series	62	31	29
NAVI	Ryan L-17/U-18 Navion	74	68	63
P180	Piaggio P180 Avanti	439	362	337
P28A	Piper PA-28-140/150/160/180 Cherokee	235	183	171
P28R	Piper PA-28R-180/200/201 Cherokee Arrow I/II/III	152	126	118
P46T	Piper PA-46-500TP Malibu Meridian	147	283	263
PA24	Piper PA-24 Comanche	183	83	77
PA28	Piper PA-28-151 Cherokee Warrior	100	51	48
PA31	Piper PA-31 Navajo	59	56	56
PA32	Piper PA-32 Cherokee Six	114	94	88
PA34	Piper PA-34 Seneca	64	65	66

Aircraft ID	Aircraft Description	2019 Operations	2029 Operations	2034 Operations
PA46	Piper PA-46 Malibu	104	65	61
PC12	Pilatus PC-12	1,064	1,065	1,037
PRM1	Raytheon 390 Premier	177	90	93
RV10	Van's Aircraft RV-10	100	188	217
S22T	Cirrus SR22 Turbo	159	315	368
SBR1	Sabreliner 40/60/65 /North American Sabreliner	58	42	43
SF50	Cirrus Vision SF50	173	868	1,012
SR22	Cirrus SR22	1,412	2,538	2,888
SW3	Swearingen Merlin III /Fairchild Merlin III	64	67	62
T38	Northrop T-38 Talon	17	14	14
TB30	Socata TB 30 Epsilon	52	44	41
TBM7	Socata TBM 700	68	57	54
TBM8	Socata TBM 850 Single Engine Turboprop	126	78	73
TBM9	Daher TMB900	153	675	847
TEX2	Beechcraft T-6 Texan II	4	4	4
TUCA	Embraer A-27 Tucano	88	70	65
WW24	IAI 1124 Westwind	13	11	11
Total[1]		205,886	277,844	310,609

[1]: Totals may not sum due to rounding.

Source: ANOMS, FAA TFMSC, TAF, USDOT T100, and HNTB analysis, 2022.

Table 3-2: Base Year (2019) Fleet Mix

Category	Airline	Aircraft	Aircraft Description	Arrival			Departure			Total
				Day	Evening	Night	Day	Evening	Night	
Passenger	Aeromexico	B737	Boeing 737-700	6	1	-	6	1	-	14

Category	Airline	Aircraft	Aircraft Description	Arrival			Departure			Total
				Day	Evening	Night	Day	Evening	Night	
Passenger	Aeromexico	B738	Boeing 737-800	28	-	-	28	-	-	56
Passenger	Air Canada	A319	Airbus A319 series	16	6	1	9	2	12	46
Passenger	Air Canada	CRJ9	Bombardier CRJ 900 Regional Jet	638	24	336	677	83	237	1,996
Passenger	Alaska Airlines	A21N	Airbus A321NEO Series	14	-	1	13	-	2	30
Passenger	Alaska Airlines	A319	Airbus A319 series	540	390	121	645	175	231	2,103
Passenger	Alaska Airlines	A320	Airbus A320 series	959	224	132	1,031	88	196	2,630
Passenger	Alaska Airlines	B737	Boeing 737-700	18	3	3	18	1	5	48
Passenger	Alaska Airlines	B738	Boeing 737-800	1,231	744	796	2,180	144	447	5,541
Passenger	Alaska Airlines	B739	Boeing 737-900	1,759	761	436	2,261	369	326	5,911
Passenger	Alaska Airlines	E75L	Embraer ERJ-175	959	24	5	894	83	11	1,976
Passenger	All Nippon Airways	B788	Boeing 787 Dreamliner (800 Model)	329	-	-	329	-	-	659
Passenger	All Nippon Airways	B789	Boeing 787-9 Dreamliner	31	-	-	31	-	-	62
Passenger	American Airlines	A21N	Airbus A321NEO Series	1	-	-	1	-	-	2
Passenger	American Airlines	A319	Airbus A319 series	582	43	27	484	123	44	1,303
Passenger	American Airlines	A320	Airbus A320 series	301	74	23	119	207	72	796
Passenger	American Airlines	A321	Airbus A321 series	27	15	3	24	5	16	90
Passenger	American Airlines	A332	Airbus A330-200	1	-	-	1	-	-	2
Passenger	American Airlines	B738	Boeing 737-800	1,484	802	178	1,888	2	574	4,928
Passenger	American Airlines	B752	Boeing 757-200	2	-	-	2	-	-	4
Passenger	American Airlines	B763	Boeing 767-300	1	-	-	1	-	-	2
Passenger	American Airlines	E75L	Embraer ERJ-175	1,134	376	235	1,290	390	66	3,491
Passenger	American Airlines	E75S	Embraer ERJ-175	154	44	13	185	20	5	421
Passenger	British Airways	B789	Boeing 787-9 Dreamliner	324	4	2	60	263	8	661
Passenger	Delta Air Lines	A319	Airbus A319 series	529	106	18	476	24	154	1,307
Passenger	Delta Air Lines	A320	Airbus A320 series	46	-	-	44	2	-	92
Passenger	Delta Air Lines	A332	Airbus A330-200	-	1	-	1	-	-	2

Category	Airline	Aircraft	Aircraft Description	Arrival			Departure			Total
				Day	Evening	Night	Day	Evening	Night	
Passenger	Delta Air Lines	B712	Boeing 717-200 / Extended Range	135	21	95	133	9	108	501
Passenger	Delta Air Lines	B738	Boeing 737-800	365	110	18	348	5	140	987
Passenger	Delta Air Lines	B739	Boeing 737-900	1,038	333	211	840	34	708	3,164
Passenger	Delta Air Lines	B752	Boeing 757-200	103	76	25	47	-	157	408
Passenger	Delta Air Lines	B763	Boeing 767-300	5	-	-	4	1	-	10
Passenger	Delta Air Lines	BCS1	Airbus A220-100	808	32	80	784	33	103	1,838
Passenger	Delta Air Lines	E75L	Embraer ERJ-175	2,737	907	567	2,948	881	382	8,423
Passenger	Delta Air Lines	E75S	Embraer ERJ-175	371	107	30	386	68	54	1,016
Passenger	Frontier Airlines	A20N	Airbus A320NEO Series	35	79	4	26	82	9	235
Passenger	Frontier Airlines	A319	Airbus A319 series	10	-	-	9	1	-	20
Passenger	Frontier Airlines	A320	Airbus A320 series	34	79	3	16	93	8	233
Passenger	Frontier Airlines	A321	Airbus A321 series	80	59	4	41	89	13	285
Passenger	Hainan Airlines	B788	Boeing 787 Dreamliner (800 Model)	44	-	-	44	-	-	88
Passenger	Hainan Airlines	B789	Boeing 787-9 Dreamliner	150	-	-	150	-	-	300
Passenger	Hawaiian Airlines	A21N	Airbus A321NEO Series	9	584	91	677	1	5	1,367
Passenger	Hawaiian Airlines	A332	Airbus A330-200	2	38	3	42	-	1	86
Passenger	Hawaiian Airlines	B763	Boeing 767-300	-	3	-	3	-	-	6
Passenger	JetBlue Airways	A320	Airbus A320 series	703	548	80	448	560	323	2,662
Passenger	JetBlue Airways	A321	Airbus A321 series	1	5	3	2	-	7	18
Passenger	SkyWest Airlines	CRJ2	Bombardier CRJ 200 Regional Jet	24	2	-	23	1	2	52
Passenger	SkyWest Airlines	CRJ7	Bombardier CRJ 700 Regional Jet	43	1	8	50	1	1	103
Passenger	SkyWest Airlines	CRJ9	Bombardier CRJ 900 Regional Jet	2	-	-	2	-	-	4
Passenger	SkyWest Airlines	E75L	Embraer ERJ-175	5,747	961	471	5,561	1,373	245	14,357
Passenger	Southwest Airlines	B38M	Boeing 737 MAX 8	151	32	18	168	25	8	402
Passenger	Southwest Airlines	B737	Boeing 737-700	19,768	5,218	2,594	19,616	5,427	2,537	55,160
Passenger	Southwest Airlines	B738	Boeing 737-800	4,969	1,165	1,022	5,738	672	746	14,312

Category	Airline	Aircraft	Aircraft Description	Arrival			Departure			Total
				Day	Evening	Night	Day	Evening	Night	
Passenger	Sun Country Airlines	B737	Boeing 737-700	1	-	-	1	-	-	2
Passenger	Sun Country Airlines	B738	Boeing 737-800	32	10	2	38	4	2	88
Passenger	Swift Air	B734	Boeing 737-400	21	3	6	16	1	12	60
Passenger	Swift Air	B738	Boeing 737-800	1	-	-	-	-	1	2
Passenger	United Airlines	A319	Airbus A319 series	160	23	36	168	-	51	438
Passenger	United Airlines	A320	Airbus A320 series	307	50	92	367	5	77	897
Passenger	United Airlines	B737	Boeing 737-700	61	1	1	62	-	1	125
Passenger	United Airlines	B738	Boeing 737-800	309	213	130	464	2	186	1,303
Passenger	United Airlines	B739	Boeing 737-900	318	277	55	544	8	97	1,299
Passenger	United Airlines	B752	Boeing 757-200	2	-	-	2	-	-	4
Passenger	United Airlines	CRJ7	Bombardier CRJ 700 Regional Jet	264	3	134	397	3	1	802
Passenger	Volaris	A20N	Airbus A320NEO Series	38	-	-	38	-	-	76
Passenger	Volaris	A319	Airbus A319 series	48	-	-	48	-	-	96
Passenger	Volaris	A320	Airbus A320 series	755	-	-	755	-	-	1,510
Passenger Total[1]				50,765	14,580	8,109	53,701	11,359	8,393	146,907
Cargo	Federal Express	A306	Airbus A300-600/622R	182	-	-	2	179	1	364
Cargo	Federal Express	B763	Boeing 767-300	241	10	-	48	202	1	501
Cargo	Miscellaneous	B350	Beechcraft Super King Air 350/300B	-	1	-	1	-	-	2
Cargo	Miscellaneous	B763	Boeing 767-300	16	2	1	15	2	2	38
Cargo	Miscellaneous	PC12	Pilatus PC-12	8	-	-	7	1	-	16
Cargo	United Parcel Service	A306	Airbus A300-600/622R	14	-	3	13	-	4	34
Cargo	United Parcel Service	B752	Boeing 757-200	52	-	2	5	49	-	107
Cargo	United Parcel Service	B763	Boeing 767-300	217	3	8	2	221	5	456
Cargo Total[1]				729	16	14	93	653	13	1,518
Air Taxi	Miscellaneous	A319	Airbus A319 series	43	12	5	49	8	3	119
Air Taxi	Miscellaneous	A320	Airbus A320 series	14	4	2	13	3	3	39

Category	Airline	Aircraft	Aircraft Description	Arrival			Departure			Total
				Day	Evening	Night	Day	Evening	Night	
Air Taxi	Miscellaneous	A321	Airbus A321 series	1	-	1	1	1	0	4
Air Taxi	Miscellaneous	ASTR	IAI 1125 Astra	9	1	1	11	-	-	21
Air Taxi	Miscellaneous	B350	Beechcraft Super King Air 350/300B	349	46	15	356	39	15	819
Air Taxi	Miscellaneous	B734	Boeing 737-400	2	-	1	3	-	-	6
Air Taxi	Miscellaneous	B735	Boeing 737-500	35	2	16	50	-	3	105
Air Taxi	Miscellaneous	B737	Boeing 737-700	179	53	15	171	57	20	495
Air Taxi	Miscellaneous	B738	Boeing 737-800	74	24	5	72	20	10	205
Air Taxi	Miscellaneous	B739	Boeing 737-900	15	8	1	17	2	5	48
Air Taxi	Miscellaneous	B752	Boeing 757-200	6	-	4	5	2	3	20
Air Taxi	Miscellaneous	B763	Boeing 767-300	6	1	-	1	6	-	14
Air Taxi	Miscellaneous	B789	Boeing 787-9 Dreamliner	1	-	-	0	1	0	2
Air Taxi	Miscellaneous	BE20	Beechcraft Model 200 (Super) King Air 200	14	4	9	17	-	10	54
Air Taxi	Miscellaneous	BE30	Beechcraft Super King Air 300	12	1	1	10	4	-	28
Air Taxi	Miscellaneous	BE40	Beechcraft Beechjet 400	60	8	3	54	10	6	141
Air Taxi	Miscellaneous	BE9L	Beechcraft Model 90 King Air	9	1	3	10	1	1	26
Air Taxi	Miscellaneous	C25A	Cessna CitationJet CJ2, 525A	84	16	9	85	15	8	217
Air Taxi	Miscellaneous	C25B	Cessna CitationJet CJ3, 525B	107	18	3	103	15	10	257
Air Taxi	Miscellaneous	C25C	Cessna CitationJet CJ4, 525C	7	1	-	7	-	1	16
Air Taxi	Miscellaneous	C500	Cessna Citation I Twin Jet	10	-	1	10	1	-	22
Air Taxi	Miscellaneous	C501	Cessna Citation I Single Pilot Twin Jet	1	-	2	1	-	1	6
Air Taxi	Miscellaneous	C510	Cessna Citation Mustang	3	-	-	3	-	-	6
Air Taxi	Miscellaneous	C525	Cessna CitationJet CJ1, 525	32	2	-	31	2	1	68
Air Taxi	Miscellaneous	C550	Cessna Citation 550 Citation II	17	4	4	19	1	5	49
Air Taxi	Miscellaneous	C560	Cessna 560 Citation V, Ultra & Ultra Encore	45	12	8	47	10	9	131
Air Taxi	Miscellaneous	C56X	Cessna 560XL Citation Excel	651	93	37	681	61	38	1,560
Air Taxi	Miscellaneous	C650	Cessna Citation III	1	1	-	1	-	1	4

Category	Airline	Aircraft	Aircraft Description	Arrival			Departure			Total
				Day	Evening	Night	Day	Evening	Night	
Air Taxi	Miscellaneous	C680	Cessna 680 Citation Sovereign	348	42	20	374	19	17	820
Air Taxi	Miscellaneous	C68A	Cessna Citation Latitude	398	54	33	429	34	22	969
Air Taxi	Miscellaneous	C750	Cessna 750 series/Citation X	558	83	26	602	40	24	1,333
Air Taxi	Miscellaneous	CL35	Bombardier Challenger 350	665	124	44	714	55	64	1,665
Air Taxi	Miscellaneous	CL60	Canadair Bombardier CL600/610 Challenger Twin Jet	288	46	26	313	24	23	720
Air Taxi	Miscellaneous	CRJ2	Bombardier CRJ 200 Regional Jet	7	1	-	6	2	-	16
Air Taxi	Miscellaneous	CRJ7	Bombardier CRJ 700 Regional Jet	21	1	1	22	-	1	46
Air Taxi	Miscellaneous	CRJ9	Bombardier CRJ 900 Regional Jet	1	-	-	1	-	-	2
Air Taxi	Miscellaneous	E35L	Embraer EMB-135 LR	7	-	-	6	1	-	14
Air Taxi	Miscellaneous	E45X	Embraer EMB-145 EX (Extra Long Range)	1,574	113	130	1,619	199	-	3,635
Air Taxi	Miscellaneous	E50P	Embraer EMB500 Phenom 100	330	42	14	352	20	12	770
Air Taxi	Miscellaneous	E545	Embraer Legacy 545	109	13	1	110	8	5	247
Air Taxi	Miscellaneous	E550	Embraer EMB550 Phenom 300	21	2	-	20	1	2	46
Air Taxi	Miscellaneous	E55P	Embraer EMB550 Phenom 300	631	73	33	653	43	42	1,474
Air Taxi	Miscellaneous	EC35	Eurocopter EC-135 COM & MIL	16	8	19	15	7	22	87
Air Taxi	Miscellaneous	F2TH	Dassault Falcon 2000	223	53	19	254	19	22	589
Air Taxi	Miscellaneous	F900	Dassault Falcon 900	118	30	23	145	15	11	342
Air Taxi	Miscellaneous	FA50	Dassault Falcon 50	16	-	-	13	2	1	32
Air Taxi	Miscellaneous	FA7X	Dassault Falcon 7X	33	10	5	37	4	7	96
Air Taxi	Miscellaneous	G150	Gulfstream G150	9	1	-	6	2	1	20
Air Taxi	Miscellaneous	G280	Gulfstream G280	14	-	-	13	-	1	28
Air Taxi	Miscellaneous	GALX	IAI 1126 Astra Galaxy/Gulfstream 200	192	32	14	201	19	17	474
Air Taxi	Miscellaneous	GL5T	Bombardier Global 5000 BD-700	126	23	13	136	12	14	324
Air Taxi	Miscellaneous	GLEX	Bombardier BD-700 Global Express	212	49	20	227	28	25	561
Air Taxi	Miscellaneous	GLF3	Gulfstream III	1	-	-	1	-	-	2

Category	Airline	Aircraft	Aircraft Description	Arrival			Departure			Total
				Day	Evening	Night	Day	Evening	Night	
Air Taxi	Miscellaneous	GLF4	Gulfstream IV	359	56	25	369	38	33	880
Air Taxi	Miscellaneous	GLF5	Gulfstream V	186	36	18	208	10	22	479
Air Taxi	Miscellaneous	GLF6	Gulfstream VI / G650	156	26	10	146	24	21	383
Air Taxi	Miscellaneous	H25B	Hawker 800/800 XP/850 XP Twin Turbojet/Bae 125-800	94	19	7	96	11	13	240
Air Taxi	Miscellaneous	H25C	Hawker 1000 / Bae 125-1000	17	9	4	22	3	5	60
Air Taxi	Miscellaneous	HDJT	Honda Jet	5	-	-	5	-	-	10
Air Taxi	Miscellaneous	HELO	Various Helicopter	43	8	10	45	8	8	121
Air Taxi	Miscellaneous	J328	Fairchild Dornier 328 Jet	17	2	4	17	1	5	46
Air Taxi	Miscellaneous	LJ31	Learjet 31 Twin Jet	3	4	-	3	2	2	14
Air Taxi	Miscellaneous	LJ35	Learjet 35 Twin Jet	26	1	7	27	-	8	69
Air Taxi	Miscellaneous	LJ40	Learjet 40 Twin Jet	26	1	2	25	3	1	58
Air Taxi	Miscellaneous	LJ45	Learjet 45 Twin Jet	33	2	4	29	3	6	78
Air Taxi	Miscellaneous	LJ60	Learjet 60 Twin Jet	67	8	5	67	8	4	159
Air Taxi	Miscellaneous	LJ75	Learjet 75 Twin Jet	28	2	2	28	3	1	64
Air Taxi	Miscellaneous	P180	Piaggio P180 Avanti	1	-	-	1	-	-	2
Air Taxi	Miscellaneous	P46T	Piper PA-46-500TP Malibu Meridian	1	-	-	1	-	-	2
Air Taxi	Miscellaneous	PC12	Pilatus PC-12	72	3	2	62	10	4	153
Air Taxi	Miscellaneous	PRM1	Raytheon 390 Premier	7	-	1	5	1	2	16
Air Taxi	Miscellaneous	S22T	Cirrus SR22 Turbo	10	-	2	10	1	1	24
Air Taxi	Miscellaneous	SBR1	Sabreliner 40/60/65 /North American Sabreliner	3	-	-	2	1	-	6
Air Taxi	Miscellaneous	TBM7	Socata TBM 700	2	-	-	2	-	-	4
Air Taxi	Miscellaneous	TBM9	Daher TMB900	1	1	-	-	-	2	4
Air Taxi Total[1]				8,856	1,287	690	9,265	941	627	21,665
GA	Miscellaneous	A119	Agusta / AgustaWestland SPA A119	23	6	6	18	4	13	69

Category	Airline	Aircraft	Aircraft Description	Arrival			Departure			Total
				Day	Evening	Night	Day	Evening	Night	
GA	Miscellaneous	AA5	Grumman AA-5A Cheetah; AA-5 Tiger	83	22	3	101	4	4	216
GA	Miscellaneous	AS50	Eurocopter AS-350	12	6	31	41	8	-	97
GA	Miscellaneous	ASTR	IAI 1125 Astra	27	7	7	30	3	7	81
GA	Miscellaneous	B06	Agusta / AgustaWestland AB-206 LongRanger Helicopter	80	5	1	74	11	1	171
GA	Miscellaneous	B350	Beechcraft Super King Air 350/300B	751	118	24	743	138	12	1,785
GA	Miscellaneous	B430	Bell Helicopter 430	21	-	8	20	1	8	59
GA	Miscellaneous	BE20	Beechcraft Model 200 (Super) King Air 200	189	34	27	153	47	50	501
GA	Miscellaneous	BE30	Beechcraft Super King Air 300	158	48	4	167	34	7	418
GA	Miscellaneous	BE33	Beechcraft Model 33 Debonair/Bonanza	153	10	14	165	6	6	354
GA	Miscellaneous	BE35	Beechcraft Model 35 Bonanza	344	43	8	356	25	14	790
GA	Miscellaneous	BE36	Beechcraft Model 36 Bonanza	420	79	19	492	18	8	1,037
GA	Miscellaneous	BE40	Beechcraft Beechjet 400	51	6	-	51	3	2	114
GA	Miscellaneous	BE55	Beechcraft Model E-55	56	2	-	52	6	-	116
GA	Miscellaneous	BE58	Beechcraft Model 58 Baron	237	13	20	236	26	7	539
GA	Miscellaneous	BE60	Beechcraft Model 60 Duke	42	6	2	44	3	3	100
GA	Miscellaneous	BE9L	Beechcraft Model 90 King Air	180	20	26	167	27	33	453
GA	Miscellaneous	C152	Cessna 152 Single Engine SEPF	24	5	1	24	6	-	59
GA	Miscellaneous	C170	Cessna 170 Single Engine SEPF	27	-	7	13	21	-	69
GA	Miscellaneous	C172	Cessna 172 Single Engine SEPF	399	62	36	403	65	28	994
GA	Miscellaneous	C182	Cessna 182 Skylane	262	22	8	266	18	8	584
GA	Miscellaneous	C206	Cessna 206 Stationair	191	7	3	185	14	1	401
GA	Miscellaneous	C210	Cessna 210 Centurion	277	21	26	300	20	4	648
GA	Miscellaneous	C25A	Cessna CitationJet CJ2, 525A	111	5	3	96	13	9	237
GA	Miscellaneous	C25B	Cessna CitationJet CJ3, 525B	227	16	1	220	19	6	489
GA	Miscellaneous	C25C	Cessna CitationJet CJ4, 525C	66	7	4	57	16	4	154

Category	Airline	Aircraft	Aircraft Description	Arrival			Departure			Total
				Day	Evening	Night	Day	Evening	Night	
GA	Miscellaneous	C25M	Cessna CitationJet CJ1, 525	29	5	1	32	2	1	71
GA	Miscellaneous	C310	Cessna 310 Twin Engine Piston aircraft	27	5	2	31	2	2	69
GA	Miscellaneous	C340	Cessna 340 Twin Piston MEVP	75	6	-	80	1	1	164
GA	Miscellaneous	C414	Cessna 414 Chancellor MEVP	49	4	5	49	5	5	116
GA	Miscellaneous	C421	Cessna 421 Golden Eagle	69	7	2	70	5	4	157
GA	Miscellaneous	C441	Cessna 441 (Conquest/Conquest2)	33	1	1	30	-	5	71
GA	Miscellaneous	C500	Cessna Citation I Twin Jet	11	2	5	10	4	4	36
GA	Miscellaneous	C501	Cessna Citation I Single Pilot Twin Jet	46	3	3	44	2	5	102
GA	Miscellaneous	C510	Cessna Citation Mustang	65	13	2	70	6	5	161
GA	Miscellaneous	C525	Cessna CitationJet CJ1, 525	260	15	11	255	13	18	572
GA	Miscellaneous	C550	Cessna Citation 550 Citation II	88	9	6	74	12	17	207
GA	Miscellaneous	C560	Cessna 560 Citation V, Ultra & Ultra Encore	219	26	19	208	26	31	530
GA	Miscellaneous	C56X	Cessna 560XL Citation Excel	675	42	104	727	63	31	1,642
GA	Miscellaneous	C650	Cessna Citation III	59	2	4	49	7	9	131
GA	Miscellaneous	C680	Cessna 680 Citation Sovereign	117	24	7	131	10	7	297
GA	Miscellaneous	C68A	Cessna Citation Latitude	23	3	-	24	1	1	52
GA	Miscellaneous	C750	Cessna 750 series/Citation X	178	18	8	180	19	5	408
GA	Miscellaneous	CL30	Bombardier Challenger 300	900	130	37	954	69	44	2,133
GA	Miscellaneous	CL35	Bombardier Challenger 350	112	17	9	119	11	8	275
GA	Miscellaneous	CL60	Canadair Bombardier CL600/610 Challenger Twin Jet	300	43	23	289	47	29	731
GA	Miscellaneous	DA40	Diamond DA40 SEPF	23	4	2	23	3	3	57
GA	Miscellaneous	E35L	Embraer EMB-135 LR	12	6	2	15	4	1	40
GA	Miscellaneous	E50P	Embraer EMB500 Phenom 100	60	8	4	59	9	4	144
GA	Miscellaneous	E545	Embraer Legacy 545	2	-	-	2	-	-	5
GA	Miscellaneous	E550	Embraer EMB550 Phenom 300	18	-	-	16	-	2	36

Category	Airline	Aircraft	Aircraft Description	Arrival			Departure			Total
				Day	Evening	Night	Day	Evening	Night	
GA	Miscellaneous	E55P	Embraer EMB550 Phenom 300	124	11	9	127	8	8	287
GA	Miscellaneous	E75L	Embraer ERJ-175	83	8	12	103	-	-	206
GA	Miscellaneous	E75S	Embraer ERJ-175	25	5	9	20	-	20	78
GA	Miscellaneous	EC35	Eurocopter EC-135 COM & MIL	85	38	75	131	35	32	396
GA	Miscellaneous	EPIC	Epic Aircraft LT Dynasty	37	10	2	39	6	5	100
GA	Miscellaneous	F2TH	Dassault Falcon 2000	322	55	12	323	24	42	776
GA	Miscellaneous	F900	Dassault Falcon 900	226	24	10	210	32	18	520
GA	Miscellaneous	FA50	Dassault Falcon 50	132	14	11	125	22	10	313
GA	Miscellaneous	FA7X	Dassault Falcon 7X	122	8	18	117	13	18	297
GA	Miscellaneous	G150	Gulfstream G150	63	1	1	56	3	6	131
GA	Miscellaneous	G280	Gulfstream G280	265	27	9	250	29	23	603
GA	Miscellaneous	GALX	IAI 1126 Astra Galaxy/Gulfstream 200	208	27	9	211	23	11	490
GA	Miscellaneous	GL5T	Bombardier Global 5000 BD-700	55	14	9	62	8	8	157
GA	Miscellaneous	GLAS	Glasair III Single Engine Piston SEPV	9	-	24	33	-	-	66
GA	Miscellaneous	GLEX	Bombardier BD-700 Global Express	272	53	11	269	47	19	672
GA	Miscellaneous	GLF3	Gulfstream III	30	1	6	26	4	7	74
GA	Miscellaneous	GLF4	Gulfstream IV	367	67	31	369	53	44	932
GA	Miscellaneous	GLF5	Gulfstream V	507	110	66	562	56	65	1,365
GA	Miscellaneous	GLF6	Gulfstream VI / G650	373	54	27	335	57	62	909
GA	Miscellaneous	H25B	Hawker 800/800 XP/850 XP Twin Turbojet/Bae 125-800	106	8	6	96	16	8	241
GA	Miscellaneous	H25C	Hawker 1000 / Bae 125-1000	4	5	7	13	1	1	31
GA	Miscellaneous	HDJT	Honda Jet	19	-	-	15	-	4	38
GA	Miscellaneous	HELO	Various Helicopter	387	134	201	596	64	61	1,443
GA	Miscellaneous	LJ31	Learjet 31 Twin Jet	35	7	-	38	-	4	83
GA	Miscellaneous	LJ35	Learjet 35 Twin Jet	63	7	7	71	3	3	156

Category	Airline	Aircraft	Aircraft Description	Arrival			Departure			Total
				Day	Evening	Night	Day	Evening	Night	
GA	Miscellaneous	LJ40	Learjet 40 Twin Jet	13	1	-	13	-	1	28
GA	Miscellaneous	LJ45	Learjet 45 Twin Jet	121	12	5	110	17	11	275
GA	Miscellaneous	LJ60	Learjet 60 Twin Jet	145	12	11	135	15	18	337
GA	Miscellaneous	LJ75	Learjet 75 Twin Jet	13	1	1	14	-	1	31
GA	Miscellaneous	M20P	Mooney Mark 20 Series	221	13	3	230	2	4	472
GA	Miscellaneous	M20T	Mooney Mark 20 Series	37	3	2	42	-	-	83
GA	Miscellaneous	MO20	Mooney Mark 20 Series	23	7	1	31	-	-	62
GA	Miscellaneous	NAVI	Ryan L-17/U-18 Navion	17	13	7	31	3	3	74
GA	Miscellaneous	P180	Piaggio P180 Avanti	190	24	5	204	5	9	437
GA	Miscellaneous	P28A	Piper PA-28-140/150/160/180 Cherokee	89	14	15	96	17	5	235
GA	Miscellaneous	P28R	Piper PA-28R-180/200/201 Cherokee Arrow I/II/III	43	9	24	68	8	-	152
GA	Miscellaneous	P46T	Piper PA-46-500TP Malibu Meridian	58	13	1	65	5	3	145
GA	Miscellaneous	PA24	Piper PA-24 Comanche	77	1	13	80	11	1	183
GA	Miscellaneous	PA28	Piper PA-28-151 Cherokee Warrior	34	2	13	50	-	-	100
GA	Miscellaneous	PA31	Piper PA-31 Navajo	28	-	1	26	4	-	59
GA	Miscellaneous	PA32	Piper PA-32 Cherokee Six	52	5	-	51	4	2	114
GA	Miscellaneous	PA34	Piper PA-34 Seneca	24	8	-	27	1	4	64
GA	Miscellaneous	PA46	Piper PA-46 Malibu	50	1	1	50	1	1	104
GA	Miscellaneous	PC12	Pilatus PC-12	350	55	43	324	50	74	895
GA	Miscellaneous	PRM1	Raytheon 390 Premier	66	8	6	58	10	13	161
GA	Miscellaneous	RV10	Van's Aircraft RV-10	44	4	1	46	2	1	100
GA	Miscellaneous	S22T	Cirrus SR22 Turbo	54	13	1	63	2	2	135
GA	Miscellaneous	SBR1	Sabreliner 40/60/65 /North American Sabreliner	14	7	5	18	4	5	52
GA	Miscellaneous	SF50	Cirrus Vision SF50	84	1	1	84	1	1	173

Category	Airline	Aircraft	Aircraft Description	Arrival			Departure			Total
				Day	Evening	Night	Day	Evening	Night	
GA	Miscellaneous	SR22	Cirrus SR22	578	100	28	623	36	47	1,412
GA	Miscellaneous	SW3	Swearingen Merlin III /Fairchild Merlin III	27	5	-	31	1	-	64
GA	Miscellaneous	TB30	Socata TB 30 Epsilon	25	1	-	21	5	-	52
GA	Miscellaneous	TBM7	Socata TBM 700	28	2	1	26	4	1	64
GA	Miscellaneous	TBM8	Socata TBM 850 Single Engine Turboprop	52	4	7	51	-	12	126
GA	Miscellaneous	TBM9	Daher TMB900	65	10	-	71	4	-	150
GA	Miscellaneous	TUCA	Embraer A-27 Tucano	40	4	-	36	7	1	88
GA Total[1]				14,440	2,007	1,319	14,990	1,601	1,175	35,532
MIL	Miscellaneous	A320	Airbus A320 series	3	-	2	2	0	2	9
MIL	Miscellaneous	AC90	Rockwell Turbo Commander 690	1	-	1	1	0	1	4
MIL	Miscellaneous	AJET	Dassault Alpha Jet	6	-	4	6	1	4	22
MIL	Miscellaneous	AS65	Aerospatiale SA-365N Dauphin (AS-365N)	1	-	1	1	0	1	4
MIL	Miscellaneous	ASTR	IAI 1125 Astra	1	-	1	1	0	1	4
MIL	Miscellaneous	B350	Beechcraft Super King Air 350/300B	1	-	1	1	0	1	4
MIL	Miscellaneous	B737	Boeing 737-700	6	-	4	6	1	4	22
MIL	Miscellaneous	BE40	Beechcraft Beechjet 400	3	-	2	2	0	2	9
MIL	Miscellaneous	C550	Cessna Citation 550 Citation II	1	-	1	1	0	1	4
MIL	Miscellaneous	C560	Cessna 560 Citation V, Ultra & Ultra Encore	1	-	1	1	0	1	4
MIL	Miscellaneous	CL30	Bombardier Challenger 300	3	-	2	2	0	2	9
MIL	Miscellaneous	DC10	McDonnell Douglas DC-10	5	-	3	5	0	3	17
MIL	Miscellaneous	E2	Grumman TE-2 Hawkeye	3	-	2	2	0	2	9
MIL	Miscellaneous	E50P	Embraer EMB500 Phenom 100	1	-	1	1	0	1	4
MIL	Miscellaneous	EC35	Eurocopter EC-135 COM & MIL	1	-	1	1	0	1	4
MIL	Miscellaneous	F18S	McDonnell Douglas (Boeing) F/A-18 Hornet	1	-	1	1	0	1	4
MIL	Miscellaneous	F22	Boeing F-22 Raptor	1	-	1	1	0	1	4

Category	Airline	Aircraft	Aircraft Description	Arrival			Departure			Total
				Day	Evening	Night	Day	Evening	Night	
MIL	Miscellaneous	GALX	IAI 1126 Astra Galaxy/Gulfstream 200	1	-	1	1	0	1	4
MIL	Miscellaneous	GLF4	Gulfstream IV	4	-	3	4	0	2	13
MIL	Miscellaneous	GLF5	Gulfstream V	1	-	1	1	0	1	4
MIL	Miscellaneous	GLF6	Gulfstream VI / G650	9	-	6	9	1	6	30
MIL	Miscellaneous	H25B	Hawker 800/800 XP/850 XP Twin Turbojet/Bae 125-800	1	-	1	1	0	1	4
MIL	Miscellaneous	H60	Sikorsky UH-60 Black Hawk Helicopter	1	-	1	1	0	1	4
MIL	Miscellaneous	HA4T	Hawker Beechcraft 4000 Horizon (Horizon 1000)	1	-	1	1	0	1	4
MIL	Miscellaneous	LJ35	Learjet 35 Twin Jet	8	-	5	7	1	5	26
MIL	Miscellaneous	T38	Northrop T-38 Talon	5	-	3	5	0	3	17
MIL	Miscellaneous	TEX2	Beechcraft T-6 Texan II	1	-	1	1	0	1	4
MIL	Miscellaneous	WW24	IAI 1124 Westwind	4	-	3	4	0	2	13
Military Total[1]				79	-	53	74	7	50	264
Grand Total[1]				74,868	17,891	10,184	78,123	14,561	10,259	205,886

[1]: Totals may not sum due to rounding.

Source: ANOMS, FAA TFMSC, TAF, USDOT T100, and HNTB analysis, 2022.

Table 3-3: Future (2029) Fleet Mix

Category	Airline	Aircraft	Aircraft Description	Arrival			Departure			Total
				Day	Evening	Night	Day	Evening	Night	
Passenger	Air Canada	CRJ9	Bombardier CRJ 900 Regional Jet	893	33	471	948	117	333	2,795
Passenger	Air Canada	BCS3	Airbus A220-300	22	8	1	13	3	17	64
Passenger	Alaska Airlines	B38M	Boeing 737 MAX 8	1,660	1,004	1,073	2,940	194	603	7,473
Passenger	Alaska Airlines	B738	Boeing 737-800	1,551	938	1,003	2,748	181	563	6,985
Passenger	Alaska Airlines	B39M	Boeing 737 MAX 9	1,478	640	366	1,900	310	274	4,968
Passenger	Alaska Airlines	B739	Boeing 737-900	985	426	244	1,267	207	183	3,312
Passenger	Alaska Airlines	E75L	Embraer ERJ-175	1,343	33	7	1,253	116	15	2,767
Passenger	Alaska Airlines	B3XM	Boeing 737 MAX 10	20	1	-	18	3	-	42
Passenger	American Airlines	B38M	Boeing 737 MAX 8	1,663	899	200	2,115	2	644	5,523
Passenger	American Airlines	E75L	Embraer ERJ-175	1,589	527	329	1,807	546	92	4,890
Passenger	American Airlines	B738	Boeing 737-800	416	225	50	529	1	161	1,381
Passenger	American Airlines	A320	Airbus A320 series	422	103	32	167	290	100	1,115
Passenger	American Airlines	A319	Airbus A319 series	815	60	38	679	173	61	1,825
Passenger	American Airlines	A321	Airbus A321 series	38	21	4	33	7	22	125
Passenger	American Airlines	E75S	Embraer ERJ-175	215	62	18	260	28	7	590
Passenger	American Airlines	A21NY	Airbus A321 XLR	7	-	-	7	-	-	14
Passenger	British Airways	B773	Boeing 777-300 ER	358	4	2	66	290	9	730
Passenger	Delta Air Lines	E75L	Embraer ERJ-175	3,834	1,271	794	4,129	1,235	535	11,798
Passenger	Delta Air Lines	B739	Boeing 737-900	1,163	373	236	941	38	793	3,545
Passenger	Delta Air Lines	A21N	Airbus A321NEO Series	484	155	98	392	16	330	1,474
Passenger	Delta Air Lines	BCS1	Airbus A220-100	1,286	51	127	1,247	52	163	2,926
Passenger	Delta Air Lines	A319	Airbus A319 series	827	166	28	743	37	240	2,042
Passenger	Delta Air Lines	B738	Boeing 737-800	563	170	28	537	8	217	1,523
Passenger	Delta Air Lines	E75S	Embraer ERJ-175	519	150	42	540	96	76	1,423

Category	Airline	Aircraft	Aircraft Description	Arrival			Departure			Total
				Day	Evening	Night	Day	Evening	Night	
Passenger	Delta Air Lines	A320	Airbus A320 series	64	-	-	61	3	-	128
Passenger	Hawaiian Airlines	A21N	Airbus A321NEO Series	11	736	114	854	1	6	1,723
Passenger	Hawaiian Airlines	A332	Airbus A330-200	3	53	4	58	-	1	120
Passenger	Hawaiian Airlines	B789	Boeing 787-9 Dreamliner	5	95	-	98	2	-	200
Passenger	JetBlue Airways	A320	Airbus A320 series	837	653	95	533	667	385	3,170
Passenger	JetBlue Airways	A321	Airbus A321 series	12	59	35	24	-	82	212
Passenger	JetBlue Airways	A21N	Airbus A321NEO Series	99	77	11	63	78	46	373
Passenger	SkyWest Airlines	E75L	Embraer ERJ-175	8,139	1,361	666	7,875	1,944	347	20,333
Passenger	Southwest Airlines	B37M	Boeing 737 MAX 7	27,840	7,348	3,442	28,220	7,094	3,317	77,262
Passenger	Southwest Airlines	B738	Boeing 737-800	4,524	1,061	930	5,224	612	679	13,030
Passenger	Southwest Airlines	B38M	Boeing 737 MAX 8	2,852	600	338	2,768	696	325	7,579
Passenger	United Airlines	B38M	Boeing 737 MAX 8	1,384	270	282	1,377	6	553	3,871
Passenger	United Airlines	B39M	Boeing 737 MAX 9	325	64	66	324	1	130	910
Passenger	United Airlines	CRJ5	Bombardier CRJ-550	333	4	170	501	4	1	1,012
Passenger	United Airlines	B739	Boeing 737-900	223	194	38	381	6	68	910
Passenger	United Airlines	A21N	Airbus A321NEO Series	3	-	-	3	-	-	6
Passenger	United Airlines	E75L	Embraer ERJ-175	37	19	-	55	1	-	111
Passenger	Volaris	A320	Airbus A320 series	846	-	-	846	-	-	1,692
Passenger	Volaris	A20N	Airbus A320NEO Series	331	-	-	331	-	-	663
Passenger	Miscellaneous	B734	Boeing 737-400	29	4	8	23	1	17	84
Passenger	Miscellaneous	A321	Airbus A321 series	111	82	6	57	124	18	399
Passenger	Miscellaneous	A20N	Airbus A320NEO Series	49	110	6	37	114	13	329
Passenger	Miscellaneous	A320	Airbus A320 series	48	110	5	22	130	11	326
Passenger	Miscellaneous	B738	Boeing 737-800	85	14	3	92	6	4	203
Passenger	Miscellaneous	B788	Boeing 787 Dreamliner (800 Model)	523	-	-	523	-	-	1,045
Passenger	Miscellaneous	A319	Airbus A319 series	14	-	-	13	1	-	28

Category	Airline	Aircraft	Aircraft Description	Arrival			Departure			Total
				Day	Evening	Night	Day	Evening	Night	
Passenger	Miscellaneous	B789	Boeing 787-9 Dreamliner	254	-	-	254	-	-	507
Passenger	Miscellaneous	B737	Boeing 737-700	10	1	-	10	1	-	22
			Passenger Total[1]	*71,141*	*20,237*	*11,411*	*75,906*	*15,440*	*11,443*	*205,577*
Cargo	Federal Express	B763	Boeing 767-300	582	24	-	116	487	2	1,212
Cargo	United Parcel Service	B763	Boeing 767-300	398	5	15	4	405	9	836
Cargo	Miscellaneous	B763	Boeing 767-300	22	3	1	21	3	3	53
Cargo	Miscellaneous	PC12	Pilatus PC-12	11	-	-	10	1	-	22
Cargo	Miscellaneous	B350	Beechcraft Super King Air 350/300B	-	1	-	1	-	-	3
			Cargo Total[1]	*1,013*	*34*	*16*	*152*	*897*	*14*	*2,126*
Air Taxi	Miscellaneous	E45X	Embraer EMB-145 EX (Extra Long Range)	2,204	159	183	2,267	279	-	5,092
Air Taxi	Miscellaneous	CL35	Bombardier Challenger 350	931	173	62	1,001	77	89	2,333
Air Taxi	Miscellaneous	C56X	Cessna 560XL Citation Excel	911	130	52	953	85	54	2,185
Air Taxi	Miscellaneous	E55P	Embraer EMB550 Phenom 300	884	102	47	914	60	59	2,065
Air Taxi	Miscellaneous	GLF4	Gulfstream IV	503	79	35	516	54	46	1,233
Air Taxi	Miscellaneous	C68A	Cessna Citation Latitude	557	76	46	601	47	31	1,357
Air Taxi	Miscellaneous	C750	Cessna 750 series/Citation X	782	116	36	844	56	34	1,867
Air Taxi	Miscellaneous	CL60	Canadair Bombardier CL600/610 Challenger Twin Jet	404	64	36	439	33	32	1,009
Air Taxi	Miscellaneous	GLEX	Bombardier BD-700 Global Express	297	68	28	318	39	35	786
Air Taxi	Miscellaneous	EC35	Eurocopter EC-135 COM & MIL	22	12	27	21	10	30	122
Air Taxi	Miscellaneous	F2TH	Dassault Falcon 2000	312	74	26	355	27	31	825
Air Taxi	Miscellaneous	GLF5	Gulfstream V	260	50	25	292	13	30	671
Air Taxi	Miscellaneous	C680	Cessna 680 Citation Sovereign	488	59	28	524	26	23	1,148
Air Taxi	Miscellaneous	B737	Boeing 737-700	251	74	22	239	80	28	694
Air Taxi	Miscellaneous	F900	Dassault Falcon 900	166	42	32	203	21	16	479
Air Taxi	Miscellaneous	GLF6	Gulfstream VI / G650	219	36	14	204	34	30	537

Category	Airline	Aircraft	Aircraft Description	Arrival			Departure			Total
				Day	Evening	Night	Day	Evening	Night	
Air Taxi	Miscellaneous	GALX	IAI 1126 Astra Galaxy/Gulfstream 200	268	44	19	281	27	24	665
Air Taxi	Miscellaneous	B350	Beechcraft Super King Air 350/300B	489	64	21	498	54	21	1,147
Air Taxi	Miscellaneous	GL5T	Bombardier Global 5000 BD-700	177	32	18	191	17	20	454
Air Taxi	Miscellaneous	E50P	Embraer EMB500 Phenom 100	462	58	19	494	29	17	1,079
Air Taxi	Miscellaneous	H25B	Hawker 800/800 XP/850 XP Twin Turbojet/Bae 125-800	132	26	10	134	15	18	336
Air Taxi	Miscellaneous	BE20	Beechcraft Model 200 (Super) King Air 200	20	6	13	24	-	14	75
Air Taxi	Miscellaneous	B735	Boeing 737-500	49	3	22	70	-	4	148
Air Taxi	Miscellaneous	HELO	Various Helicopter	60	11	14	63	11	11	170
Air Taxi	Miscellaneous	C25A	Cessna CitationJet CJ2, 525A	117	22	13	120	21	11	304
Air Taxi	Miscellaneous	C560	Cessna 560 Citation V, Ultra & Ultra Encore	64	17	11	65	14	12	183
Air Taxi	Miscellaneous	LJ35	Learjet 35 Twin Jet	37	1	10	37	-	11	97
Air Taxi	Miscellaneous	B738	Boeing 737-800	103	33	7	100	29	14	287
Air Taxi	Miscellaneous	C25B	Cessna CitationJet CJ3, 525B	150	25	4	145	21	14	360
Air Taxi	Miscellaneous	FA7X	Dassault Falcon 7X	46	14	7	52	6	9	134
Air Taxi	Miscellaneous	LJ45	Learjet 45 Twin Jet	46	3	6	41	4	9	109
Air Taxi	Miscellaneous	H25C	Hawker 1000 / Bae 125-1000	24	13	6	30	4	7	84
Air Taxi	Miscellaneous	LJ60	Learjet 60 Twin Jet	93	11	7	94	11	6	223
Air Taxi	Miscellaneous	J328	Fairchild Dornier 328 Jet	24	3	6	24	1	7	64
Air Taxi	Miscellaneous	C550	Cessna Citation 550 Citation II	23	6	6	26	1	7	69
Air Taxi	Miscellaneous	BE40	Beechcraft Beechjet 400	83	11	4	76	15	8	197
Air Taxi	Miscellaneous	A319	Airbus A319 series	60	17	7	68	11	4	167
Air Taxi	Miscellaneous	B752	Boeing 757-200	9	-	5	7	3	4	28
Air Taxi	Miscellaneous	PC12	Pilatus PC-12	100	4	3	87	14	6	215
Air Taxi	Miscellaneous	B739	Boeing 737-900	21	11	1	23	3	7	67
Air Taxi	Miscellaneous	E545	Embraer Legacy 545	153	18	1	155	11	7	346
Air Taxi	Miscellaneous	A320	Airbus A320 series	19	6	2	18	5	5	55

Category	Airline	Aircraft	Aircraft Description	Arrival			Departure			Total
				Day	Evening	Night	Day	Evening	Night	
Air Taxi	Miscellaneous	BE9L	Beechcraft Model 90 King Air	13	1	4	14	2	2	36
Air Taxi	Miscellaneous	C501	Cessna Citation I Single Pilot Twin Jet	1	-	3	2	-	2	8
Air Taxi	Miscellaneous	S22T	Cirrus SR22 Turbo	14	-	3	14	1	1	33
Air Taxi	Miscellaneous	PRM1	Raytheon 390 Premier	10	-	2	7	1	3	22
Air Taxi	Miscellaneous	LJ40	Learjet 40 Twin Jet	36	1	3	35	4	1	81
Air Taxi	Miscellaneous	LJ75	Learjet 75 Twin Jet	39	3	3	39	4	1	89
Air Taxi	Miscellaneous	CRJ7	Bombardier CRJ 700 Regional Jet	29	1	1	30	-	2	64
Air Taxi	Miscellaneous	LJ31	Learjet 31 Twin Jet	4	6	-	4	3	3	20
Air Taxi	Miscellaneous	TBM9	Daher TMB900	1	1	-	-	-	3	6
Air Taxi	Miscellaneous	E550	Embraer EMB550 Phenom 300	29	3	-	28	1	3	64
Air Taxi	Miscellaneous	A321	Airbus A321 series	1	-	1	1	1	1	6
Air Taxi	Miscellaneous	G150	Gulfstream G150	13	1	-	9	3	2	28
Air Taxi	Miscellaneous	BE30	Beechcraft Super King Air 300	16	2	2	14	6	-	39
Air Taxi	Miscellaneous	C500	Cessna Citation I Twin Jet	14	-	1	13	2	-	31
Air Taxi	Miscellaneous	C650	Cessna Citation III	1	1	-	1	-	1	6
Air Taxi	Miscellaneous	G280	Gulfstream G280	20	-	-	18	-	1	39
Air Taxi	Miscellaneous	FA50	Dassault Falcon 50	22	-	-	18	3	1	45
Air Taxi	Miscellaneous	C525	Cessna CitationJet CJ1, 525	44	3	-	43	3	1	95
Air Taxi	Miscellaneous	C25C	Cessna CitationJet CJ4, 525C	10	2	-	10	-	1	22
Air Taxi	Miscellaneous	B734	Boeing 737-400	3	-	1	4	-	-	8
Air Taxi	Miscellaneous	ASTR	IAI 1125 Astra	12	1	1	15	-	-	30
Air Taxi	Miscellaneous	B789	Boeing 787-9 Dreamliner	1	-	-	1	1	0	3
Air Taxi	Miscellaneous	P180	Piaggio P180 Avanti	1	-	-	1	-	-	3
Air Taxi	Miscellaneous	SBR1	Sabreliner 40/60/65 /North American Sabreliner	4	-	-	3	1	-	8
Air Taxi	Miscellaneous	P46T	Piper PA-46-500TP Malibu Meridian	1	-	-	1	-	-	3
Air Taxi	Miscellaneous	TBM7	Socata TBM 700	3	-	-	3	-	-	6

Category	Airline	Aircraft	Aircraft Description	Arrival			Departure			Total
				Day	Evening	Night	Day	Evening	Night	
Air Taxi	Miscellaneous	GLF3	Gulfstream III	1	-	-	1	-	-	3
Air Taxi	Miscellaneous	CRJ2	Bombardier CRJ 200 Regional Jet	10	2	-	8	3	-	22
Air Taxi	Miscellaneous	E35L	Embraer EMB-135 LR	10	-	-	8	1	-	20
Air Taxi	Miscellaneous	HDJT	Honda Jet	7	-	-	7	-	-	14
Air Taxi	Miscellaneous	B763	Boeing 767-300	8	1	-	2	8	-	20
Air Taxi	Miscellaneous	C510	Cessna Citation Mustang	4	-	-	4	-	-	8
Air Taxi	Miscellaneous	CRJ9	Bombardier CRJ 900 Regional Jet	1	-	-	1	-	-	3
Air Taxi Total[1]				*12,404*	*1,803*	*966*	*12,977*	*1,318*	*878*	*30,345*
GA	Miscellaneous	HELO	Various Helicopter	449	156	233	692	74	71	1,675
GA	Miscellaneous	GLF6	Gulfstream VI / G650	986	144	72	886	152	164	2,403
GA	Miscellaneous	GLF5	Gulfstream V	626	136	81	694	69	81	1,686
GA	Miscellaneous	SR22	Cirrus SR22	1,038	180	51	1,120	64	85	2,538
GA	Miscellaneous	C56X	Cessna 560XL Citation Excel	624	39	97	673	58	29	1,519
GA	Miscellaneous	PC12	Pilatus PC-12	324	51	40	300	46	68	828
GA	Miscellaneous	E75S	Embraer ERJ-175	88	17	33	69	-	69	276
GA	Miscellaneous	CL30	Bombardier Challenger 300	1,112	161	45	1,178	85	54	2,635
GA	Miscellaneous	G280	Gulfstream G280	699	72	25	661	76	60	1,593
GA	Miscellaneous	EC35	Eurocopter EC-135 COM & MIL	64	29	57	99	27	24	299
GA	Miscellaneous	BE20	Beechcraft Model 200 (Super) King Air 200	177	31	26	143	44	47	469
GA	Miscellaneous	A119	Agusta / AgustaWestland SPA A119	83	22	22	67	13	47	254
GA	Miscellaneous	BE9L	Beechcraft Model 90 King Air	210	24	30	195	31	38	529
GA	Miscellaneous	CL35	Bombardier Challenger 350	413	62	33	438	39	31	1,017
GA	Miscellaneous	C172	Cessna 172 Single Engine SEPF	382	60	35	387	63	27	953
GA	Miscellaneous	EPIC	Epic Aircraft LT Dynasty	286	76	19	300	45	36	763
GA	Miscellaneous	FA7X	Dassault Falcon 7X	181	12	27	174	19	26	439
GA	Miscellaneous	GLF4	Gulfstream IV	244	45	21	245	35	29	619

Category	Airline	Aircraft	Aircraft Description	Arrival			Departure			Total
				Day	Evening	Night	Day	Evening	Night	
GA	Miscellaneous	F2TH	Dassault Falcon 2000	246	42	9	247	18	32	593
GA	Miscellaneous	CL60	Canadair Bombardier CL600/610 Challenger Twin Jet	205	29	15	197	32	20	498
GA	Miscellaneous	C560	Cessna 560 Citation V, Ultra & Ultra Encore	147	18	13	140	17	21	356
GA	Miscellaneous	B350	Beechcraft Super King Air 350/300B	619	97	20	612	113	10	1,471
GA	Miscellaneous	BE58	Beechcraft Model 58 Baron	249	13	21	248	27	7	566
GA	Miscellaneous	E55P	Embraer EMB550 Phenom 300	205	19	14	210	14	14	476
GA	Miscellaneous	GLEX	Bombardier BD-700 Global Express	247	48	10	245	43	17	611
GA	Miscellaneous	BE36	Beechcraft Model 36 Bonanza	350	66	16	410	15	7	864
GA	Miscellaneous	C525	Cessna CitationJet CJ1, 525	196	12	8	192	10	14	431
GA	Miscellaneous	GL5T	Bombardier Global 5000 BD-700	67	16	11	74	10	10	189
GA	Miscellaneous	C550	Cessna Citation 550 Citation II	78	8	5	65	11	15	183
GA	Miscellaneous	P28R	Piper PA-28R-180/200/201 Cherokee Arrow I/II/III	35	8	20	56	7	-	126
GA	Miscellaneous	F900	Dassault Falcon 900	149	16	6	139	21	12	343
GA	Miscellaneous	C680	Cessna 680 Citation Sovereign	145	29	9	162	12	9	366
GA	Miscellaneous	C210	Cessna 210 Centurion	168	13	16	182	12	2	393
GA	Miscellaneous	FA50	Dassault Falcon 50	108	12	9	103	18	8	258
GA	Miscellaneous	AS50	Eurocopter AS-350	6	3	17	22	4	-	52
GA	Miscellaneous	E75L	Embraer ERJ-175	111	11	16	138	-	-	276
GA	Miscellaneous	C182	Cessna 182 Skylane	251	21	8	255	17	8	560
GA	Miscellaneous	P28A	Piper PA-28-140/150/160/180 Cherokee	69	11	12	75	13	4	183
GA	Miscellaneous	GLAS	Glasair III Single Engine Piston SEPV	6	-	15	21	-	-	43
GA	Miscellaneous	HDJT	Honda Jet	80	-	-	65	-	15	160
GA	Miscellaneous	BE33	Beechcraft Model 33 Debonair/Bonanza	114	7	10	123	4	4	264
GA	Miscellaneous	C25C	Cessna CitationJet CJ4, 525C	131	14	7	112	32	7	303
GA	Miscellaneous	LJ45	Learjet 45 Twin Jet	112	11	5	102	15	10	255
GA	Miscellaneous	LJ60	Learjet 60 Twin Jet	66	6	5	62	7	8	154

Category	Airline	Aircraft	Aircraft Description	Arrival			Departure			Total
				Day	Evening	Night	Day	Evening	Night	
GA	Miscellaneous	SF50	Cirrus Vision SF50	420	7	7	422	6	6	868
GA	Miscellaneous	P180	Piaggio P180 Avanti	156	20	4	168	4	8	360
GA	Miscellaneous	TBM8	Socata TBM 850 Single Engine Turboprop	32	2	4	32	-	7	78
GA	Miscellaneous	C750	Cessna 750 series/Citation X	150	15	7	151	16	5	344
GA	Miscellaneous	H25B	Hawker 800/800 XP/850 XP Twin Turbojet/Bae 125-800	82	6	5	74	12	6	186
GA	Miscellaneous	GLF3	Gulfstream III	25	1	5	22	3	6	62
GA	Miscellaneous	C650	Cessna Citation III	53	2	3	44	7	8	116
GA	Miscellaneous	ASTR	IAI 1125 Astra	21	5	5	23	3	5	62
GA	Miscellaneous	BE35	Beechcraft Model 35 Bonanza	156	19	4	161	11	6	358
GA	Miscellaneous	C414	Cessna 414 Chancellor MEVP	48	4	5	47	5	5	113
GA	Miscellaneous	NAVI	Ryan L-17/U-18 Navion	15	12	7	28	3	3	68
GA	Miscellaneous	LJ35	Learjet 35 Twin Jet	54	6	6	61	3	3	133
GA	Miscellaneous	C170	Cessna 170 Single Engine SEPF	33	-	9	16	26	-	84
GA	Miscellaneous	C25B	Cessna CitationJet CJ3, 525B	280	20	2	271	23	7	604
GA	Miscellaneous	GALX	IAI 1126 Astra Galaxy/Gulfstream 200	91	12	4	92	10	5	213
GA	Miscellaneous	BE30	Beechcraft Super King Air 300	127	38	3	135	28	6	336
GA	Miscellaneous	DA40	Diamond DA40 SEPF	39	6	4	40	4	4	98
GA	Miscellaneous	C25M	Cessna CitationJet CJ1, 525	89	17	4	99	7	4	220
GA	Miscellaneous	PRM1	Raytheon 390 Premier	28	3	2	24	4	5	67
GA	Miscellaneous	S22T	Cirrus SR22 Turbo	111	27	3	131	5	5	281
GA	Miscellaneous	LJ75	Learjet 75 Twin Jet	40	4	4	44	-	4	95
GA	Miscellaneous	P46T	Piper PA-46-500TP Malibu Meridian	113	25	2	125	10	5	280
GA	Miscellaneous	C500	Cessna Citation I Twin Jet	9	2	4	8	3	3	29
GA	Miscellaneous	PA28	Piper PA-28-151 Cherokee Warrior	18	1	7	26	-	-	51
GA	Miscellaneous	PA24	Piper PA-24 Comanche	35	1	6	36	5	1	83
GA	Miscellaneous	C441	Cessna 441 (Conquest/Conquest2)	34	1	1	31	-	5	72

Category	Airline	Aircraft	Aircraft Description	Arrival			Departure			Total
				Day	Evening	Night	Day	Evening	Night	
GA	Miscellaneous	SBR1	Sabreliner 40/60/65 /North American Sabreliner	9	4	3	11	2	3	33
GA	Miscellaneous	C501	Cessna Citation I Single Pilot Twin Jet	38	2	2	36	2	4	85
GA	Miscellaneous	B430	Bell Helicopter 430	8	-	3	7	1	3	21
GA	Miscellaneous	C421	Cessna 421 Golden Eagle	64	7	2	66	4	3	147
GA	Miscellaneous	RV10	Van's Aircraft RV-10	83	8	3	87	4	2	188
GA	Miscellaneous	C25A	Cessna CitationJet CJ2, 525A	45	2	1	39	5	4	97
GA	Miscellaneous	BE60	Beechcraft Model 60 Duke	39	6	2	42	3	3	93
GA	Miscellaneous	C510	Cessna Citation Mustang	40	8	1	43	4	3	100
GA	Miscellaneous	C68A	Cessna Citation Latitude	86	11	-	88	4	4	193
GA	Miscellaneous	G150	Gulfstream G150	36	1	1	32	1	4	74
GA	Miscellaneous	AA5	Grumman AA-5A Cheetah; AA-5 Tiger	52	14	2	63	2	2	135
GA	Miscellaneous	E35L	Embraer EMB-135 LR	13	7	3	17	4	1	45
GA	Miscellaneous	H25C	Hawker 1000 / Bae 125-1000	2	2	3	6	1	1	14
GA	Miscellaneous	PA34	Piper PA-34 Seneca	25	8	-	28	1	4	65
GA	Miscellaneous	C206	Cessna 206 Stationair	175	6	2	169	13	1	366
GA	Miscellaneous	M20P	Mooney Mark 20 Series	124	7	1	129	1	2	266
GA	Miscellaneous	E50P	Embraer EMB500 Phenom 100	25	3	1	25	4	1	60
GA	Miscellaneous	LJ31	Learjet 31 Twin Jet	27	5	-	29	-	3	64
GA	Miscellaneous	C310	Cessna 310 Twin Engine Piston aircraft	18	3	2	20	1	1	45
GA	Miscellaneous	TBM7	Socata TBM 700	23	2	1	21	3	1	51
GA	Miscellaneous	PA32	Piper PA-32 Cherokee Six	43	4	-	42	3	2	94
GA	Miscellaneous	PA46	Piper PA-46 Malibu	31	1	1	31	1	1	65
GA	Miscellaneous	BE40	Beechcraft Beechjet 400	33	4	-	34	2	2	75
GA	Miscellaneous	B06	Agusta / AgustaWestland AB-206 LongRanger Helicopter	51	3	1	47	7	1	110
GA	Miscellaneous	LJ40	Learjet 40 Twin Jet	16	1	-	16	-	1	35
GA	Miscellaneous	PA31	Piper PA-31 Navajo	26	-	1	24	3	-	56

Category	Airline	Aircraft	Aircraft Description	Arrival			Departure			Total
				Day	Evening	Night	Day	Evening	Night	
GA	Miscellaneous	E550	Embraer EMB550 Phenom 300	14	-	-	13	-	1	29
GA	Miscellaneous	C340	Cessna 340 Twin Piston MEVP	77	6	-	81	1	1	166
GA	Miscellaneous	TUCA	Embraer A-27 Tucano	32	3	-	28	6	1	70
GA	Miscellaneous	C152	Cessna 152 Single Engine SEPF	19	4	1	19	4	-	47
GA	Miscellaneous	M20T	Mooney Mark 20 Series	15	1	1	16	-	-	33
GA	Miscellaneous	MO20	Mooney Mark 20 Series	11	4	1	15	-	-	31
GA	Miscellaneous	TBM9	Daher TMB900	292	43	-	319	16	-	669
GA	Miscellaneous	TB30	Socata TB 30 Epsilon	21	1	-	18	4	-	44
GA	Miscellaneous	SW3	Swearingen Merlin III /Fairchild Merlin III	28	5	-	32	1	-	67
GA	Miscellaneous	BE55	Beechcraft Model E-55	44	2	-	41	5	-	92
GA	Miscellaneous	E545	Embraer Legacy 545	10	-	-	10	-	-	20
GA Total[1]				*16,100*	*2,290*	*1,399*	*16,636*	*1,730*	*1,422*	*39,576*
MIL	Miscellaneous	GLF6	Gulfstream VI / G650	8	-	5	7	1	5	25
MIL	Miscellaneous	LJ35	Learjet 35 Twin Jet	6	-	4	6	1	4	22
MIL	Miscellaneous	AJET	Dassault Alpha Jet	5	-	4	5	1	3	18
MIL	Miscellaneous	B737	Boeing 737-700	5	-	4	5	1	3	18
MIL	Miscellaneous	T38	Northrop T-38 Talon	4	-	3	4	0	3	14
MIL	Miscellaneous	DC10	McDonnell Douglas DC-10	4	-	3	4	0	3	14
MIL	Miscellaneous	WW24	IAI 1124 Westwind	3	-	2	3	0	2	11
MIL	Miscellaneous	GLF4	Gulfstream IV	3	-	2	3	0	2	11
MIL	Miscellaneous	E2	Grumman TE-2 Hawkeye	2	-	1	2	0	1	7
MIL	Miscellaneous	BE40	Beechcraft Beechjet 400	2	-	1	2	0	1	7
MIL	Miscellaneous	CL30	Bombardier Challenger 300	2	-	1	2	0	1	7
MIL	Miscellaneous	A320	Airbus A320 series	2	-	1	2	0	1	7
MIL	Miscellaneous	AC90	Rockwell Turbo Commander 690	1	-	1	1	0	1	4
MIL	Miscellaneous	HA4T	Hawker Beechcraft 4000 Horizon (Horizon 1000)	1	-	1	1	0	1	4

Category	Airline	Aircraft	Aircraft Description	Arrival			Departure			Total
				Day	Evening	Night	Day	Evening	Night	
MIL	Miscellaneous	H25B	Hawker 800/800 XP/850 XP Twin Turbojet/Bae 125-800	1	-	1	1	0	1	4
MIL	Miscellaneous	AS65	Aerospatiale SA-365N Dauphin (AS-365N)	1	-	1	1	0	1	4
MIL	Miscellaneous	B350	Beechcraft Super King Air 350/300B	1	-	1	1	0	1	4
MIL	Miscellaneous	EC35	Eurocopter EC-135 COM & MIL	1	-	1	1	0	1	4
MIL	Miscellaneous	C560	Cessna 560 Citation V, Ultra & Ultra Encore	1	-	1	1	0	1	4
MIL	Miscellaneous	F18S	McDonnell Douglas (Boeing) F/A-18 Hornet	1	-	1	1	0	1	4
MIL	Miscellaneous	H60	Sikorsky UH-60 Black Hawk Helicopter	1	-	1	1	0	1	4
MIL	Miscellaneous	F22	Boeing F-22 Raptor	1	-	1	1	0	1	4
MIL	Miscellaneous	ASTR	IAI 1125 Astra	1	-	1	1	0	1	4
MIL	Miscellaneous	GALX	IAI 1126 Astra Galaxy/Gulfstream 200	1	-	1	1	0	1	4
MIL	Miscellaneous	TEX2	Beechcraft T-6 Texan II	1	-	1	1	0	1	4
MIL	Miscellaneous	C550	Cessna Citation 550 Citation II	1	-	1	1	0	1	4
MIL	Miscellaneous	GLF5	Gulfstream V	1	-	1	1	0	1	4
MIL	Miscellaneous	E50P	Embraer EMB500 Phenom 100	1	-	1	1	0	1	4
Military Total[1]				*66*	-	*44*	*62*	*6*	*42*	*219*
Grand Total[1]				*100,723*	*24,363*	*13,835*	*105,732*	*19,391*	*13,799*	*277,844*

[1]: Totals may not sum due to rounding.

Source: ANOMS, FAA TFMSC, TAF, USDOT T100, and HNTB analysis, 2022.

Table 3-4: Future (2034) Fleet Mix

Category	Airline	Aircraft	Aircraft Description	Arrival			Departure			Total
				Day	Evening	Night	Day	Evening	Night	
Passenger	Air Canada	CRJ9	Bombardier CRJ 900 Regional Jet	1,014	38	535	1,077	133	378	3,174
Passenger	Air Canada	BCS3	Airbus A220-300	25	9	2	14	3	19	73
Passenger	Alaska Airlines	B38M	Boeing 737 MAX 8	1,983	1,199	1,282	3,512	231	720	8,927
Passenger	Alaska Airlines	B738	Boeing 737-800	1,664	1,006	1,076	2,948	194	604	7,492
Passenger	Alaska Airlines	B39M	Boeing 737 MAX 9	1,958	847	485	2,517	411	363	6,582
Passenger	Alaska Airlines	B739	Boeing 737-900	839	363	208	1,079	176	156	2,821
Passenger	Alaska Airlines	E75L	Embraer ERJ-175	1,525	38	8	1,423	131	17	3,143
Passenger	Alaska Airlines	B3XM	Boeing 737 MAX 10	22	2	-	21	3	-	47
Passenger	American Airlines	B38M	Boeing 737 MAX 8	1,889	1,020	227	2,402	3	731	6,271
Passenger	American Airlines	E75L	Embraer ERJ-175	1,804	598	374	2,052	620	105	5,552
Passenger	American Airlines	B738	Boeing 737-800	472	255	57	601	1	183	1,568
Passenger	American Airlines	A320	Airbus A320 series	479	117	36	190	329	114	1,266
Passenger	American Airlines	A319	Airbus A319 series	926	68	43	771	196	70	2,073
Passenger	American Airlines	A321	Airbus A321 series	43	24	5	38	8	25	142
Passenger	American Airlines	E75S	Embraer ERJ-175	244	70	20	295	32	8	669
Passenger	American Airlines	A21NY	Airbus A321 XLR	8	-	-	8	-	-	16
Passenger	British Airways	B773	Boeing 777-300	358	4	2	66	290	9	730
Passenger	Delta Air Lines	E75L	Embraer ERJ-175	4,354	1,443	902	4,689	1,402	608	13,398
Passenger	Delta Air Lines	B739	Boeing 737-900	1,238	398	252	1,002	40	844	3,774
Passenger	Delta Air Lines	A21N	Airbus A321NEO Series	632	203	128	511	21	431	1,926
Passenger	Delta Air Lines	BCS1	Airbus A220-100	1,460	58	144	1,416	59	186	3,323
Passenger	Delta Air Lines	A319	Airbus A319 series	939	189	32	844	43	273	2,318
Passenger	Delta Air Lines	B738	Boeing 737-800	640	193	31	610	9	246	1,729
Passenger	Delta Air Lines	E75S	Embraer ERJ-175	590	170	48	613	108	86	1,615

Category	Airline	Aircraft	Aircraft Description	Arrival			Departure			Total
				Day	Evening	Night	Day	Evening	Night	
Passenger	Delta Air Lines	A320	Airbus A320 series	73	-	-	70	3	-	146
Passenger	Hawaiian Airlines	A21N	Airbus A321NEO Series	11	743	115	862	1	6	1,739
Passenger	Hawaiian Airlines	A332	Airbus A330-200	3	60	5	66	-	2	136
Passenger	Hawaiian Airlines	B789	Boeing 787-9 Dreamliner	10	212	-	217	5	-	444
Passenger	JetBlue Airways	A320	Airbus A320 series	839	654	95	534	668	385	3,176
Passenger	JetBlue Airways	A321	Airbus A321 series	25	126	75	50	-	176	452
Passenger	JetBlue Airways	A21N	Airbus A321NEO Series	168	131	19	107	133	78	635
Passenger	SkyWest Airlines	E75L	Embraer ERJ-175	9,243	1,546	757	8,943	2,208	394	23,090
Passenger	Southwest Airlines	B37M	Boeing 737 MAX 7	31,614	8,345	3,909	32,046	8,056	3,766	87,736
Passenger	Southwest Airlines	B38M	Boeing 737 MAX 8	8,805	1,854	1,043	8,548	2,149	1,005	23,403
Passenger	United Airlines	B38M	Boeing 737 MAX 8	1,571	307	320	1,564	7	627	4,396
Passenger	United Airlines	B39M	Boeing 737 MAX 9	591	115	120	588	3	236	1,653
Passenger	United Airlines	CRJ5	Bombardier CRJ-550	378	4	192	569	4	1	1,149
Passenger	United Airlines	B739	Boeing 737-900	101	88	17	173	3	31	413
Passenger	United Airlines	A21N	Airbus A321NEO Series	3	-	-	3	-	-	6
Passenger	United Airlines	E75L	Embraer ERJ-175	41	22	-	62	1	-	126
Passenger	Volaris	A320	Airbus A320 series	601	-	-	601	-	-	1,201
Passenger	Volaris	A20N	Airbus A320NEO Series	737	-	-	737	-	-	1,473
Passenger	Miscellaneous	B734	Boeing 737-400	33	5	9	26	2	20	95
Passenger	Miscellaneous	A321	Airbus A321 series	127	93	6	65	141	21	453
Passenger	Miscellaneous	A20N	Airbus A320NEO Series	55	125	6	42	130	15	373
Passenger	Miscellaneous	A320	Airbus A320 series	54	125	5	25	147	13	370
Passenger	Miscellaneous	B738	Boeing 737-800	98	16	3	106	6	5	234
Passenger	Miscellaneous	B788	Boeing 787 Dreamliner (800 Model)	593	-	-	593	-	-	1,187
Passenger	Miscellaneous	A319	Airbus A319 series	16	-	-	14	2	-	32
Passenger	Miscellaneous	B789	Boeing 787-9 Dreamliner	288	-	-	288	-	-	576

Category	Airline	Aircraft	Aircraft Description	Arrival			Departure			Total
				Day	Evening	Night	Day	Evening	Night	
Passenger	Miscellaneous	B737	Boeing 737-700	9	2	-	9	2	-	22
Passenger Total[1]				*81,195*	*22,885*	*12,594*	*85,606*	*18,112*	*12,955*	*233,347*
Cargo	Federal Express	B763	Boeing 767-300	661	27	-	132	553	3	1,377
Cargo	United Parcel Service	B763	Boeing 767-300	452	6	17	4	460	10	949
Cargo	Miscellaneous	B763	Boeing 767-300	25	3	2	24	3	3	60
Cargo	Miscellaneous	PC12	Pilatus PC-12	13	-	-	11	2	-	25
Cargo	Miscellaneous	B350	Beechcraft Super King Air 350/300B	-	2	-	2	-	-	3
Cargo Total[1]				*1,151*	*38*	*18*	*173*	*1,018*	*16*	*2,415*
Air Taxi	Miscellaneous	E45X	Embraer EMB-145 EX (Extra Long Range)	2,503	180	207	2,575	316	-	5,782
Air Taxi	Miscellaneous	CL35	Bombardier Challenger 350	1,058	196	70	1,136	87	101	2,649
Air Taxi	Miscellaneous	C56X	Cessna 560XL Citation Excel	1,035	147	59	1,083	97	61	2,481
Air Taxi	Miscellaneous	E55P	Embraer EMB550 Phenom 300	1,004	116	53	1,038	68	66	2,345
Air Taxi	Miscellaneous	GLF4	Gulfstream IV	571	90	39	586	61	53	1,400
Air Taxi	Miscellaneous	C68A	Cessna Citation Latitude	633	86	52	682	54	35	1,541
Air Taxi	Miscellaneous	C750	Cessna 750 series/Citation X	888	131	41	958	64	38	2,120
Air Taxi	Miscellaneous	CL60	Canadair Bombardier CL600/610 Challenger Twin Jet	458	73	41	498	38	36	1,146
Air Taxi	Miscellaneous	GLEX	Bombardier BD-700 Global Express	337	78	32	361	45	40	892
Air Taxi	Miscellaneous	EC35	Eurocopter EC-135 COM & MIL	25	13	31	24	11	35	138
Air Taxi	Miscellaneous	F2TH	Dassault Falcon 2000	354	84	30	403	30	35	937
Air Taxi	Miscellaneous	GLF5	Gulfstream V	296	57	28	331	15	34	762
Air Taxi	Miscellaneous	C680	Cessna 680 Citation Sovereign	554	66	32	595	30	27	1,304
Air Taxi	Miscellaneous	B737	Boeing 737-700	285	84	25	271	90	32	788
Air Taxi	Miscellaneous	F900	Dassault Falcon 900	188	47	36	230	24	18	544
Air Taxi	Miscellaneous	GLF6	Gulfstream VI / G650	248	41	16	232	39	34	609

Category	Airline	Aircraft	Aircraft Description	Arrival			Departure			Total
				Day	Evening	Night	Day	Evening	Night	
Air Taxi	Miscellaneous	GALX	IAI 1126 Astra Galaxy/Gulfstream 200	305	51	22	320	31	27	755
Air Taxi	Miscellaneous	B350	Beechcraft Super King Air 350/300B	555	72	24	566	62	24	1,303
Air Taxi	Miscellaneous	GL5T	Bombardier Global 5000 BD-700	201	36	21	217	19	22	516
Air Taxi	Miscellaneous	E50P	Embraer EMB500 Phenom 100	524	66	22	561	32	19	1,225
Air Taxi	Miscellaneous	H25B	Hawker 800/800 XP/850 XP Twin Turbojet/Bae 125-800	150	30	11	152	17	21	381
Air Taxi	Miscellaneous	BE20	Beechcraft Model 200 (Super) King Air 200	22	6	14	27	-	16	85
Air Taxi	Miscellaneous	B735	Boeing 737-500	55	3	25	79	-	5	168
Air Taxi	Miscellaneous	HELO	Various Helicopter	68	13	16	71	13	13	193
Air Taxi	Miscellaneous	C25A	Cessna CitationJet CJ2, 525A	133	25	14	136	24	13	345
Air Taxi	Miscellaneous	C560	Cessna 560 Citation V, Ultra & Ultra Encore	72	19	12	74	16	14	208
Air Taxi	Miscellaneous	LJ35	Learjet 35 Twin Jet	42	1	12	42	-	13	110
Air Taxi	Miscellaneous	B738	Boeing 737-800	117	38	8	114	33	16	326
Air Taxi	Miscellaneous	C25B	Cessna CitationJet CJ3, 525B	170	29	5	165	24	16	408
Air Taxi	Miscellaneous	FA7X	Dassault Falcon 7X	52	16	8	59	6	11	152
Air Taxi	Miscellaneous	LJ45	Learjet 45 Twin Jet	52	3	6	47	5	10	123
Air Taxi	Miscellaneous	H25C	Hawker 1000 / Bae 125-1000	27	14	6	34	5	8	95
Air Taxi	Miscellaneous	LJ60	Learjet 60 Twin Jet	106	13	8	107	13	6	253
Air Taxi	Miscellaneous	J328	Fairchild Dornier 328 Jet	27	3	6	27	2	8	73
Air Taxi	Miscellaneous	C550	Cessna Citation 550 Citation II	27	6	6	30	2	8	78
Air Taxi	Miscellaneous	BE40	Beechcraft Beechjet 400	95	12	5	86	17	9	224
Air Taxi	Miscellaneous	A319	Airbus A319 series	68	19	8	77	12	5	190
Air Taxi	Miscellaneous	B752	Boeing 757-200	10	-	6	8	3	5	32
Air Taxi	Miscellaneous	PC12	Pilatus PC-12	114	5	3	99	16	7	244

Category	Airline	Aircraft	Aircraft Description	Arrival			Departure			Total
				Day	Evening	Night	Day	Evening	Night	
Air Taxi	Miscellaneous	B739	Boeing 737-900	24	13	2	27	3	8	76
Air Taxi	Miscellaneous	E545	Embraer Legacy 545	174	21	2	176	13	8	392
Air Taxi	Miscellaneous	A320	Airbus A320 series	22	7	3	21	5	5	63
Air Taxi	Miscellaneous	BE9L	Beechcraft Model 90 King Air	14	2	5	16	2	2	41
Air Taxi	Miscellaneous	C501	Cessna Citation I Single Pilot Twin Jet	2	-	3	2	-	2	9
Air Taxi	Miscellaneous	S22T	Cirrus SR22 Turbo	16	-	3	16	2	2	38
Air Taxi	Miscellaneous	PRM1	Raytheon 390 Premier	11	-	2	8	2	3	25
Air Taxi	Miscellaneous	LJ40	Learjet 40 Twin Jet	41	2	3	40	5	2	92
Air Taxi	Miscellaneous	LJ75	Learjet 75 Twin Jet	44	3	3	44	5	2	101
Air Taxi	Miscellaneous	CRJ7	Bombardier CRJ 700 Regional Jet	33	2	2	35	-	2	73
Air Taxi	Miscellaneous	E550	Embraer EMB550 Phenom 300	33	3	-	32	2	3	73
Air Taxi	Miscellaneous	TBM9	Daher TMB900	2	2	-	-	-	3	6
Air Taxi	Miscellaneous	LJ31	Learjet 31 Twin Jet	5	6	-	5	3	3	22
Air Taxi	Miscellaneous	A321	Airbus A321 series	2	-	2	1	2	1	6
Air Taxi	Miscellaneous	G150	Gulfstream G150	14	2	-	10	4	2	32
Air Taxi	Miscellaneous	BE30	Beechcraft Super King Air 300	18	2	2	16	6	-	44
Air Taxi	Miscellaneous	C500	Cessna Citation I Twin Jet	16	-	2	15	2	-	35
Air Taxi	Miscellaneous	B734	Boeing 737-400	3	-	2	5	-	-	9
Air Taxi	Miscellaneous	C650	Cessna Citation III	2	2	-	2	-	2	6
Air Taxi	Miscellaneous	FA50	Dassault Falcon 50	25	-	-	21	3	2	51
Air Taxi	Miscellaneous	C25C	Cessna CitationJet CJ4, 525C	11	2	-	11	-	2	25
Air Taxi	Miscellaneous	G280	Gulfstream G280	22	-	-	21	-	2	44
Air Taxi	Miscellaneous	C525	Cessna CitationJet CJ1, 525	50	3	-	49	3	2	108
Air Taxi	Miscellaneous	ASTR	IAI 1125 Astra	14	2	2	17	-	-	34
Air Taxi	Miscellaneous	B789	Boeing 787-9 Dreamliner	2	-	-	1	1	0	3
Air Taxi	Miscellaneous	P180	Piaggio P180 Avanti	2	-	-	2	-	-	3

Category	Airline	Aircraft	Aircraft Description	Arrival			Departure			Total
				Day	Evening	Night	Day	Evening	Night	
Air Taxi	Miscellaneous	TBM7	Socata TBM 700	3	-	-	3	-	-	6
Air Taxi	Miscellaneous	GLF3	Gulfstream III	2	-	-	2	-	-	3
Air Taxi	Miscellaneous	P46T	Piper PA-46-500TP Malibu Meridian	2	-	-	2	-	-	3
Air Taxi	Miscellaneous	HDJT	Honda Jet	8	-	-	8	-	-	16
Air Taxi	Miscellaneous	CRJ2	Bombardier CRJ 200 Regional Jet	11	2	-	9	3	-	25
Air Taxi	Miscellaneous	SBR1	Sabreliner 40/60/65 /North American Sabreliner	5	-	-	3	2	-	9
Air Taxi	Miscellaneous	E35L	Embraer EMB-135 LR	11	-	-	9	2	-	22
Air Taxi	Miscellaneous	B763	Boeing 767-300	9	2	-	2	9	-	22
Air Taxi	Miscellaneous	C510	Cessna Citation Mustang	5	-	-	5	-	-	9
Air Taxi	Miscellaneous	CRJ9	Bombardier CRJ 900 Regional Jet	2	-	-	2	-	-	3
Air Taxi Total[1]				*14,086*	*2,047*	*1,097*	*14,736*	*1,497*	*997*	*34,459*
GA	Miscellaneous	HELO	Various Helicopter	445	154	231	686	74	71	1,660
GA	Miscellaneous	GLF6	Gulfstream VI / G650	993	145	72	892	153	165	2,421
GA	Miscellaneous	GLF5	Gulfstream V	631	137	82	699	69	81	1,699
GA	Miscellaneous	SR22	Cirrus SR22	1,181	205	58	1,274	73	97	2,888
GA	Miscellaneous	C56X	Cessna 560XL Citation Excel	629	39	97	678	59	29	1,531
GA	Miscellaneous	E75S	Embraer ERJ-175	88	17	34	69	-	69	278
GA	Miscellaneous	CL30	Bombardier Challenger 300	1,120	162	46	1,187	86	54	2,655
GA	Miscellaneous	PC12	Pilatus PC-12	300	47	37	278	43	63	768
GA	Miscellaneous	A119	Agusta / AgustaWestland SPA A119	115	30	30	92	18	65	350
GA	Miscellaneous	G280	Gulfstream G280	705	73	25	666	76	60	1,605
GA	Miscellaneous	EC35	Eurocopter EC-135 COM & MIL	64	28	57	98	26	24	297
GA	Miscellaneous	EPIC	Epic Aircraft LT Dynasty	376	100	25	394	60	48	1,002
GA	Miscellaneous	BE20	Beechcraft Model 200 (Super) King Air 200	164	29	24	133	41	43	435

Category	Airline	Aircraft	Aircraft Description	Arrival			Departure			Total
				Day	Evening	Night	Day	Evening	Night	
GA	Miscellaneous	CL35	Bombardier Challenger 350	417	62	34	442	40	31	1,025
GA	Miscellaneous	BE9L	Beechcraft Model 90 King Air	195	22	28	181	29	35	490
GA	Miscellaneous	C172	Cessna 172 Single Engine SEPF	357	56	32	361	58	25	890
GA	Miscellaneous	FA7X	Dassault Falcon 7X	182	12	27	175	19	27	443
GA	Miscellaneous	GLF4	Gulfstream IV	246	45	21	247	36	29	624
GA	Miscellaneous	F2TH	Dassault Falcon 2000	248	42	9	249	18	32	598
GA	Miscellaneous	CL60	Canadair Bombardier CL600/610 Challenger Twin Jet	206	29	15	199	32	20	502
GA	Miscellaneous	C560	Cessna 560 Citation V, Ultra & Ultra Encore	149	18	13	141	18	21	359
GA	Miscellaneous	BE58	Beechcraft Model 58 Baron	252	13	21	251	28	8	573
GA	Miscellaneous	E55P	Embraer EMB550 Phenom 300	206	19	15	212	14	14	479
GA	Miscellaneous	GLEX	Bombardier BD-700 Global Express	249	48	10	247	43	17	615
GA	Miscellaneous	B350	Beechcraft Super King Air 350/300B	573	90	18	568	105	9	1,363
GA	Miscellaneous	C525	Cessna CitationJet CJ1, 525	197	12	8	193	10	14	434
GA	Miscellaneous	GL5T	Bombardier Global 5000 BD-700	67	16	11	75	10	10	190
GA	Miscellaneous	BE36	Beechcraft Model 36 Bonanza	327	62	15	383	14	6	806
GA	Miscellaneous	C550	Cessna Citation 550 Citation II	79	8	5	66	11	16	185
GA	Miscellaneous	P28R	Piper PA-28R-180/200/201 Cherokee Arrow I/II/III	33	7	18	52	6	-	118
GA	Miscellaneous	F900	Dassault Falcon 900	150	16	6	140	21	12	346
GA	Miscellaneous	C680	Cessna 680 Citation Sovereign	146	30	9	163	12	9	369
GA	Miscellaneous	HDJT	Honda Jet	93	-	-	75	-	17	186
GA	Miscellaneous	FA50	Dassault Falcon 50	109	12	9	103	18	8	259
GA	Miscellaneous	C210	Cessna 210 Centurion	157	12	15	170	11	2	367
GA	Miscellaneous	AS50	Eurocopter AS-350	6	3	16	22	4	-	52

Category	Airline	Aircraft	Aircraft Description	Arrival			Departure			Total
				Day	Evening	Night	Day	Evening	Night	
GA	Miscellaneous	E75L	Embraer ERJ-175	112	11	16	139	-	-	278
GA	Miscellaneous	SF50	Cirrus Vision SF50	490	8	8	492	7	7	1,012
GA	Miscellaneous	C25C	Cessna CitationJet CJ4, 525C	132	14	7	113	33	8	306
GA	Miscellaneous	LJ45	Learjet 45 Twin Jet	112	11	5	103	15	10	257
GA	Miscellaneous	C182	Cessna 182 Skylane	234	20	7	238	16	7	523
GA	Miscellaneous	P28A	Piper PA-28-140/150/160/180 Cherokee	65	10	11	70	12	3	171
GA	Miscellaneous	GLAS	Glasair III Single Engine Piston SEPV	6	-	14	20	-	-	40
GA	Miscellaneous	BE33	Beechcraft Model 33 Debonair/Bonanza	107	7	10	115	4	4	246
GA	Miscellaneous	LJ60	Learjet 60 Twin Jet	67	6	5	62	7	8	155
GA	Miscellaneous	C750	Cessna 750 series/Citation X	151	15	7	152	16	5	346
GA	Miscellaneous	H25B	Hawker 800/800 XP/850 XP Twin Turbojet/Bae 125-800	82	6	5	75	12	7	187
GA	Miscellaneous	GLF3	Gulfstream III	25	1	5	22	3	6	62
GA	Miscellaneous	C650	Cessna Citation III	53	2	3	44	7	8	117
GA	Miscellaneous	P180	Piaggio P180 Avanti	145	18	4	156	4	7	333
GA	Miscellaneous	TBM8	Socata TBM 850 Single Engine Turboprop	30	2	4	30	-	7	73
GA	Miscellaneous	ASTR	IAI 1125 Astra	21	5	5	23	3	5	63
GA	Miscellaneous	C414	Cessna 414 Chancellor MEVP	48	4	5	48	5	5	115
GA	Miscellaneous	DA40	Diamond DA40 SEPF	44	7	5	45	5	5	111
GA	Miscellaneous	BE35	Beechcraft Model 35 Bonanza	146	18	4	151	11	6	334
GA	Miscellaneous	LJ35	Learjet 35 Twin Jet	54	6	6	61	3	3	134
GA	Miscellaneous	C25B	Cessna CitationJet CJ3, 525B	283	20	2	273	24	7	608
GA	Miscellaneous	S22T	Cirrus SR22 Turbo	131	31	3	153	6	6	330
GA	Miscellaneous	GALX	IAI 1126 Astra Galaxy/Gulfstream 200	91	12	4	93	10	5	215

Category	Airline	Aircraft	Aircraft Description	Arrival			Departure			Total
				Day	Evening	Night	Day	Evening	Night	
GA	Miscellaneous	NAVI	Ryan L-17/U-18 Navion	14	11	6	26	3	3	63
GA	Miscellaneous	C170	Cessna 170 Single Engine SEPF	31	-	8	15	24	-	78
GA	Miscellaneous	BE30	Beechcraft Super King Air 300	117	36	3	125	26	5	311
GA	Miscellaneous	C25M	Cessna CitationJet CJ1, 525	90	17	4	100	7	4	222
GA	Miscellaneous	PRM1	Raytheon 390 Premier	28	3	2	24	4	5	68
GA	Miscellaneous	LJ75	Learjet 75 Twin Jet	41	4	4	44	-	4	96
GA	Miscellaneous	C500	Cessna Citation I Twin Jet	9	2	4	8	3	3	29
GA	Miscellaneous	P46T	Piper PA-46-500TP Malibu Meridian	104	23	2	116	9	5	260
GA	Miscellaneous	SBR1	Sabreliner 40/60/65 /North American Sabreliner	9	4	3	11	2	3	34
GA	Miscellaneous	PA28	Piper PA-28-151 Cherokee Warrior	17	1	6	24	-	-	48
GA	Miscellaneous	PA24	Piper PA-24 Comanche	32	1	6	34	5	1	77
GA	Miscellaneous	C501	Cessna Citation I Single Pilot Twin Jet	38	2	2	37	2	4	85
GA	Miscellaneous	C441	Cessna 441 (Conquest/Conquest2)	31	1	1	28	-	5	67
GA	Miscellaneous	B430	Bell Helicopter 430	8	-	3	7	0	3	21
GA	Miscellaneous	RV10	Van's Aircraft RV-10	96	10	3	101	5	3	217
GA	Miscellaneous	C421	Cessna 421 Golden Eagle	65	7	2	66	5	3	149
GA	Miscellaneous	C25A	Cessna CitationJet CJ2, 525A	46	2	1	40	5	4	98
GA	Miscellaneous	BE60	Beechcraft Model 60 Duke	39	6	2	42	3	3	95
GA	Miscellaneous	C510	Cessna Citation Mustang	41	8	1	44	4	3	101
GA	Miscellaneous	C68A	Cessna Citation Latitude	86	11	-	88	4	4	194
GA	Miscellaneous	G150	Gulfstream G150	36	1	1	32	1	4	75
GA	Miscellaneous	E35L	Embraer EMB-135 LR	13	7	3	17	4	1	45
GA	Miscellaneous	H25C	Hawker 1000 / Bae 125-1000	2	2	3	6	1	1	14
GA	Miscellaneous	AA5	Grumman AA-5A Cheetah; AA-5 Tiger	48	13	2	59	2	2	126

Category	Airline	Aircraft	Aircraft Description	Arrival			Departure			Total
				Day	Evening	Night	Day	Evening	Night	
GA	Miscellaneous	PA34	Piper PA-34 Seneca	25	8	-	28	1	4	66
GA	Miscellaneous	C206	Cessna 206 Stationair	163	6	2	158	12	1	342
GA	Miscellaneous	M20P	Mooney Mark 20 Series	116	7	1	121	1	2	248
GA	Miscellaneous	E50P	Embraer EMB500 Phenom 100	25	3	1	25	4	1	61
GA	Miscellaneous	LJ31	Learjet 31 Twin Jet	27	5	-	29	-	3	64
GA	Miscellaneous	C310	Cessna 310 Twin Engine Piston aircraft	18	3	2	21	1	1	45
GA	Miscellaneous	TBM7	Socata TBM 700	21	2	1	20	3	1	47
GA	Miscellaneous	PA32	Piper PA-32 Cherokee Six	40	4	-	39	3	2	88
GA	Miscellaneous	BE40	Beechcraft Beechjet 400	34	4	-	34	2	2	76
GA	Miscellaneous	B06	Agusta / AgustaWestland AB-206 LongRanger Helicopter	51	3	1	47	7	1	109
GA	Miscellaneous	LJ40	Learjet 40 Twin Jet	16	1	-	16	-	1	35
GA	Miscellaneous	PA46	Piper PA-46 Malibu	29	1	1	29	1	1	61
GA	Miscellaneous	PA31	Piper PA-31 Navajo	27	-	1	25	3	-	56
GA	Miscellaneous	E550	Embraer EMB550 Phenom 300	15	-	-	13	-	1	29
GA	Miscellaneous	C340	Cessna 340 Twin Piston MEVP	78	7	-	82	1	1	168
GA	Miscellaneous	TUCA	Embraer A-27 Tucano	29	3	-	26	5	1	65
GA	Miscellaneous	C152	Cessna 152 Single Engine SEPF	17	3	1	18	4	-	44
GA	Miscellaneous	M20T	Mooney Mark 20 Series	14	1	1	15	-	-	31
GA	Miscellaneous	MO20	Mooney Mark 20 Series	10	3	1	14	-	-	29
GA	Miscellaneous	TBM9	Daher TMB900	366	54	-	400	20	-	841
GA	Miscellaneous	TB30	Socata TB 30 Epsilon	19	1	-	17	4	-	41
GA	Miscellaneous	SW3	Swearingen Merlin III /Fairchild Merlin III	26	5	-	30	1	-	62
GA	Miscellaneous	E545	Embraer Legacy 545	11	-	-	11	-	-	22

Category	Airline	Aircraft	Aircraft Description	Arrival			Departure			Total
				Day	Evening	Night	Day	Evening	Night	
GA	Miscellaneous	BE55	Beechcraft Model E-55	45	2	-	42	5	-	93
GA Total[1]				*16,347*	*2,334*	*1,404*	*16,893*	*1,737*	*1,455*	*40,169*
MIL	Miscellaneous	GLF6	Gulfstream VI / G650	8	-	5	7	1	5	25
MIL	Miscellaneous	LJ35	Learjet 35 Twin Jet	6	-	4	6	1	4	22
MIL	Miscellaneous	AJET	Dassault Alpha Jet	5	-	4	5	1	3	18
MIL	Miscellaneous	B737	Boeing 737-700	5	-	4	5	1	3	18
MIL	Miscellaneous	T38	Northrop T-38 Talon	4	-	3	4	0	3	14
MIL	Miscellaneous	DC10	McDonnell Douglas DC-10	4	-	3	4	0	3	14
MIL	Miscellaneous	WW24	IAI 1124 Westwind	3	-	2	3	0	2	11
MIL	Miscellaneous	GLF4	Gulfstream IV	3	-	2	3	0	2	11
MIL	Miscellaneous	E2	Grumman TE-2 Hawkeye	2	-	1	2	0	1	7
MIL	Miscellaneous	BE40	Beechcraft Beechjet 400	2	-	1	2	0	1	7
MIL	Miscellaneous	CL30	Bombardier Challenger 300	2	-	1	2	0	1	7
MIL	Miscellaneous	A320	Airbus A320 series	2	-	1	2	0	1	7
MIL	Miscellaneous	AC90	Rockwell Turbo Commander 690	1	-	1	1	0	1	4
MIL	Miscellaneous	HA4T	Hawker Beechcraft 4000 Horizon (Horizon 1000)	1	-	1	1	0	1	4
MIL	Miscellaneous	H25B	Hawker 800/800 XP/850 XP Twin Turbojet/Bae 125-800	1	-	1	1	0	1	4
MIL	Miscellaneous	AS65	Aerospatiale SA-365N Dauphin (AS-365N)	1	-	1	1	0	1	4
MIL	Miscellaneous	B350	Beechcraft Super King Air 350/300B	1	-	1	1	0	1	4
MIL	Miscellaneous	EC35	Eurocopter EC-135 COM & MIL	1	-	1	1	0	1	4
MIL	Miscellaneous	C560	Cessna 560 Citation V, Ultra & Ultra Encore	1	-	1	1	0	1	4
MIL	Miscellaneous	F18S	McDonnell Douglas (Boeing) F/A-18 Hornet	1	-	1	1	0	1	4

Category	Airline	Aircraft	Aircraft Description	Arrival			Departure			Total
				Day	Evening	Night	Day	Evening	Night	
MIL	Miscellaneous	H60	Sikorsky UH-60 Black Hawk Helicopter	1	-	1	1	0	1	4
MIL	Miscellaneous	F22	Boeing F-22 Raptor	1	-	1	1	0	1	4
MIL	Miscellaneous	ASTR	IAI 1125 Astra	1	-	1	1	0	1	4
MIL	Miscellaneous	GALX	IAI 1126 Astra Galaxy/Gulfstream 200	1	-	1	1	0	1	4
MIL	Miscellaneous	TEX2	Beechcraft T-6 Texan II	1	-	1	1	0	1	4
MIL	Miscellaneous	C550	Cessna Citation 550 Citation II	1	-	1	1	0	1	4
MIL	Miscellaneous	GLF5	Gulfstream V	1	-	1	1	0	1	4
MIL	Miscellaneous	E50P	Embraer EMB500 Phenom 100	1	-	1	1	0	1	4
Military Total[1]				*66*	*-*	*44*	*62*	*6*	*42*	*219*
Grand Total[1]				*112,844*	*27,304*	*15,157*	*117,469*	*22,370*	*15,465*	*310,609*

[1]: Totals may not sum due to rounding.

Source: ANOMS, FAA TFMSC, TAF, USDOT T100, and HNTB analysis, 2022.

Attachment 4:
Track Use

Table 4-1: Track Use Table

Group	Aircraft Type	Operation	Runway	Track	Percent
Passenger	Jet	Arrival	12L	A12L180	5.0%
				A12L340	95.0%
			12R	A12R130	48.4%
				A12R340	51.6%
			30L	A30L130	16.5%
				A30L140	0.6%
				A30L275	3.4%
				A30L300	79.5%
			30R	A30R130	14.1%
				A30R140	1.3%
				A30R275	2.4%
				A30R300	82.2%
		Departure	12L	D12L110	43.8%
				D12L125	51.8%
				D12L360	4.4%
			12R	D12R110	80.0%
				D12R125	20.0%
			30L	D30L115	6.0%
				D30L125	50.9%
				D30L360	43.1%
			30R	D30R260	0.3%
				D30RE115	3.1%
				D30RE120	3.0%
				D30RE360	0.3%
				D30RM115	1.4%
				D30RM120	55.3%
				D30RM360	0.1%
				D30RS120	1.2%
				D30RS360	35.4%
	Propeller	Arrival	30L	A30L130	66.7%
				A30L300	33.3%
			30R	A30R300	100.0%
			12L	A12L180	100.0%
			12R	A12R130	70.3%
				A12R340	29.7%
		Departure	30L	D30L260	100.0%
			30R	D30RM120	100.0%
			12L	D12L110	23.5%
				D12L125	58.8%

Group	Aircraft Type	Operation	Runway	Track	Percent
				D12L360	17.6%
			12R	D12R110	71.4%
				D12R125	12.2%
				D12R360	16.3%
CARGO	Jet	Arrival	12R	A12R130	50.0%
				A12R340	50.0%
			30L	A30L130	17.4%
				A30L140	0.9%
				A30L300	81.7%
			30R	A30R300	100.0%
			12L	A12L180	5.7%
				A12L340	94.3%
		Departure	12L	D12L110	100.0%
			30R	D30RE115	4.5%
				D30RM115	4.5%
				D30RM120	10.8%
				D30RS120	4.5%
				D30RS360	75.7%
			12R	D12R110	85.1%
				D12R125	10.3%
				D12R360	4.6%
			30L	D30L115	9.8%
				D30L125	37.4%
				D30L260	3.5%
				D30L360	49.3%
	Propeller	Arrival	12L	A12L180	100.0%
			12R	A12R130	70.3%
				A12R340	29.7%
			30L	A30L130	16.1%
				A30L140	8.0%
				A30L275	0.1%
				A30L300	75.8%
			30R	A30R130	1.7%
				A30R140	4.3%
				A30R300	18.1%
				A30R40	75.9%
		Departure	12L	D12L110	23.5%
				D12L125	58.8%
				D12L360	17.6%
			12R	D12R110	71.4%

Group	Aircraft Type	Operation	Runway	Track	Percent
				D12R125	12.2%
				D12R360	16.3%
			30L	D30L115	5.0%
				D30L125	8.9%
				D30L260	44.2%
				D30L360	41.9%
			30R	D30R260	12.9%
				D30RE115	1.5%
				D30RM115	3.5%
				D30RM120	27.9%
				D30RM360	0.5%
				D30RS120	4.5%
				D30RS360	49.3%
Air Taxi	Jet	Arrival	12L	A12L340	100.0%
			12R	A12R130	66.7%
				A12R340	33.3%
			30L	A30L130	33.1%
				A30L140	1.1%
				A30L275	1.1%
				A30L300	64.8%
			30R	A30R130	35.2%
				A30R275	2.2%
				A30R300	59.3%
				A30R40	3.3%
		Departure	12L	D12L110	51.1%
				D12L125	45.7%
				D12L360	3.3%
			12R	D12R110	82.6%
				D12R125	12.0%
				D12R360	5.4%
			30L	D30L115	7.7%
				D30L125	37.1%
				D30L260	4.6%
				D30L360	50.6%
			30R	D30R260	2.9%
				D30RE115	3.3%
				D30RE120	0.7%
				D30RE360	0.4%
				D30RM115	2.2%
				D30RM120	44.2%

Group	Aircraft Type	Operation	Runway	Track	Percent
				D30RM360	0.7%
				D30RS120	2.1%
				D30RS360	43.5%
	Propeller	Arrival	12R	A12R130	44.4%
				A12R340	55.6%
			30L	A30L130	15.4%
				A30L140	3.8%
				A30L300	80.8%
			30R	A30R300	100.0%
			12L	A12L180	100.0%
		Departure	12L	D12L110	20.0%
				D12L125	60.0%
				D12L360	20.0%
			12R	D12R110	100.0%
			30L	D30L115	3.8%
				D30L125	38.5%
				D30L260	30.8%
				D30L360	26.9%
			30R	D30R260	15.0%
				D30RM115	5.0%
				D30RM120	55.0%
				D30RS360	25.0%
	Helicopter	Arrival	12LH	A12L180H	100.0%
			12RH	A12R130H	10.8%
				A12R340H	89.2%
			30LH	A30L300H	100.0%
			30RH	A30R130H	0.2%
				A30R140H	32.2%
				A30R300H	30.3%
				A30R40H	37.3%
		Departure	12LH	D12L125H	100.0%
			12RH	D12R125H	52.2%
				D12R360H	47.8%
			30LH	D30L115H	11.8%
				D30L260H	88.2%
			30RH	D30R260H	3.4%
				D30RE115H	6.2%
				D30RM115H	17.2%
				D30RM120H	0.7%
				D30RM360H	6.2%

Group	Aircraft Type	Operation	Runway	Track	Percent
				D30RS120H	15.9%
				D30RS360H	50.3%
GA	Jet	Arrival	12L	A12L180	50.0%
				A12L340	50.0%
			12R	A12R130	64.7%
				A12R340	35.3%
			30L	A30L130	19.9%
				A30L140	2.3%
				A30L275	2.3%
				A30L300	75.6%
			30R	A30R140	11.1%
				A30R300	83.3%
				A30R40	5.6%
		Departure	12L	D12L110	58.5%
				D12L125	39.0%
				D12L360	2.4%
			12R	D12R110	88.3%
				D12R125	7.8%
				D12R360	3.9%
			30L	D30L115	13.1%
				D30L125	35.6%
				D30L260	2.7%
				D30L360	48.6%
			30R	D30R260	1.8%
				D30RE115	4.8%
				D30RE120	2.1%
				D30RE360	0.9%
				D30RM115	2.7%
				D30RM120	37.3%
				D30RM360	1.2%
				D30RS120	1.8%
				D30RS360	47.5%
	Propeller	Arrival	12L	A12L180	100.0%
			12R	A12R130	73.8%
				A12R340	26.2%
			30L	A30L130	15.9%
				A30L140	8.5%
				A30L275	0.1%
				A30L300	75.4%
			30R	A30R130	1.8%

Group	Aircraft Type	Operation	Runway	Track	Percent
				A30R140	4.5%
				A30R300	15.2%
				A30R40	78.6%
		Departure	12L	D12L110	25.0%
				D12L125	58.3%
				D12L360	16.7%
			12R	D12R110	68.9%
				D12R125	13.3%
				D12R360	17.8%
			30L	D30L115	5.1%
				D30L125	6.6%
				D30L260	45.2%
				D30L360	43.1%
			30R	D30R260	12.8%
				D30RE115	1.7%
				D30RM115	3.3%
				D30RM120	24.4%
				D30RM360	0.6%
				D30RS120	5.0%
				D30RS360	52.2%
	Helicopter	Arrival	12LH	A12L180H	100.0%
			12RH	A12R130H	10.8%
				A12R340H	89.2%
			30LH	A30L300H	100.0%
			30RH	A30R130H	0.2%
				A30R140H	32.2%
				A30R300H	30.3%
				A30R40H	37.3%
		Departure	12LH	D12L125H	100.0%
			12RH	D12R125H	52.2%
				D12R360H	47.8%
			30LH	D30L115H	11.8%
				D30L260H	88.2%
			30RH	D30R260H	3.4%
				D30RE115H	6.2%
				D30RM115H	17.2%
				D30RM120H	0.7%
				D30RM360H	6.2%
				D30RS120H	15.9%
				D30RS360H	50.3%

Group	Aircraft Type	Operation	Runway	Track	Percent
Military	Jet	Arrival	12L	A12L180	50.0%
				A12L340	50.0%
			12R	A12R130	64.7%
				A12R340	35.3%
			30L	A30L130	19.9%
				A30L140	2.3%
				A30L275	2.3%
				A30L300	75.6%
			30R	A30R140	11.1%
				A30R300	83.3%
				A30R40	5.6%
		Departure	12L	D12L110	58.5%
				D12L125	39.0%
				D12L360	2.4%
			12R	D12R110	88.3%
				D12R125	7.8%
				D12R360	3.9%
			30L	D30L115	13.1%
				D30L125	35.6%
				D30L260	2.7%
				D30L360	48.6%
			30R	D30R260	1.8%
				D30RE115	4.8%
				D30RE120	2.1%
				D30RE360	0.9%
				D30RM115	2.7%
				D30RM120	37.3%
				D30RM360	1.2%
				D30RS120	1.8%
				D30RS360	47.5%
	Propeller	Arrival	12L	A12L180	100.0%
			12R	A12R130	73.8%
				A12R340	26.2%
			30L	A30L130	15.9%
				A30L140	8.5%
				A30L275	0.1%

Group	Aircraft Type	Operation	Runway	Track	Percent
				A30L300	75.4%
			30R	A30R130	1.8%
				A30R140	4.5%
				A30R300	15.2%
				A30R40	78.6%
		Departure	12L	D12L110	25.0%
				D12L125	58.3%
				D12L360	16.7%
			12R	D12R110	68.9%
				D12R125	13.3%
				D12R360	17.8%
			30L	D30L115	5.1%
				D30L125	6.6%
				D30L260	45.2%
				D30L360	43.1%
			30R	D30R260	12.8%
				D30RE115	1.7%
				D30RM115	3.3%
				D30RM120	24.4%
				D30RM360	0.6%
				D30RS120	5.0%
				D30RS360	52.2%
	Helicopter	Arrival	12LH	A12L180H	100.0%
			12RH	A12R130H	10.8%
				A12R340H	89.2%
			30LH	A30L300H	100.0%
			30RH	A30R130H	0.2%
				A30R140H	32.2%
				A30R300H	30.3%
				A30R40H	37.3%
		Departure	12LH	D12L125H	100.0%
			12RH	D12R125H	52.2%
				D12R360H	47.8%
			30LH	D30L115H	11.8%
				D30L260H	88.2%
			30RH	D30R260H	3.4%

Group	Aircraft Type	Operation	Runway	Track	Percent
				D30RE115H	6.2%
				D30RM115H	17.2%
				D30RM120H	0.7%
				D30RM360H	6.2%
				D30RS120H	15.9%
				D30RS360H	50.3%

Totals may not sum due to rounding.

Source: ANOMS 2019 and HNTB analysis, 2022.

Attachment 5:
AEE Coordination

Appendix I

Water Resources

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List of Figures

1 Introduction

This technical memorandum summarizes the existing conditions and potential impacts to water resources relating to the Proposed Action Alternative in the Environmental Assessment (EA) for Terminal B South Concourse Improvements at SJC. Water resources include floodplains, surface waters, stormwater, and groundwater. The two primary areas of interest at SJC as it relates to water resources are floodplains and surface waters. Portions of the Airport lie within the 100-year floodplain and the Airport property discharges to the Guadalupe River adjacent to the Airport. Development at the Airport has the potential to lead to onsite flooding and for discharging contaminated runoff into the Guadalupe River. The following sections describe the existing water resources within the Direct Study Area (DSA) and Indirect Study Area (ISA) and then describe potential impacts, as well as avoidance or conservation measures to be implemented to minimize the chance for impacts to water resources.

For purposes of this analysis, water quality standards include adherence to provisions of the federal Clean Water Act (CWA). The CWA promulgates the establishment of water quality standards, the control of discharges, the development of waste treatment management plans and practices, and the prevention or minimization of the loss of wetlands.

2 Existing Conditions

2.1 Floodplains

The Federal Emergency Management Agency (FEMA) oversees the delineation of flood zones through published Flood Insurance Rate Maps (FIRM) which indicate expected frequency and severity of flooding by area. Floodplain data was retrieved from the FEMA Flood Map Service Center for SJC. As illustrated on **Figure 1**, FEMA FIRM Panel 06085C0231H (effective May 18, 2009) indicates portions of Airport property are located within the 100-year floodplain.[1]

The U.S. Army Corps of Engineers (USACE) and Santa Clara Valley Water District (Valley Water) completed further capacity enhancing projects on the Guadalupe River in December 2004 to protect the area from a 100-year flood event. These projects were the first two in a string of three projects along the river. The final project, the Upper Guadalupe River project will improve the capacity further upstream of SJC from I-280 to Blossom Hill Road.[2] This final project is currently in the design phase with completion scheduled for FY 2029.[3]

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[1] Federal Emergency Management Agency (FEMA) Flood Map Service Center, Panel 06085C0231H (effective May 18, 2009) is the most current FEMA FIRM for the Airport property.

[2] Guadalupe River Park Conservancy, Flood Control, https://grpg.org/get-involved/grpc-conservancy/history/, accessed 12/2/21.

[3] Valley Water, E8: Upper Guadalupe River Flood Protection, https://www.valleywater.org/project-updates/e8-upper-guadalupe-river-flood-protection, accessed 5/20/22.

Norman Y. Mineta San José International Airport Proposed Terminal B South Concourse Improvements Environmental Assessment

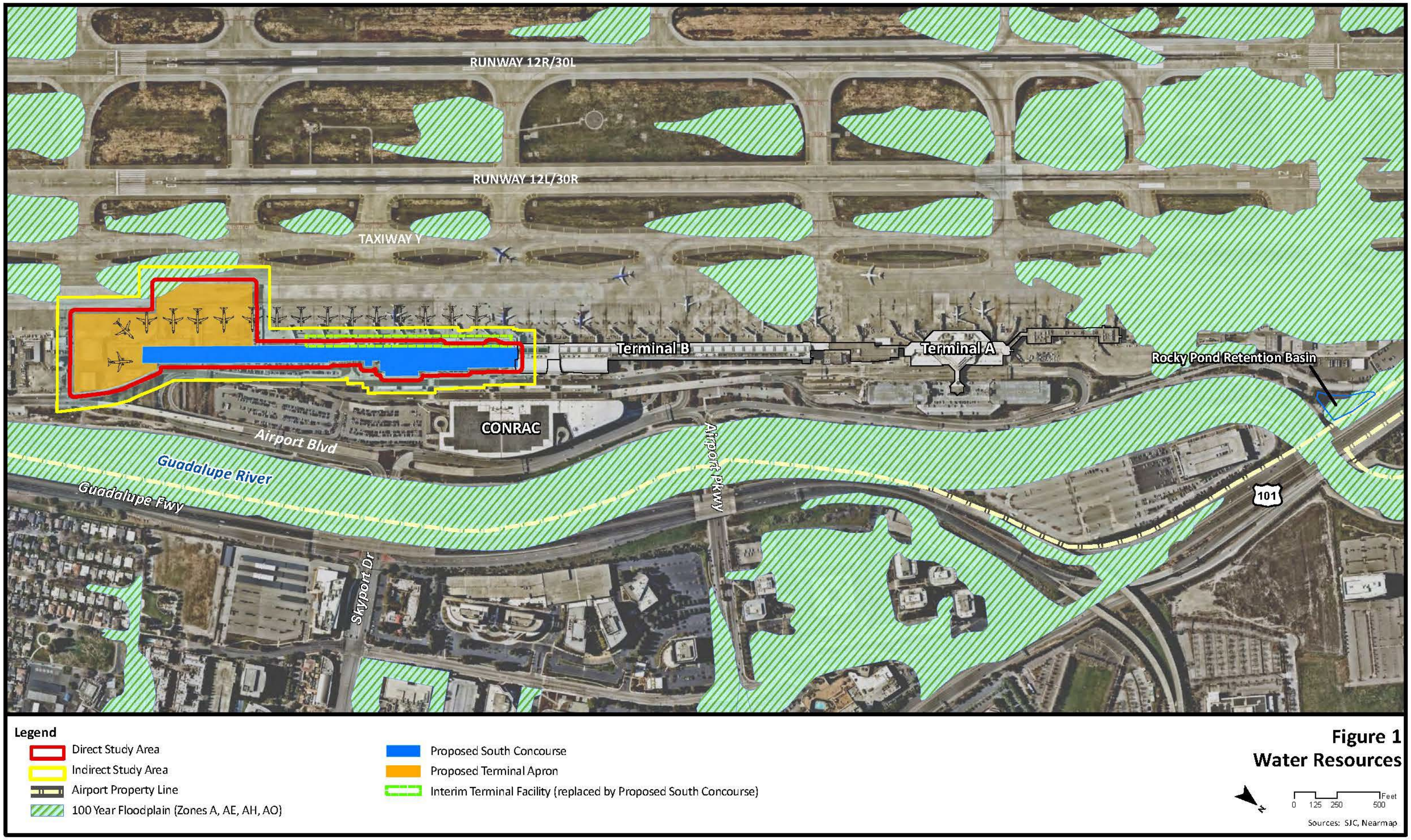

Figure 1
Water Resources

Sources: SJC, Nearmap

The DSA encompasses areas that are entirely impervious. Of the 18.8 acre DSA, 0.3 acres are within the 100-year floodplain, including 6,580 square feet of the proposed apron reconstruction area (all within existing impervious areas). An additional portion of the ISA is within the 100-year floodplain associated with the open area between Taxiways Y and Z and encroaching on the pavement surfaces near Terminal B. Isolated pockets subject to flooding during extreme weather events may still exist on the northern side of the Airport and infield.

2.2 Surface Waters

The Airport lies within the Guadalupe River watershed, which is within the larger San Francisco Bay watershed (HUC 6-180500). The Guadalupe River watershed has a drainage basin of approximately 170 square miles, originating in the mountains and flowing northward to ultimately empty into the South San Francisco Bay. As shown on Figure 1, there are no surface waters within the DSA or ISA. The nearest surface water is the Guadalupe River which is approximately 700 feet east of the ISA and is separated from the ISA by Airport parking lots, Airport Boulevard, and the Guadalupe River Trail.

The CWA requires National Pollutant Discharge Elimination System (NPDES) permits for industries to discharge stormwater to waters of the United States. The City of San José operates under the Municipal Regional Stormwater NPDES Permit No. CAS612008 for the discharge of stormwater runoff from Municipal Separate Storm Sewer System (MS4) administered by the San Francisco Bay Regional Water Quality Control Board (RWQCB).[4]

SJC operates under its own Industrial NPDES permit (CAS000001). The Industrial permit requires SJC to maintain Best Management Practices (BMPs) and to conduct periodic testing of stormwater to identify pollutant levels that may exceed established permit thresholds. SJC maintains a Storm Water Pollution Prevention Plan (SWPPP) for compliance with their NPDES permit, which details locations of potential pollutant sources and describes minimum BMP requirements as they relate to various activities and facilities at SJC.[5]

As part of SJC's SWPPP, SJC and its tenants are required to implement and maintain both non-structural and structural BMPs. Non-structural BMPs include good housekeeping; proper storage, handling and disposal of wastes; preventative maintenance; spill and leak protection response; material handling and waste management; employee oversight and training; inspections; and quality assurance and record keeping. SJC performs and reports on inspections of their facilities, fueling activities and visual storm water monitoring. Structural BMPs implemented at the Airport include: safe drains; oil/water separators; overhead coverage; retention pond (Rocky Pond); bioretention cells; control devices and conveyances; secondary containment structures; treatment systems; and erosion and sediment controls. Rocky Pond can be used to contain emergency spills by diverting flow from the Air Operations Area drainage into the basin via manual valves, preventing contaminated stormwater from entering the Guadalupe River.

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[4] California Regional Water Quality Control Board (CRWQCB), San Francisco Bay Region Municipal Regional Stormwater NPDES Permit, https://www.waterboards.ca.gov/sanfranciscobay/water_issues/programs/stormwater/Municipal/R2_2015_0049_amended.pdf, November 19, 2015, accessed 12/2/21.

[5] Norman Y. Mineta San José International Airport, Stormwater Pollution Prevention Plan, updated February 19, 2020.

SJC utilizes a system of "Safe Drains" located adjacent to taxiways and aircraft parking areas to prevent contaminants from entering the storm drain line and subsequently contaminated stormwater discharging into the Guadalupe River. The Safe Drains contain valves that are kept in the closed position during dry periods to prevent potential spills from entering the storm drain system; when it rains, the drains are in the open position so stormwater flows through. Additionally, a stormwater retention basin, known as Rocky Pond, can be used to contain emergency spills from by diverting flow from the Air Operations Area drainage into the basin via manual valves.

USEPA is responsible for the enforcement of Spill Prevention Control and Countermeasures (SPCC) Plan requirements, which are intended to prevent oil spills from reaching navigable waters. Although USEPA is responsible, authority for enforcement is delegated to SCCDEH. All SJC businesses, tenants, and contractors must comply with SPCC rules set forth by USEPA, the City of San José and SJC.

Contaminants such as oils, fuels, heavy metals, and pollutants associated with aircraft and vehicle exhaust can collect on existing impervious surfaces at the Airport and get released into stormwater run-off that is captured on the airfield, aprons, parking lots and other developed areas get introduced into stormwater run-off which ultimately can reach the Guadalupe River. Landscaped areas can also introduce contaminants into stormwater run-off through use of fertilizers and pesticides. Additionally, stormwater runoff from off-airport property west of the Airport contribute pollutants into the Airport's storm drain system.

The Airport gradually slopes from south to north and drains into the Guadalupe River. Surface runoff at SJC and within the DSA and ISA is collected in the Airport's storm drain system which ultimately discharges through 16 outfalls into the Guadalupe River. Rocky Pond, the stormwater retention pond, is in the northern portion of the Airport. Rocky Pond includes a pump used to dewater the Terminal A parking garage and to assist with Airport drainage during flood events. Rocky Pond has a storage volume of approximately 140,000 cubic feet. Rocky Pond can also be used to contain emergency spills from certain air side portions of SJC, preventing contaminated stormwater from entering the Guadalupe River. The retention pond includes power pumps to pump water from the basin into the Guadalupe River when it reaches capacity.

When elevations in the Guadalupe River rise above the Airport's outfalls, which is typical of 10-year flood events, the flap gates on the storm drain outfalls are activated. During these events, the Airport directs runoff to Rocky Pond retention basin and the retention basin pump is the only operating outlet which pumps stormwater into the Guadalupe River. The FAA advises that no encroachments shall occur on runways and taxiways during a 5-year event and that ponding may occur in areas between runway and taxiway pavement for temporary storage of runoff exceeding a 5-year storm event.[6] Consistent with FAA's recommendations, ponding occurs at SJC in the unpaved areas between runways and taxiways for temporary storage of runoff exceeding a 5-year storm event or exceeding the retention basin capacity and pumping rate. FAA AC 150/5200-33C, *Hazardous Wildlife Attractants on or near Airports*, advises that stormwater detention ponds should be designed and maintained for a maximum 48-hour detention period after the design storm and to remain dry between storms. While ponding in the unpaved areas between runways and taxiways is not a designed detention pond, ponding in the airfield typically drains within 48 hours.

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[6] FAA Advisory Circular (AC) 150/5320-5D, Airport Drainage Design, Section 2-2.4.2

Because the Airport and its storm drainage system has a drainage area significantly smaller than that of the Guadalupe River (roughly 100:1), the peak discharge for the Airport and for that of the receiving watershed are often out of phase. Table 6-3 in FAA AC 150/5320-5D provides a comparison of discharge frequencies for coincidental occurrence for a 10- and 100-year design storm and can be used to establish the design tailwater elevation for a storm drainage system based on the expected coincident storm frequency on the outfall channel. Based on Table 6-3 and an assumed area ratio of (100:1), the 10-year flood elevation in the Guadalupe River combined with a 5-year design storm for the Airport runoff should be used to represent a 10-year design storm for the Airport.[7]

2.3 Groundwater

The San José Water Company supplies a significant portion of drinking water to the City of San José, including the Airport, via groundwater in the Santa Clara Groundwater Basin. Groundwater currently accounts for 40% of the drinking water supply the San José Water Company provides to the City.[8] The depth to first groundwater at the Airport is typically less than 10 feet below ground surface.[9] While there are no active water production wells on Airport property or Study Areas, there are active wells within ¼-mile of Airport property, the closest being west of the Airport.[10]

Aqueous Film Forming Foam (AFFF)

Since the 1960s many firefighting foams, often referred to as Aqueous Film Forming Foam (AFFF) have contained polyfluoroalkyl substances (PFAS). In recent years, the USEPA has identified PFAS as emerging contaminants of concern and has identified fire training facilities and airports as potential sources of PFAS contamination. These highly soluble contaminants pose a soil leaching concern due to their mobility; they readily migrate in groundwater and are bioaccumulative. A 2020 PFAS Preliminary Investigation Sampling and Analysis Report (“Completion Report”) presents the results of preliminary investigation activities conducted for SJC in response to requirements from the State Water Resources Control Board (SWRCB) in the March 25, 2019 Water Code Section 13267 Order WQ-2019-0005-DWQ Determination of the Presence of Per- and Polyfluoroalkyl Substances (Order) for certain airports in California. The Completion Report identifies current and historic on-site AFFF storage and usage locations.

The 2020 PFAS Completion Report will be used to inform SJC prior to initiation of construction activities that would disturb soil or groundwater in areas where firefighting foams have been or are suspected to have been deployed. SJC is not located over an EPA designated sole source aquifer. The closest sole source aquifer is the Santa Margarita Aquifer, Scotts Valley located approximately 16 miles south of SJC.

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[7] HMH Engineers, Inc., Hydrology and Water Quality Study for the Amendment to Airport Master Plan San Jose International Airport, San Jose, California, October 2019.

[8] San José Water Company, https://www.sjwater.com/customer-care/help-information/water-supply-faqs, accessed 12/2/21.

[9] Santa Clara Valley Water District, Historical Groundwater Elevation Data, https://gis.valleywater.org/GroundwaterElevations/map.php, accessed 12/2/21.

[10] Santa Clara Valley Water. Well Information App, https://gis.valleywater.org/wellinfo/, accessed 12/2/21.

3 Impacts

This section assesses potential impacts from the Proposed Action Alternative and No Action Alternative on floodplains, surface waters, and groundwater, as well as mitigation measures to avoid and minimize potential impacts. While there are no wetlands or streams within the Direct or Indirect Study Area, the Guadalupe River is located 700 feet east of the Indirect Study Area. Downstream impacts to the Guadalupe River are considered as it relates to the floodplain, surface water, and groundwater impacts.

3.1 Proposed Action Alternative

3.1.1 Floodplains

Impacts to the floodplain at airports are associated with development within the 100-year floodplain and within areas prone to flooding. The Proposed Action Alternative were reviewed regarding their proximity to the 100-year floodplain, the relative 100-year floodplain elevation in these areas, and the likelihood for construction to adversely impact floodplain values.

The Proposed Action Alternative projects are located outside of the 100-year floodplain, with the exception of 6,580 square feet of the proposed apron reconstruction. The project area within the 100-year floodplain is all on existing paved impervious surfaces and proposed apron reconstruction would not cause nearby structures or facilities, including runways or taxiways, to flood during a 100-year flood event. Apron reconstruction would include stormwater management design measures to ensure that the pavement directs runoff into the Airport's closed storm drain system. Additionally, apron pavement would be designed to match the existing pavement elevation and would be above the base flood elevation.

In compliance with Executive Order 11988, Floodplain Management, and DOT Order 5650.2, Floodplain Management and Protection, it is concluded that there is no practicable alternative to the proposed projects identified within areas of the 100-year floodplain. With incorporation of stormwater management and pavement design measures, the improvements would not, however, involve a significant encroachment in a floodplain because: 1) the encroachment would not result in loss of human life, 2) the encroachment would not lead to damage that could be substantial in cost or extent, including interruption of service on or loss of a vital transportation facility, and 3) the encroachment would not result in a notable adverse impact on natural and beneficial floodplain values. Therefore, the Proposed Action Alternative would not have a significant impact on floodplains.

3.1.2 Surface Waters

Federal and state regulations on water resources were reviewed for the analysis of potential water quality impacts, including the federal CWA, California's Porter-Cologne Water Quality Control Act, and regulations associated with the Airports CWA NPDES permit (CAS000001) and SWPPP. The applicable statutes establish water quality standards, control discharges and pollution sources, protect drinking water systems, and protect aquifers and other sensitive ecological areas. Impacts to surface waters are largely due to stormwater runoff associated with impervious surfaces and the capacity of the storm drain system. The Proposed Action Alternative were reviewed regarding their potential to increase impervious surfaces, alter drainage areas, and impact stormwater runoff.

The Airport property encompasses 1,000 acres, of which approximately 630 acres (or 60%) are impervious surfaces.[11] There are no surface waters within the DSA or ISA for the Proposed Action Alternative. The NPDES permitted Airport storm drain system ultimately outfalls into the Guadalupe River. The Proposed Action Alternative is located on existing impervious areas included in the existing drainage system. While collection point and pipe alignment modifications would be necessary to ensure proper stormwater collection into the system, no increase in impervious surface thus stormwater collection at the Airport would occur. Therefore, the existing storm drain system would continue to support the Proposed Action Alternative and there would be no significant impact to downstream surface waters due to the Proposed Action Alternative.

In compliance with CWA NPDES permit CAS000001, stormwater run-off would continue to be managed through the storm drain system and stormwater management would be designed to control runoff areas associated with the Proposed Action Alternative. The SJC SWPPP would be updated to reflect the Proposed Action Alternative. Any minor alterations in the drainage pattern would not substantially alter the overall drainage pattern of the Airport and stormwater would continue to be managed within the Airport’s storm drainage system.

The Proposed Action Alternative would only involve reconstructed or redeveloped impervious surfaces. While the redeveloped areas would not impact total run-off from the site, stormwater treatment requirements would continue to be met for the redeveloped impervious areas.

SJC would continue to operate in accordance with its CWA permits, including maintaining a SWPPP, utilizing BMPs, and conducting periodic testing of stormwater to ensure that permit thresholds are not exceeded. See *Section 4* for details on stormwater BMPs that would be implemented.

3.1.3 Groundwater

Impacts to groundwater at airports are largely associated with fuel spills/leaks and the potential vertical migration or exfiltration of aircraft deicing fluids. Impacts to groundwater can also result from temporary construction related activities. The Proposed Action Alternative was reviewed regarding the potential to increase the likelihood of fuel spills/leaks and the potential to impact known hazardous material and/or soil contamination sites, or potential exposure to PFAS from AFFF during construction. The Proposed Action Alternative was also reviewed regarding the potential for construction related impacts to groundwater.

Construction activities would include ground disturbance for South Concourse extension building foundations and potential utility trenching with the use of construction equipment, which would increase the potential for sediments and other pollutants to be present in stormwater runoff. Due to the depth to first groundwater being less than 10’ and a proposed maximum depth of disturbance of 25’ for concourse construction, it is possible that excavations required for proposed building foundations would intercept and be flooded with groundwater. Dewatering activities would adhere to the requirements in the City MS4 Permit, the SJC Industrial Permit, as well as the SJC SWPPP to reduce potential impacts. See *Section 4* for mitigation of groundwater dewatering activities.

Construction activities would comply with the SWRCB NPDES General Permit for Storm Water Discharges Associated with Construction Activities. As part of the General Permit requirements, a

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[11] HMH Engineers, Inc., *Hydrology and Water Quality Study*, October 2019.

construction SWPPP would be developed to identify BMPs to minimize erosion and sedimentation impacts (See *Section 4* for stormwater BMPs). BMPs would be implemented to minimize the introduction of contaminants to the groundwater supply, and the discharge of sediments and other pollutants to the storm drain system or surface waters during construction.

The Proposed Action Alternative would not have a significant impact on groundwater.

3.2 No Action Alternative

The No Action Alternative would not involve any construction activities that would result in impacts to existing water resources in the Direct or Indirect Study Areas. The Airport's SWPPP would continue to be implemented under the No Action Alternative.

4 Avoidance, Minimization, and Mitigation Measures

There are no mitigation measures required for water resources. While no significant impacts are anticipated to floodplains, surface waters, stormwater, or groundwater, the following minimization and avoidance measures would be implemented to further reduce potential impact impacts from the Proposed Action Alternative.

Groundwater dewatering activities

In accordance with the construction general permit and the SWPPP, provisions will be included for the management of construction related dewatering activities. Dewatering effluent will be allowed to settle out or will be filtered prior to discharge to the storm drain system. Discharges of dewatering effluent will be analyzed by a State-Certified laboratory for suspected pollutants and to ensure discharges will be under required pollutant load limits. Dewatering effluent will only be discharged once meeting permit requirements or following approval from the Water Board.

Water quality of storm water runoff

Provision C3 of the SCVURPPP MRP requires the installation of post-construction stormwater controls to reduce stormwater runoff and pollutant loads for projects which create or redevelop 10,000 feet or more of impervious surface. All projects proposed as part of the Proposed Action Alternative would be required to comply with Provision C3 stormwater treatment requirements.

Due to safety concerns associated with wildlife attractants, the FAA advises against the design and operation of stormwater management facilities which allow above ground standing water when located within 5,000 feet of the airport operations area. FAA also recommends eliminating vegetation around existing detention ponds that may provide food or cover for wildlife. While detention ponds are no longer recommended as treatment methods, FAA recommends that existing detention ponds be "dry ponds" with a maximum detention period of 48 hours following a design storm and remaining dry between rain events. The Airport has one existing detention basin, Rocky Pond which was installed in 1988, prior to FAA's recommendations in 2007 (AC 150/5200 3B). FAA also recommends underground stormwater infiltration systems, but due to the high groundwater table at SJC (10' below surface), infiltration systems would not be feasible at the Airport.

Stormwater BMPs

The Airport will continue to implement the SWPPP and include updates to the SWPPP as the new projects are constructed. As part of SJC's SWPPP, SJC and its tenants are required to implement and maintain both non-structural and structural BMPs. Non-structural BMPs include good housekeeping; proper storage, handling and disposal of wastes; preventative maintenance; spill and leak protection response; material handling and waste management; employee oversight and training; inspections; and quality assurance and record keeping. SJC performs and reports on inspections of their facilities, fueling activities and visual storm water monitoring. Structural BMPs implemented at the Airport include: safe drains; oil/water separators; overhead coverage; retention pond (Rocky Pond); bioretention cells; control devices and conveyances; secondary containment structures; treatment systems; and erosion and sediment controls. In addition to implementation and updates to the SWPPP as new projects are constructed, construction General Permits would be required for stormwater discharges during construction activities.

Erosion and Sediment Control

While the risk of erosion and sedimentation is reduced by the relatively flat topography of the Airport, construction activities still increase the potential for site erosion due to the disturbance of soils. All proposed construction projects would include an erosion and sediment control plan to include BMPS for reducing impacts to surface runoff and the drainage system during construction. Control measures would include soil stabilization practices, sediment control practices, sediment tracking control practices, wind erosion control practices and non-stormwater management, waste management and disposal control practices.

Appendix J

Agency and Public Involvement

CONTENTS

- *Attachment 1*: Agency and Public Scoping*
    - Agency Scoping Letter and Scoping Information Package
    - Agency Consultation List
    - Notice of Preparation of an Environmental Assessment, *The Mercury News,* March 6, 2020
    - Announcement of Preparation of an Environmental Assessment on SJC Website
    - Agency Scoping Responses

- *Attachment 2:* Notice of Availability of the Draft EA, Public Workshop and Public Hearing
    - Affidavit of Publication, *The Mercury News,* January 20, 2023
    - SJC Website
    - Email notification and distribution list

- *Attachment 3:* Public Workshop and Public Hearing Materials, February 23, 2023
    - PowerPoint Presentation
    - Display Boards
    - Draft EA Handout
    - Public Hearing Transcript

** Note that public and agency scoping was conducted early in the EA process, prior to refinement of the Proposed Action based upon the FAA's Section 163 Determination of the "FAA Reauthorization Act of 2018" on November 18, 2021. The FAA evaluated the City's plans for several improvement projects at SJC and the determination reduced the scope of the Proposed Action and confirmed independent utility of some of the City's proposed improvements.*

Attachment 1:

Agency and Public Scoping*

**Note that public and agency scoping was conducted early in the EA process, prior to refinement of the Proposed Action based upon the FAA's Section 163 Determination of the "FAA Reauthorization Act of 2018" on November 18, 2021. The FAA evaluated the City's plans for several improvement projects at SJC and the determination reduced the scope of the Proposed Action and confirmed independent utility of some of the City's proposed improvements.*

NORMAN Y. MINETA
SAN JOSE
INTERNATIONAL
AIRPORT
SILICON VALLEY'S AIRPORT

***Note**: The agency scoping letters included several additional projects as part of the Proposed Action that have since been removed as it was determined in 2021 that FAA does not have review or approval authority over those additional projects, per the FAA's Section 163 determination approval letter received November 18th, 2021.*

March 6, 2020

Mr. Michael Stoker
U.S. Environmental Protection Agency, Pacific Southwest, Region 9
75 Hawthorne Street
San Francisco, CA 94105

To whom it may concern:

The City of San José, California, owner and operator of Norman Y. Mineta San José International Airport (SJC), in cooperation with the Federal Aviation Administration (FAA), is preparing an Environmental Assessment (EA) to evaluate and disclose the potential environmental impacts associated with the proposed extension and modernization of Terminal B through the construction of a planned South Concourse, which will become Terminal C. The project also includes enabling projects to accommodate the construction of the terminal extension, as well as construction of a parking structure and an on-airport business hotel.

The EA will be completed in accordance with the *National Policy Act of 1969* (NEPA). NEPA requires environmental review of federal actions including federal funding, approvals and certifications. The City of San José is proposing development that will require FAA approval and likely involve federal funding. Thus, the EA is being prepared in accordance with FAA policies and procedures for considering environmental impacts: *FAA Order 1050.1F, Environmental Impacts: Policies and Procedures*, and *FAA Order 5050.4B, National Environmental Policy Act (NEPA) Implementing Instructions for Airport Actions*. The EA will include detailed environmental analysis of the Proposed Action and any potential alternatives. The attached provides detail of the Proposed Action, along with background information and the preliminary purpose and need for the project, environmental analysis impact categories to be evaluated during the EA process, and a preliminary schedule.

The City of San José encourages your agency to review and comment on this information and respond **by April 7, 2020**. If you have questions or comments to be considered in the preparation of the EA, please do not hesitate to contact me via the information below.

Please submit any written comments or recommendations electronically or by mail to Mr. Ryan Sheelen at the following address:

Ryan Sheelen, C.M.
Mineta San José International Airport
1701 Airport Blvd. Ste B-1130
San José, CA 95110
Email: rsheelen@sjc.org

Best Regards,

Ryan Sheelen, C.M.
Airport Planner III

Enclosures

cc: Doug Pomeroy, FAA
Caroline Pinegar, HNTB

Sample Agency Scoping Letter

NORMAN Y. MINETA
SAN JOSE
INTERNATIONAL
AIRPORT
SILICON VALLEY'S AIRPORT

***Note**: The agency scoping letters included several additional projects as part of the Proposed Action that have since been removed as it was determined in 2021 that FAA does not have review or approval authority over those additional projects, per the FAA's Section 163 determination approval letter received November 18th, 2021.*

March 6, 2020

Ms. Wendy Goodfriend
Air Quality Planning Manager
Bay Area Air Quality Management District
375 Beale Street, Suite 600
San Francisco, CA 94105

To whom it may concern:

The City of San José, California, owner and operator of Norman Y. Mineta San José International Airport (SJC), in cooperation with the Federal Aviation Administration (FAA), is preparing an Environmental Assessment (EA) to evaluate and disclose the potential environmental impacts associated with the proposed extension and modernization of Terminal B through the construction of a planned South Concourse, which will become Terminal C. The project also includes enabling projects to accommodate the construction of the terminal extension, as well as construction of a parking structure and an on-airport business hotel.

The EA will be completed in accordance with the *National Policy Act of 1969* (NEPA). NEPA requires environmental review of federal actions including federal funding, approvals and certifications. The City of San José is proposing development that will require FAA approval and likely involve federal funding. Thus, the EA is being prepared in accordance with FAA policies and procedures for considering environmental impacts: *FAA Order 1050.1F, Environmental Impacts: Policies and Procedures*, and *FAA Order 5050.4B, National Environmental Policy Act (NEPA) Implementing Instructions for Airport Actions*. The EA will include detailed environmental analysis of the Proposed Action and any potential alternatives. The attached provides detail of the Proposed Action, along with background information and the preliminary purpose and need for the project, environmental analysis impact categories to be evaluated during the EA process, and a preliminary schedule.

SJC is within the San Francisco Bay Area Air Basin which does not achieve federal and State air quality standards for certain criteria pollutants. The City of San José is cognizant of the applicable air quality plans for the region. A construction emissions analysis will be completed as part of the EA to model emissions from heavy-duty construction equipment, asphalt paving, truck haul trips, and vendor and worker truck trips to and from the project site. The California Emissions Estimator Model (CalEEMod) will be used to quantify these emissions. The EA will disclose all anticipated construction emissions by construction year.

The City of San José encourages your agency to review and comment on this information and respond **by April 7, 2020**. If you have questions or comments to be considered in the preparation of the EA, please do not hesitate to contact me via the information below.

Please submit any written comments or recommendations electronically or by mail to Mr. Ryan Sheelen at the following address:

Ryan Sheelen, C.M.
Mineta San José International Airport
1701 Airport Blvd. Ste B-1130
San José, CA 95110
Email: rsheelen@sjc.org

Sample Air Quality Agency Scoping Letter

Best Regards,

Ryan Sheelen, C.M.
Airport Planner III

Enclosures

cc: Doug Pomeroy, FAA
Caroline Pinegar, HNTB

Terminal B South Concourse Improvements Project Environmental Assessment at Norman Y. Mineta San José International Airport
Scoping Information Package

Introduction

The City of San José (City), California, owner and operator of the Norman Y. Mineta San José International Airport (SJC or Airport) proposes to extend and modernize Terminal B through the construction of a planned South Concourse, to include enabling projects (connected actions) to accommodate the construction of the new concourse. Several other improvements in the landside area of the Airport are also proposed as part of the Proposed Action.

This scoping information package is provided to facilitate the agency scoping process for the environmental analysis of the proposed improvements. The City is preparing an Environmental Assessment (EA) to evaluate and disclose the potential environmental impacts associated with the Terminal B South Concourse Improvements Project. The EA is being completed to satisfy the requirements of the National Environmental Policy Act of 1969 (NEPA). This document provides preliminary information regarding the EA to facilitate public review and comment. The document includes the following sections:

- Background
- Proposed Action
- Preliminary Purpose and Need
- Preliminary Alternatives
- Environmental Analysis
- Preliminary Schedule

If you would like to provide comments on the proposed action, please submit them **by April 7, 2020**. Comments provided by this time will assist the City in identifying areas of focus for the development of the EA. You are welcome to submit comments either by mail at the below address or by email to rsheelen@sjc.org.

Please submit written comments to:

Ryan Sheelen, C.M. | Airport Planner III
Planning and Development Division
Mineta San José International Airport
1701 Airport Blvd. Ste B-1130
San José, CA 95110

Background

SJC is located on an approximately 1,000-acre site in Santa Clara County at the southerly end of San Francisco Bay, approximately two miles north of downtown San José, as shown on **Figure 1**. The Airport's primary service area includes the southern end of the San Francisco Bay Area, known as Silicon Valley, and extends southward into Santa Cruz and Monterey counties, and eastward towards Fresno and Yosemite Valley. The Airport is generally bounded by U.S. 101 to the north, the Guadalupe River and State Route 87 to the east, Interstate 880 to the south, and Coleman Avenue and De la Cruz Boulevard to the west.

SJC serves most commercial airlines with statewide, national and international destinations, as well as air cargo airlines, and general aviation aircraft. SJC has two 11,000-foot-long runways at the Airport, 12R/30L, 12L/30R, and a third 4,600-foot-long runway, 11/29, presently used as a taxiway. The Airport has two passenger terminals, Terminal A and Terminal B, totaling 1,050,000 SF of terminal space and 36 boarding gates. Eight of the 20 gates in Terminal B are interim facilities that would be replaced with permanent facilities as part of the proposed improvements to be evaluated in the EA.

SJC has experienced significant growth in air passenger activity in the past several years. As shown in **Table 1**, between 2014 and 2019, passenger enplanements increased over 66 percent from approximately 9 million passengers in 2014 to over 15 million passengers in 2019, which accounts for 18 percent of the Bay Area passenger volume. Similar growth is expected to continue. The level of air passenger activity at SJC is projected to continue to rise, reaching 22.2 million annual passengers by year 2029, a 48% increase over 2019.

Table 1

Summary of Recent and Projected Total Passengers at SJC

Fiscal Year	**Total Passengers (millions)**
2014	9.0
2015	9.6
2016	10.2
2017	11.8
2018	13.8
2019*	15.0
2024	19.0
2029	22.2
Compounded Annual Growth Rate	
2014-2019	10.5%
2019-2024	4.9%
2019-2029	4.0%
* FAA Estimate	

Source: FAA, Terminal Area Forecast issued January 2020.

An amendment to the Airport Master Plan was proposed in 2018 based on the 2017 aviation demand forecast. As part of the update, terminal and facility improvements from the existing

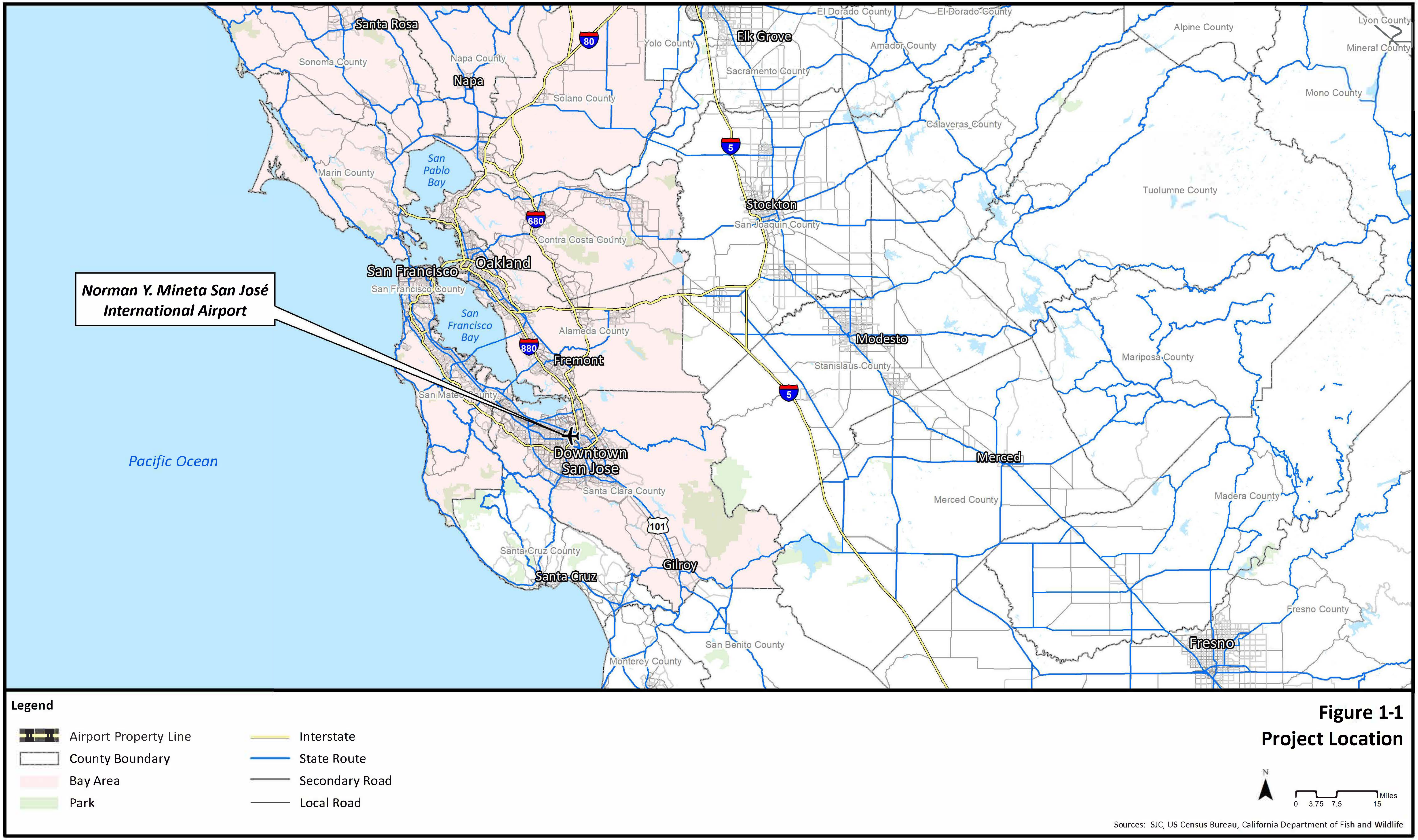


Figure 1-1
Project Location

Sources: SJC, US Census Bureau, California Department of Fish and Wildlife and proposed amendment to the Airport Master Plan are proposed that require Federal Aviation Administration (FAA) approval for changes to the Airport Layout Plan (ALP). The FAA must also approve projects for which federal funds are requested. Prior to all such approvals, the FAA must comply with the requirements of NEPA.

Proposed Action

The Proposed Action to be reviewed in the EA, illustrated in **Figure 2**, is focused on accommodating projected passenger growth and aircraft activity at the Airport, which is expected to occur with or without the proposed improvements. Specifically, the Proposed Action will not induce growth at SJC but would accommodate projected growth through the year to be reviewed in the EA, 2029. **Figure 3** provides a magnified illustration of the improvements south of Terminal B. The Proposed Action would not affect airport capacity or the maximum allowed number of flights. Improvements include the following:

- Extend Terminal B through construction of the planned South Concourse, including:
    - Construct 16 airline gates (net increase of six gates) with jet bridges and up to 750,000 SF of terminal building space. [1]
    - Reconstruct up to 300,000 SF of deteriorated airfield apron at the south end of the Terminal B South Concourse to support aircraft parking; and
- Construct a new On-Airport Business Hotel (up to 300,000 SF, up to 330 guest rooms, 300 parking spaces).

Connected Actions

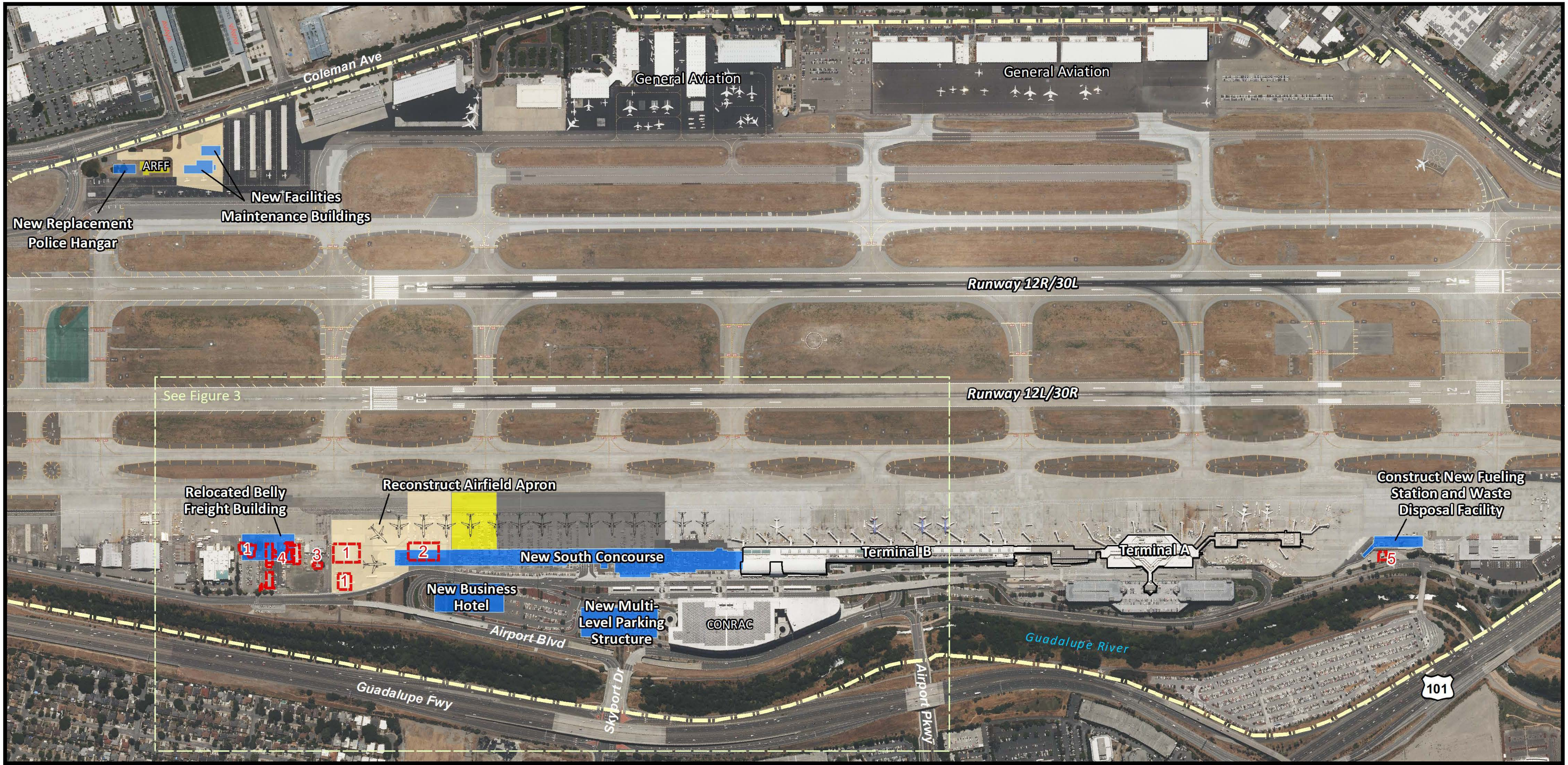
In addition, demolition, removal and relocation of several structures will be required to implement the Proposed Action. The following connected actions are proposed, also shown on Figure 2:

- Construct new terminal area multi-level parking structure (up to 5,000 parking spaces);
- Demolish the former San Jose Police Department (SJPD) building and associated hangar buildings;
- Construct replacement SJPD hangar;
- Demolish and relocate existing Belly Freight Building;
- Demolish facilities & fleet maintenance buildings;
    - Demolish two (2) existing 10,000-gallon underground fuel (unleaded/diesel) storage tanks and remediation (if any);
- Decommission existing compressed natural gas (CNG) station, including:
    - Remove compressor and associated equipment;
- Demolish existing Waste Disposal Facility;

---

[1] Eight (8) gates currently exist in the same location as interim facilities and two (2) gates are existing gates that would be relocated from their current locations in Terminal A and B. Net increase would be six gates.

Norman Y. Mineta San José International Airport Terminal B South Concourse Environmental Assessment



Legend

- 🟦 New Building/Structure
- ▨ New Aircraft-Rated Pavement
- 🟨 Approved Project (Not included in EA)
- ■ Recently Completed Pavement Rehab
- ▬ Airport Property Line

Proposed Action

- Construct South Concourse
- Construct New Business Hotel
- Reconstruct Airfield Apron

Connected Actions

- ⬚ Demolition/Removal

1 Demolish Former SJPD Building and Associated Hangar Buildings
2 Demolish Existing Belly Freight Building
3 Demolish Waste Disposal Facility
4 Demolish Existing Facilities/Maintenance Buildings
5 Decommission Existing CNG Station

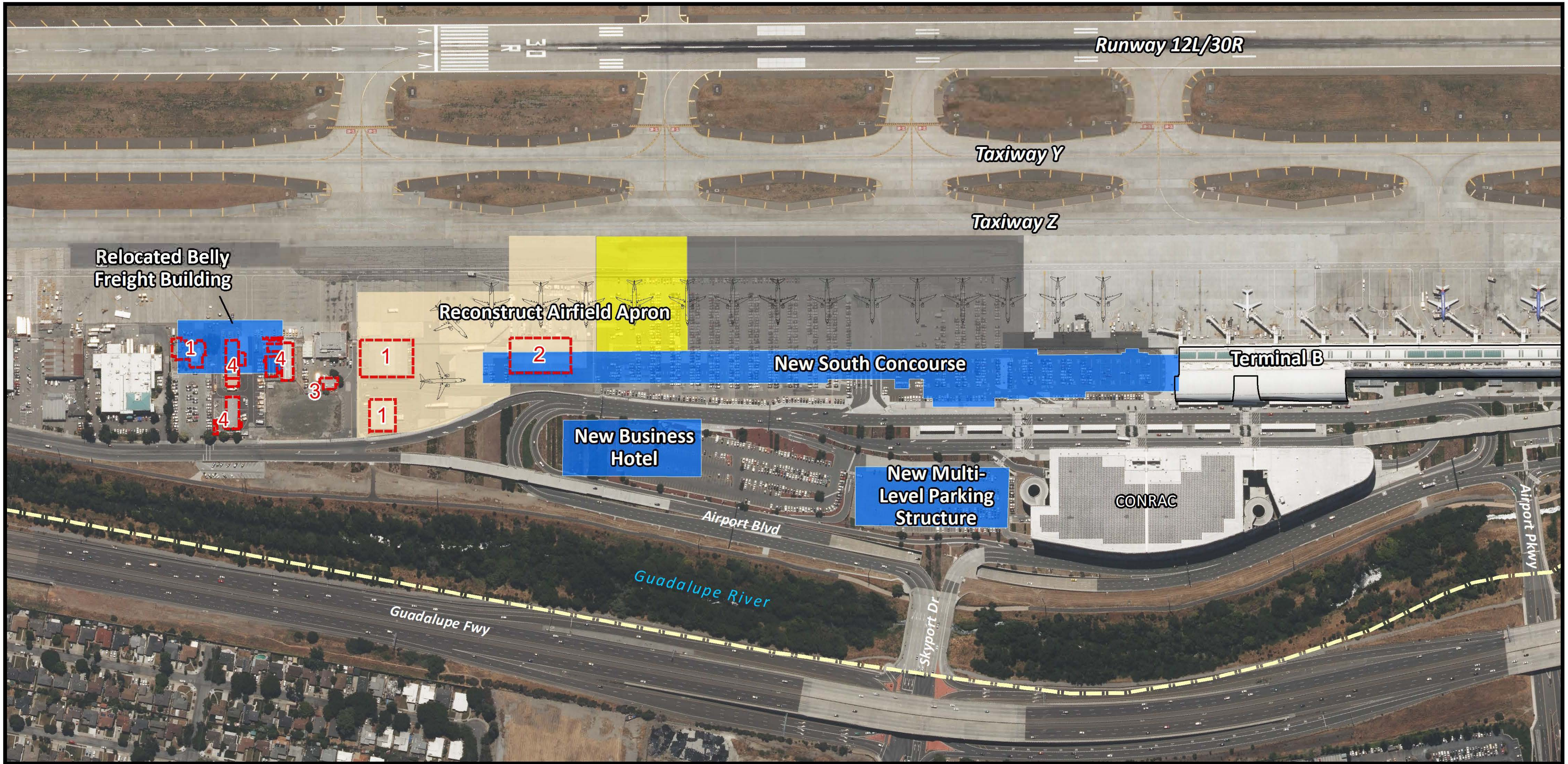
N

0 150 300 600 Feet

Sources: SJC

Figure 1-2
Proposed Action

Norman Y. Mineta San José International Airport Terminal B South Concourse Environmental Assessment



Legend

- 🟦 New Building/Structure
- ▭ New Aircraft-Rated Pavement
- 🟨 Approved Project (Not included in EA)
- ⬛ Recently Completed Pavement Rehab
- ▬ Airport Property Line

Proposed Action

- Construct South Concourse
- Construct New Airport Hotel
- Reconstruct Airfield Apron

Connected Actions

⬚ Demolition/Removal

1 Demolish Former SJPD Building and Associated Hangar Buildings
2 Demolish Existing Belly Freight Building
3 Demolish Waste Disposal Facility
4 Demolish Existing Facilities/Maintenance Buildings

Figure 1-3
Proposed Action - Terminal Area

Feet
0 75 150 300

Sources: SJC

- Construct New Fueling station & Waste Disposal Facility. The fueling station includes:
    - Construct one (1) 20,000 gallon diesel and one (1) 10,000 gallon unleaded above ground double wall fuel storage tanks for City Airport vehicles, an above ground 1,000-gallon propane tank; and
- Construct New Facilities Maintenance Buildings (two new buildings in another location).

Preliminary Purpose and Need

The purpose of the Proposed Action is to develop a new South Concourse with accompanying airfield apron, business hotel, and multi-level parking as identified in the amended SJC Airport Master Plan. The Proposed Action would make SJC more efficient and productive, and thus provide a higher level of service for users of the Airport.

Improvements are needed to accommodate current and future demand for commercial air carrier services at the Airport, enhance the Airport's operational efficiency, and improve customer service and convenience for airport users. Specifically, SJC terminal facilities need to be extended to reduce the need for gate sharing and ground loading. The proposed business hotel is needed to improve convenience for airport users by providing travelers with lodging and conference space in the terminal area. The proposed multi-level vehicle parking structure is needed to replace vehicle parking spaces lost due to the recent loss of the facilities to other uses, as well as the proposed demolition of several surface parking lots.

Preliminary Alternatives

Under NEPA, analysis of alternatives is crucial to the regulatory process. NEPA analysis must consider reasonable alternatives to the proposed action which would minimize adverse impacts. The number of alternatives considered is dependent upon the degree of potential impact, as well as the stated project purpose.

The EA will consider potential alternatives based on the alternatives' ability to meet the purpose and need of the Proposed Action. Alternatives that do not meet these requirements will be eliminated through a screening process. Based on preliminary screening of alternatives, the EA will likely be limited to the Proposed Action Alternative and the No Action Alternative (as required by Council on Environmental Quality [CEQ] regulations).

Environmental Analysis

The EA will assess the environmental consequences of the Proposed Action and any alternatives carried forward. All categories of impact will be analyzed according to the criteria included in FAA Order 1050.1F: *Environmental Impacts: Policies and Procedures*, and Order 5050.4B*: National Environmental Policy Act (NEPA) Implementing Instructions for Airport Actions*.

Impact analysis will be completed for the following categories relative to the action being analyzed:

- Air Quality
- Biological Resources (including fish, wildlife, and plants)
- Climate
- Coastal Resources
- Department of Transportation Act (DOT), Section 4(f)
- Farmlands
- Hazardous Materials, Solid Waste, and Pollution Prevention
- Historical, Architectural, Archeological, and Cultural Resources
- Land Use
- Natural Resources and Energy Supply
- Noise and Noise-Compatible Land Use
- Visual Effects (including light emissions)
- Socioeconomics, Environmental Justice, and Children's Environmental Health and Safety risks
- Water Resources (including wetlands, floodplains, surface waters, groundwater, and wild and scenic rivers)
- Cumulative Impacts

The FAA will initiate Section 106 consultation in accordance with the National Historic Preservation Act. Section 106 requires Federal agencies to consider the effects of their undertakings on historic properties and to consult with the State Historic Preservation Office (SHPO), Tribal Historic Preservation Office (THPO) and other individuals or organizations with a special interest in the undertaking or in the historic properties that may be affected by the undertaking.

Preliminary Schedule

Construction is expected to begin in Fall 2020 and estimated to take approximately four years to complete. It is expected that the Draft EA will be available for public review and comment in Spring 2020. Comments on the Draft EA will be addressed as part of the preparation of the Final EA.

Position	Company Name	Address Line 1	Address Line 2	Address Line 3	City	STATE	Zipcode
Regional Administrator	U.S. Environmental Protection Agency, Pacific Southwest, Region 9	US EPA Pacific Southwest, Region 9	75 Hawthorne Street		San Francisco	CA	94105
Division Chief	California Air Resources Board, Air Quality Planning and Science Division	Air Quality Planning and Science Division	1001 I Street	P.O. Box 2815	Sacramento	CA	95812
Secretary for Environmental Protection	CalEPA, Office of the Secretary	Office of the Secretary	1001 I Street	P.O. Box 2815	Sacramento	CA	95812
Principal Environmental Planner	Bay Area Clean Quality Management District, Planning and Climate Protection	Planning and Climate Protection	375 Beale Street	Suite 600	San Francisco	CA	94105
Director	City of San Jose, Planning Division	Planning Division	200 E. Santa Clara St.	Tower, 3rd Floor	San Jose	CA	95113
Director of Planning and Development	Santa Clara County, Department of Planning and Development	Department of Planning and Development	70 West Hedding Street	7th Floor East Wing	San Jose	CA	95110
Regional Manager, Bay Delta Region (Region 3)	California Department of Fish and Wildlife (CDFW)		2825 Cordelia Road	Suite 100	Fairfield	CA	94534
District 4 Director	California Department of Transportation - District 4		P.O. Box 23660		Oakland	CA	94623
General Manager / CEO	Santa Clara County Valley Transportation Authority (VTA), River Oaks Administrative	River Oaks Administrative Offices	3331 North First Street		San Jose	CA	95134
Executive Director	San Francisco Bay Conservation and Development Commission		375 Beale Street	Suite 510	San Francisco	CA	94105
Assistant Director	California Department of Water Resources, Department of Public Affairs	Department of Public Affairs	P.O. Box 942836		Sacramento	CA	92436
Branch Manager	California Government's Office of Emergency Services, Division of Planning and Prep	Division on Planning and Preparedness	3650 Schriever Avenue		Mather	CA	95655
	California Native American Heritage Commission		1550 Harbor Blvd	Suite 100	West Sacramento	CA	95691
Acting Division Chief	California Department of Transportation, Division of Aeronautics	Division of Aeronautics	1120 N Street		Sacramento	CA	95814
Division Chief	California Department of Transportation, Division of Transportation Planning	Division of Transportation Planning	P.O. Box 942873		Sacramento	CA	94273
Sergeant	California Highway Patrol	Golden Gate Division	2020 Junction Avenue		San Jose	CA	95131
Branch Chief, Freight Activity Branch	California Air Resources Board, Transportation and Toxics Division	Transportation and Toxics Division	P.O. Box 2815		Sacramento	CA	95812
Executive Officer	San Francisco Regional Water Quality Control Board, Region 2	Region 2	1515 Clay Street	Suite 1400	Oakland	CA	94612
Director	Santa Clara County, Roads and Airports Department	Roads and Airports Department	101 Skyport Dr		San Jose	CA	95110
Planner	Santa Clara County, Airport Land Use Commission	Airport Land Use Commission	70 West Hedding Street	7th Floor East Wing	San Jose	CA	95110
District Branch Chief	California Department of Transportation Local Development Intergovernmental Revi	Local Development Intergovernmental Review	111 Grand Avenue	MS 10-D, 14th Floor	Oakland	CA	94612
Air Quality Planning Manager	Bay Area Air Quality Management District		375 Beale Street	Suite 600	San Francisco	CA	94105
Community Development Director	City of Campbell, Planning Division	Planning Division	70 N 1st Street		Campbell	CA	95008
Assistant Director	City of Cupertino, Community Development Department	Community Development Department	10300 Torre Avenue		Cupertino	CA	95014
Community Development Director	City of Fremont, Community Development Department	Community Development Department	39550 Liberty Street		Fremont	CA	94538
Development Services Director	City of Morgan Hill, Planning Division	Planning Division	17575 Peak Avenue		Morgan Hill	CA	95037
Planning Director	City of Milpitas, Planning and Neighborhood Services Division	Planning and Neighborhood Services Division	455 E Calaveras Boulevard		Milpitas	CA	93035
Director of Community Development	City of Santa Clara, Department of Community Development	Department of Community Development	1500 Warburton Avenue		Santa Clara	CA	95050
Director of Community Development	City of Saratoga, Department of Community Development	Department of Community Development	13777 Fruitvale Avenue		Saratoga	CA	95070
Director of Community Development	City of Sunnyvale, Department of Community Development	Department of Community Development	456 W Olive Avenue		Sunnyvale	CA	94086
Community Development Director	Town of Los Gatos, Department of Community Development	Department of Community Development	110 E Main Street		Los Gatos	CA	95030
Associate Civil Engineer	Santa Clara County Valley Water District, Community Projects Review Unit	Community Projects Review Unit	5750 Almaden Valley Expressway		San Jose	CA	95118
	San Jose Water Company		1265 S Bascom Avenue		San Jose	CA	95128
City Manager	City of Palo Alto		250 Hamilton Avenue	7th Floor	Palo Alto	CA	94301
Associate Director	Guadalupe-Coyote Resource Conservation District		881 N 1st Street	Room 204	San Jose	CA	95008
Executive Director	Greenbelt Alliance		312 Sutter Street	Suite 402	San Francisco	CA	94108
Conservation Committee Chair	Sierra Club, Loma Prieta Chapter	Loma Prieta Chapter	3921 E Bayshore Road		Palo Alto	CA	94303
President	California Native Plant Society, Santa Clara Valley Chapter	Santa Clara Valley Chapter	3921 E Bayshore Road	Room 205	Palo Alto	CA	94303
Executive Director	San Jose Downtown Association		28 N 1st Street	Suite 1000	San Jose	CA	95113
Environmental Advocate	Santa Clara Valley Audubon Society		22221 McClellan Road		Cupertino	CA	95014
Director	PG&E, Department of Land Management	Land Management	111 Almaden Boulevard	Room 814	San Jose	CA	95113

legals

Legal Notice

NOTICE OF PREPARATION OF AN ENVIRONMENTAL ASSESSMENT FOR THE NORMAN Y. MINETA SAN JOSE INTERNATIONAL AIRPORT

The City of San José, California, owner and operator of Norman Y. Mineta San José International Airport (SJC), in cooperation with the Federal Aviation Administration (FAA), is preparing an Environmental Assessment (EA), under the National Environmental Policy Act (NEPA) to evaluate and disclose the potential environmental impacts associated with the proposed extension and modernization of Terminal B through the construction of a planned South Concourse, which will become Terminal C. The project also includes enabling projects to accommodate the construction of the terminal extension, as well as construction of a parking structure and an on-airport business hotel.

Legal Notice

The project description, location, and environmental categories that will be analyzed in the Environmental Assessment (EA) for the project can be found on the Norman Y. Mineta San Jose International Airport website at www.flysjc.com/environment. The City will accept comments within 30 days from date of this publication. If you have comments on the proposed project, please identify a contact person from your organization and send your response electronically or by mail to Mr. Ryan Sheelen at the following address:

Mineta San Jose International Airport
Attn: Ryan Sheelen, C.M.
1701 Airport Blvd. Ste B-1130
San Jose, CA 95110
Email: rsheelen@sjc.org

3/6/20
CNS-3350479#
MERCURY NEWS
SJMN 6467659
March 6, 2020

Environment

Terminal B South Concourse Improvements Project Environmental Assessment at Norman Y. Mineta San José International Airport

3/6/2020

The City of San José, California, owner and operator of Norman Y. Mineta San José International Airport (SJC), in cooperation with the Federal Aviation Administration (FAA), is preparing an Environmental Assessment (EA), under the National Environmental Policy Act (NEPA) to evaluate and disclose the potential environmental impacts associated with the proposed extension and modernization of Terminal B through the construction of a planned South Concourse, which will become Terminal C. The project also includes enabling projects to accommodate the construction of the terminal extension, as well as construction of a parking structure and an on-airport business hotel.

The project description, location, and environmental categories that will be analyzed in the Environmental Assessment (EA) for the project can be found in the attached document below:

SJC-EA

The City will accept comments within **30 days** of 3/6/2020. If you have comments on the proposed project, please identify a contact person from your organization and send your response electronically or by mail to Mr. Ryan Sheelen at the following address:

Mineta San Jose International Airport
Attn: Ryan Sheelen, C.M.
1701 Airport Blvd. Ste B-1130
San Jose, CA 95110
Email: rsheelen@sjc.org

Air Quality

Alternative Fuels

Consolidated Rental Auto Center (ConRAC)

Electric Vehicles

Public Transportation

Roadway Efficiency

Voluntary Airport Low Emissions Grant Program

Green Building

Energy Efficiency & Performance

Fuel Farm

Green Cleaning and Indoor Air Quality

Materials and Finishes

Resource & Waste Management

Environmental Stewardship

Guadalupe River & Gardens

Reduction & Recycling

LEED

LEED Silver

Water Quality

Stormwater Pollution Prevention

Water Conservation

MINETA SAN JOSÉ INTERNATIONAL AIRPORT

Connect With Us

Feedback

Subject: FW: [EXTERNAL]

From: Onciano, Jacqueline <jacqueline.onciano@pln.sccgov.org>
Sent: Wednesday, March 4, 2020 7:00 PM
To: Cheryl Dombrowski <cdombrowski@HNTB.com>
Cc: Eastwood, Rob <Rob.Eastwood@PLN.SCCGOV.ORG>; Connolly, Mark <Mark.Connolly@PLN.SCCGOV.ORG>; Mikhail, Leza <leza.mikhail@pln.sccgov.org>; Rader, David <David.Rader@pln.sccgov.org>
Subject: RE: [EXTERNAL]

Good afternoon, Ms. Dombrowski:

Thank you for the opportunity to review the Environmental Assessment. Would it be possible to conduct a site visit of the proposed Airport Extension area. Please let me know at your earliest opportunity.

Kind regards,

Jacqueline Onciano

Jacqueline R. Onciano
Director of Planning & Development
County of Santa Clara
70 W. Hedding St., 7th Floor, East Wing
San Jose, CA 95110
Phone: (408) 299-6741
Fax: (408) 299-6757

From: Connolly, Mark
To: Sheelen, Ryan
Cc: Caroline Pinegar; "CGreene@sjc.org"
Subject: RE: SJC NOTICE OF PREPARATION OF AN ENVIRONMENTAL ASSESSMENT
Date: Friday, March 6, 2020 3:48:22 PM
Attachments: image001.jpg
image002.png

Ryan-

Thank you, for the opportunity to review the EA for the SJC terminal expansion project. The Santa Clara County Airport Land Use Commission (ALUC) has no comments on the project, as it is entirely located on Airport property. However, if the proposed fueling station affects modification to the fuel farm to the north of the Airport, the ALUC would want to review for adherence with any applicable safety zone policies.

Thank you,

Mark J. Connolly
Senior Planner / Deputy Zoning Administrator / Airport Land Use Commission Program Manager
County of Santa Clara Planning Division
70 West Hedding Street
East Wing 7th Floor
San Jose, CA 95010
408-299-5786

InSite, our new digital permit system is now operational. What to expect: customers will be able to initiate request or apply for a permit online or on site; check the status of your project, submit digital documents, and make payments online or on site; get better customer service through smooth & efficient internal routing. To register for an InSite

Please visit our website.
Click here to look up unincorporated property zoning information.
Questions on the status of your permit? Please e-mail: PLN-PermitCenter@pln.sccgov.org

From: Sheelen, Ryan <rsheelen@sjc.org>
Sent: Friday, March 6, 2020 8:15 AM
To: Connolly, Mark <Mark.Connolly@PLN.SCCGOV.ORG>
Cc: Caroline Pinegar <cpinegar@hntb.com>
Subject: [EXTERNAL] RE: SJC NOTICE OF PREPARATION OF AN ENVIRONMENTAL ASSESSMENT

NOTICE OF PREPARATION OF AN ENVIRONMENTAL ASSESSMENT FOR THE NORMAN Y. MINETA SAN JOSÉ INTERNATIONAL AIRPORT

Please see the attached documentation.

Thank you,

Ryan Sheelen, C.M. | Airport Planner III
Planning and Development Division
Office: 408.392.1193 | rsheelen@sjc.org

Mineta San José International Airport
1701 Airport Blvd. Ste B-1130, San José, CA 95110
flysanjose.com | **facebook** | **twitter** | **linkedin**

From: Sheelen, Ryan
To: Caroline Pinegar
Cc: Kim Hughes; Justin Bychek; Greene, Cary
Subject: Fw: Mineta San Jose Airport Terminal B Improvements Project
Date: Tuesday, March 24, 2020 12:31:55 PM
Attachments: image001.jpg
image002.png
Outlook-11yhk5hj.png
Outlook-osndi3cu.png

Ryan Sheelen, C.M. | Airport Planner III
Planning and Development Division
Office: 408.392.1193 | rsheelen@sjc.org

Mineta San José International Airport
1701 Airport Blvd. Ste B-1130, San José, CA 95110
flysanjose.com | **facebook** | **twitter** | **linkedin**

From: Sheelen, Ryan <rsheelen@sjc.org>
Sent: Monday, March 9, 2020 3:01 PM
To: Wun, Kevin <KRWI@pge.com>
Subject: Re: Mineta San Jose Airport Terminal B Improvements Project

Kevin,

To clarify, the document mailed to your office was for the federal process, National Environmental Policy Act (NEPA) and is an Environmental Assessment (EA).

The CEQA process (EIR) is available publicly on the City's website.

https://www.sanjoseca.gov/your-government/department-directory/planning-building-code-enforcement/planning-division/environmental-planning/environmental-review/active-eirs/sjc-airport-master-plan-update

Thanks,
Ryan

Ryan Sheelen, C.M. | Airport Planner III
Planning and Development Division
Office: 408.392.1193 | rsheelen@sjc.org

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1701 Airport Blvd. Ste B-1130, San José, CA 95110
flysanjose.com | **facebook** | **twitter** | **linkedin**

From: Wun, Kevin <KRWI@pge.com>
Sent: Monday, March 9, 2020 2:45 PM
To: Sheelen, Ryan <rsheelen@sjc.org>
Subject: RE: Mineta San Jose Airport Terminal B Improvements Project

[External Email]

Ryan,
When you get an Environmental Impact Report (EIR) would you be able to send me a copy?

Thank you,
Kevin Wun - Land Agent
Pacific Gas and Electric Company
111 Almaden Blvd. San Jose, CA 95113
Office: (408) 282-7160 - Internal: 282-7160
Kevin.Wun@pge.com -
PG&E PrideNetwork Area Lead (San Jose)

From: Sheelen, Ryan <rsheelen@sjc.org>
Sent: Monday, March 9, 2020 2:42 PM
To: Wun, Kevin <KRWI@pge.com>
Subject: Re: Mineta San Jose Airport Terminal B Improvements Project

*****CAUTION: This email was sent from an EXTERNAL source. Think before clicking links or opening attachments.*****
Hi Kevin,

At this time, there are no known conflicts with PG&E Facilities, keep in mind the project has not yet undergone any design effort.

Thanks,
Ryan

Ryan Sheelen, C.M. | Airport Planner III
Planning and Development Division
Office: 408.392.1193 | rsheelen@sjc.org

Mineta San José International Airport
1701 Airport Blvd. Ste B-1130, San José, CA 95110
flysanjose.com | **facebook** | **twitter** | **linkedin**

From: Wun, Kevin <KRWI@pge.com>
Sent: Monday, March 9, 2020 10:48 AM
To: Sheelen, Ryan <rsheelen@sjc.org>
Subject: Mineta San Jose Airport Terminal B Improvements Project

[External Email]

Good Morning Mr. Sheelen,
Thank you for your package in reference to the above project. Are there any PG&E electric and/or gas facilities in conflict of the proposed work? If so please send me a map with them identified and I will forward to our environmental team for review.

Thank you,
Kevin Wun - Land Agent
Pacific Gas and Electric Company
111 Almaden Blvd. San Jose, CA 95113
Office: (408) 282-7160 - Internal: 282-7160
Kevin.Wun@pge.com -
PG&E PrideNetwork Area Lead (San Jose)

From: Sheelen, Ryan
To: Caroline Pinegar
Cc: Kim Hughes; Greene, Cary; Justin Bychek
Subject: Fw: Mineta Airport expansion
Date: Tuesday, March 24, 2020 12:31:19 PM
Attachments: Outlook-mwidxyea.png

EA comment below.

Ryan Sheelen, C.M. | Airport Planner III
Planning and Development Division
Office: 408.392.1193 | rsheelen@sjc.org

Mineta San José International Airport
1701 Airport Blvd. Ste B-1130, San José, CA 95110
flysanjose.com | **facebook** | **twitter** | **linkedin**

From: j struthers <jeanstruthers@att.net>
Sent: Friday, March 6, 2020 11:43 AM
To: Sheelen, Ryan
Subject: Mineta Airport expansion

[External Email]

My only concern is with the protection of the burrowing owls and their habitat.
The owls are terribly endangered and seem to like the airport. I hope they will not be disturbed.
Their homes have been destroyed at Mission College and almost every where.
I hope they are still living at the airport.and keeping the rodent population in control.

Respectfully yours,
Jean Struthers
Member Audobon Society and Calif Native Plant Society

Attachment 2:

Notice of Availability

City of San José
Norman Y. Mineta San José International Airport

PROPOSED TERMINAL B SOUTH CONCOURSE IMPROVEMENTS

NOTICE OF AVAILABILITY
DRAFT ENVIRONMENTAL ASSESSMENT
and
NOTICE OF PUBLIC WORKSHOP AND PUBLIC HEARING

Notice is hereby given that the City of San José (the City), California, proposes to extend and modernize Terminal B through the construction of a proposed Terminal B South Concourse Improvement Project (Proposed Action) at the Norman Y. Mineta San José International Airport (SJC or Airport) in Santa Clara County, California. A National Environmental Policy Act, Draft Environmental Assessment (EA) for the Proposed Action is available for review and comment.

The purpose of the Proposed Action is to provide necessary terminal infrastructure to serve the traveling public efficiently and with an improved level of service through the year 2029. The Proposed Action would include additional security area and hold rooms for each gate, ticketing, restrooms, concessions, public space, increased baggage handling capacity and extended curbside. The primary components of the Proposed Action are:

(1) Extend Terminal B through construction of the proposed South Concourse, including construction of 16 airline gates with jet bridges in up to 750,000 square feet (SF) of terminal building space. Of the proposed 16 gates, eight (8) replace the existing interim gates, two (2) are gate relocations, and six (6) are new gates.
(2) Reconstruct and strengthen up to 392,000 SF of deteriorated airfield apron at the south end of the proposed Terminal B South Concourse to support aircraft terminal parking.

The Proposed Action is not an airfield-runway capacity enhancement project; therefore, the projected aviation demand is anticipated to occur with or without the proposed terminal improvements.

The Draft EA evaluates the potential environmental impacts of the Proposed Action. The Federal Aviation Administration (FAA) is the lead federal agency to ensure compliance with NEPA for the proposed terminal improvements. The EA was prepared in accordance with FAA Order 1050.1F, *Environmental Impacts: Policies and Procedures*; FAA *1050.1F Desk Reference (v2)*; and FAA Order 5050.4B, *NEPA Implementing Instructions for Airport Actions*.

The Draft EA will be available for public review and comment from January 20, 2023 through March 3, 2023, at http://www.flysanjose.com/environment or in hardcopy at the following locations (see library website or call for hours of operation):

- SJC Administrative Offices, 1701 Airport Blvd, San José, CA 95110 (M-F, 8 AM – 5 PM);
- Dr. Martin Luther King, Jr. Library, 150 E San Fernando St, San José, CA 95112 (https://www.sjpl.org/king or 408-808-2000); and
- Mission Branch Library, 1098 Lexington St, Santa Clara, CA 95050 (https://www.sclibrary.org/about-us/locations-and-hours#mission or 408-615-2964)

A **Public Workshop** on the Draft EA will be held on **Thursday, February 23, 2023** from **5:30 PM to 6:30 PM** Pacific Daylight Time (PDT) in the SJC Administrative Offices, located between Terminal A and B (1701 Airport Boulevard, Suite B-1130 San Jose, CA 95110-1206). Parking is available in the Terminal A

Parking Garage and will be validated. Team members will be available to discuss the project at presentation boards during the Public Workshop.

A **Public Hearing** will be held immediately after the Public Workshop from **6:30 PM to 7:30 PM** at the same venue. The hearing will include a brief presentation. Oral and written comments will be accepted at the Public Hearing.

Comments must be received by 5:00 PM PDT on **Friday, March 3, 2023**. Please ensure adequate time for mailing. Comments received and the responses to those comments will be disclosed in the Final EA.

Before including your address, phone number, e-mail address, or other personal identifying information in your comment, be advised that your entire comment – including your personal identifying information – may be made publicly available at any time. While you can ask us in your comment to withhold from public review your personal identifying information, we cannot guarantee that we will be able to do so.

Written comments on the adequacy of the environmental information disclosed in the Draft EA may be submitted by email or mail to:

Ryan Sheelen, C.M., Airport Planner IV
Planning and Development Division
Mineta San José International Airport
1701 Airport Blvd. Ste B-1130
San José, CA 95110
Email: rsheelen@sjc.org

Those interested in attending the Public Workshop and/or Hearing who have special communication or accommodation needs are encouraged to contact Ryan Sheelen at least three (3) days prior to the Workshop and Public Hearing. Every reasonable effort to accommodate special needs will be made.

San Jose Mercury News

75 E. Santa Clara St , Suite 1100
San Jose, CA 95113
408-920-5332

2003193

CALIF. NEWSPAPER SVC.
BILLING DEPT.
PO BOX 60460
LOS ANGELES, CA 90060

PROOF OF PUBLICATION IN THE CITY OF SAN JOSE IN THE STATE OF CALIFORNIA COUNTY OF SANTA CLARA

FILE NO. 3661198

San Jose Mercury News

The undersigned, being first duly sworn, deposes and says: That at all times hereinafter mentioned affiant was and still is a citizen of the United States, over the age of eighteen years, and not a party to or interested in the above entitled proceedings; and was at and during all said times and still is the principal clerk of the printer and publisher of the San Jose Mercury News, a newspaper of general circulation printed and published daily in the City of San Jose, County of Santa Clara, State of California as determined by the court's decree dated June 27, 1952, Case Numbers 84096 and 84097, and that said San Jose Mercury News is and was at all times herein mentioned a newspaper of general circulation as that term is defined by Sections 6000; that at all times said newspaper has been established, printed and published in the said County and State at regular intervals for more than one year preceding the first publication of the notice herein mentioned. Said decree has not been revoked, vacated or set aside.

I declare that the notice, of which the annexed is a true printed copy, has been published in each regular or entire issue of said newspaper and not in any supplement thereof on the following dates, to wit:

01/20/2023

Dated at San Jose, California
January 20, 2023

I declare under penalty of perjury that the foregoing is true and correct.

Principal clerk of the printer and publisher of the San Jose Mercury News

r.BP316-07/17/17

A000006213573

Legal No. **0006726050**

City of San José
Norman Y. Mineta San José International Airport
PROPOSED TERMINAL B SOUTH CONCOURSE IMPROVEMENTS
NOTICE OF AVAILABILITY
DRAFT ENVIRONMENTAL ASSESSMENT
and
NOTICE OF PUBLIC WORKSHOP AND PUBLIC HEARING

Notice is hereby given that the City of San José (the City), California, proposes to extend and modernize Terminal B through the construction of a proposed Terminal B South Concourse Improvement Project (Proposed Action) at the Norman Y. Mineta San José International Airport (SJC or Airport) in Santa Clara County, California. A National Environmental Policy Act, Draft Environmental Assessment (EA) for the Proposed Action is available for review and comment.

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The Draft EA evaluates the potential environmental impacts of the Proposed Action. The Federal Aviation Administration (FAA) is the lead federal agency to ensure compliance with NEPA for the proposed terminal improvements. The EA was prepared in accordance with FAA Order 1050.1F, Environmental Impacts: Policies and Procedures; FAA 1050.1F Desk Reference (v2); and FAA Order 5050.4B, NEPA Implementing Instructions for Airport Actions.

The Draft EA will be available for public review and comment from January 20, 2023 through March 3, 2023, at http://www.flysanjose.com/environment or in hardcopy at the following locations (see library website or call for hours of operation):

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A **Public Hearing** will be held immediately after the Public Workshop from **6:30 PM to 7:30 PM** at the same venue. The hearing will include a brief presentation. Oral and written comments will be accepted at the Public Hearing.

Comments must be received by 5:00 PM PDT on **Friday, March 3, 2023**. Please ensure adequate time for mailing. Comments received and the responses to those comments will be disclosed in the Final EA.

Before including your address, phone number, e-mail address, or other personal identifying information in your comment, be advised that your entire comment – including your personal identifying information – may be made publicly available at any time. While you can ask us in your comment to withhold from public review your personal identifying information, we cannot guarantee that we will be able to do so.

Written comments on the adequacy of the environmental information disclosed in the Draft EA may be submitted by email or mail to:

Ryan Sheelen, C.M., Airport Planner IV
Planning and Development Division
Mineta San José International Airport
1701 Airport Blvd. Ste B-1130
San José, CA 95110
Email: rsheelen@sjc.org

Those interested in attending the Public Workshop and/or Hearing who have special communication or accommodation needs are encouraged to contact Ryan Sheelen at least three (3) days prior to the Workshop and Public Hearing. Every reasonable effort to accommodate special needs will be made.

1/20/23
CNS-3661198#

Draft Environmental Assessment

Terminal B South Concourse Improvement Project Environmental Assessment at San José Mineta International Airport

1/20/2023

Notice is hereby given that the City of San José (the City), California, proposes to extend and modernize Terminal B through the construction of a proposed Terminal B South Concourse Improvement Project (Proposed Action) at the San José Mineta International Airport (SJC or Airport) in Santa Clara County, California. A National Environmental Policy Act, Draft Environmental Assessment (EA) for the Proposed Action is available for review and comment:

Notice of Availability - Draft Environmental Assessment and Notice of Public Workshop and Public Hearing

Draft Environmental Assessment

Draft Environmental Assessment - Appendices

Public Workshop Material - Handouts

Public Workshop Material - Information Boards

Public Hearing Powerpoint Presentation

The purpose of the Proposed Action is to provide necessary terminal infrastructure to serve the traveling public efficiently and with an improved level of service through the year 2029. The Proposed Action would include additional security area and hold rooms for each gate, ticketing, restrooms, concessions, public space, increased baggage handling capacity and extended curbside. The primary components of the Proposed Action are:

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- Mission Branch Library, 1098 Lexington St, Santa Clara, CA 95050 (https://www.sclibrary.org/about-us/locations-and-hours#mission or 408-615-2964)

Public Workshop & Public Hearing

A **Public Workshop** on the Draft EA will be held on **Thursday, February 23, 2023** from **5:30 PM to 6:30 PM** Pacific Daylight Time (PDT) in the SJC Administrative Offices, located between Terminal A and B (1701 Airport Boulevard, Suite B-1130 San Jose, CA 95110-1206). Parking is available in the Terminal A Parking Garage and will be validated. Team members will be available to discuss the project at presentation boards during the Public Workshop.

A **Public Hearing** will be held immediately after the Public Workshop from **6:30 PM to 7:30 PM** at the same venue. The hearing will include a brief presentation. Oral and written comments will be accepted at the Public Hearing.

Comments must be received by 5:00 PM PDT on **Friday, March 3, 2023**. Please ensure adequate time for r ece and the responses to those comments will be disclosed in the Final EA.

Need assistance?

Before including your address, phone number, e-mail address, or other personal identifying information in your comment, be advised that your entire comment – including your personal identifying information – may be made publicly available at any time. While you can ask us in your comment to withhold from public review your personal identifying information, we cannot guarantee that we will be able to do so.

Written comments on the adequacy of the environmental information disclosed in the Draft EA may be submitted by email or mail to:

Ryan Sheelen, C.M., Airport Planner IV
Planning and Development Division
San José Mineta International Airport
1701 Airport Blvd. Ste B-1130
San José, CA 95110
Email: rsheelen@sjc.org

Those interested in attending the Public Workshop and/or Hearing who have special communication or accommodation needs are encouraged to contact Ryan Sheelen at least three (3) days prior to the Workshop and Public Hearing. Every reasonable effort to accommodate special needs will be made.

It is unlawful for businesses to discriminate on the basis of race, color, national origin, sex, sexual orientation, creed or disability at SJC.

From: Sheelen, Ryan
Subject: NOTICE OF AVAILABILITY FOR SAN JOSÉ MINETA INTERNATIONAL AIRPORT (SJC) DRAFT ENVIRONMENTAL ASSESSMENT - PROPOSED TERMINAL B SOUTH CONCOURSE IMPROVEMENTS
Date: Friday, January 20, 2023 11:17:18 AM
Attachments: Outlook-ot0h22z4.png
20230112_SJC_DraftEA_NOA_Jan20.pdf

Good morning,

The City of San José proposes to extend and modernize Terminal B through the construction of a proposed Terminal B South Concourse Improvement Project at the San José Mineta International Airport (SJC) in Santa Clara County, California. The City is requesting Airport Layout Plan approval and intends to seek federal funding support from the Federal Aviation Administration. A National Environmental Policy Act (NEPA) Draft Environmental Assessment (EA) is available for review and comment at http://www.flysanjose.com/environment.

A Notice of Availability (NOA) is being published today in *The Mercury News* (attached). Comments must be received by 5:00 PM PDT on **Friday, March 3, 2023**. Written comments on the Draft EA should be submitted to:

Ryan Sheelen, C.M., Airport Planner IV
Planning and Development Division
San José Mineta International Airport
1701 Airport Blvd. Ste B-1130
San José, CA 95110
Email: rsheelen@sjc.org

A **Public Workshop/Public Hearing** on the Draft EA will be held on **Thursday, February 23, 2023** in the SJC Administrative Offices. The Public Workshop will be held from 5:30 PM to 6:30 PM followed by the Public Hearing at the same venue from 6:30 PM to 7:30 PM. Please see the attached NOA for details.

Thank you,
Ryan

Ryan Sheelen, C.M. | Airport Planner IV
Planning and Development Division
Office: 408.392.1193 | rsheelen@sjc.org

Mineta San José International Airport
1701 Airport Blvd. Ste B-1130, San José, CA 95110
flysanjose.com | **facebook** | **twitter** | **linkedin**

Email Contact List - Notification of Draft Environmental Asssessment, Public Workshop & Public Hearing		
Agencies		
Assistant Manager, Air Quality Planning	Bay Area Air Quality Management District, Planning and Climate Protection	Planning and Climate Protection
Director	City of San Jose, Planning Division	Planning Division
Director of Planning and Development	Santa Clara County, Department of Planning and Development	Department of Planning and Development
Acting Division Chief	California Department of Transportation, Division of Aeronautics	Division of Aeronautics
Division Chief	California Department of Transportation, Division of Transportation Planning	Division of Transportation Planning
Branch Chief, Freight Activity Branch	California Air Resources Board, Transportation and Toxics Division	Transportation and Toxics Division
Executive Officer	San Francisco Regional Water Quality Control Board, Region 2	Region 2
Director	Santa Clara County, Roads and Airports Department	Roads and Airports Department
Senior Planner	Santa Clara County, Airport Land Use Commission	Airport Land Use Commission
District Branch Chief	California Department of Transportation Local Development Intergovernmental Review	Local Development Intergovernmental Review
Air Quality Planning Manager	Bay Area Air Quality Management District	
Director	City of Cupertino, Community Development Department	Community Development Department
Director of Community Development	City of Santa Clara, Department of Community Development	Department of Community Development
Director of Community Development	City of Sunnyvale, Department of Community Development	Department of Community Development
Associate Civil Engineer	Santa Clara County Valley Water District, Community Projects Review Unit	Community Projects Review Unit
Vice President of Engineering	San Jose Water Company	
Associate Director	Guadalupe-Coyote Resource Conservation District	
Executive Director	Greenbelt Alliance	
Conservation Committee Chair	Sierra Club, Loma Prieta Chapter	Loma Prieta Chapter
President	California Native Plant Society, Santa Clara Valley Chapter	Santa Clara Valley Chapter
Chief Executive Officer	San Jose Downtown Association	
Environmental Advocate	Santa Clara Valley Audubon Society	
Director	PG&E, Department of Land Management	Land Management
Division Supervisor	U. S. Fish and Wildlife Service	Coast Bay Division
Branch Chief	National Marine Fisheries Service	West Coast Regional Office
Tribal Contacts		
Chairperson	Amah Mutsun Tribal Band of Mission San Juan Bautista	
Chairperson	Amah Mutsun Tribal Band	
Chairperson	Indian Canyon Mutsun Band of Costanoan	
Chairperson	Muwekma Ohlone Indian Tribe of the San Francisco Bay Area	
Chairperson	North Valley Yokuts Tribe	
Chairperson	The Ohlone Indian Tribe	
Chairperson	Tamien Nation	
Chairperson	Wuksache Indian Tribe - Eshom Valley Band	
Scoping Commentors		
Member	Audobon Society and California Native Plant Society	
Land Agent	Pacific Gas and Electric Company	
Airport Land Use Commission Program Manager	County of Santa Clara Planning Division	
Director of Planning and Development	Santa Clara County, Department of Planning and Development	Department of Planning and Development

Attachment 3:

Public Workshop and Public Hearing Materials

SJC

SAN JOSE
MINETA
INTERNATIONAL
AIRPORT

Public Hearing

Draft Environmental Assessment for Terminal B South Concourse Improvements

https://www.flysanjose.com/environment/environment
or scan the QR code for the Draft EA and tonight's materials

February 23, 2023

Agenda

01. Purpose of the Public Hearing

02. Environmental Assessment (EA)

03. Project Background

04. Purpose and Need

05. Alternatives

06. Environmental Impact Categories

07. Next Steps

SJC

1.0

Purpose of the Public Hearing

Purpose of the Public Hearing

Learn

- Listen to a brief **presentation** about the project.

Comment Tonight

- Provide formal **verbal** comments regarding the environmental evaluation tonight during the Public Hearing.

Written Comments

- Submit **written** comments regarding the environmental evaluation on a comment form tonight (or mail or email any time through close of business 3/3/23).

2.0

Environmental Assessment

Environmental Assessment (EA)

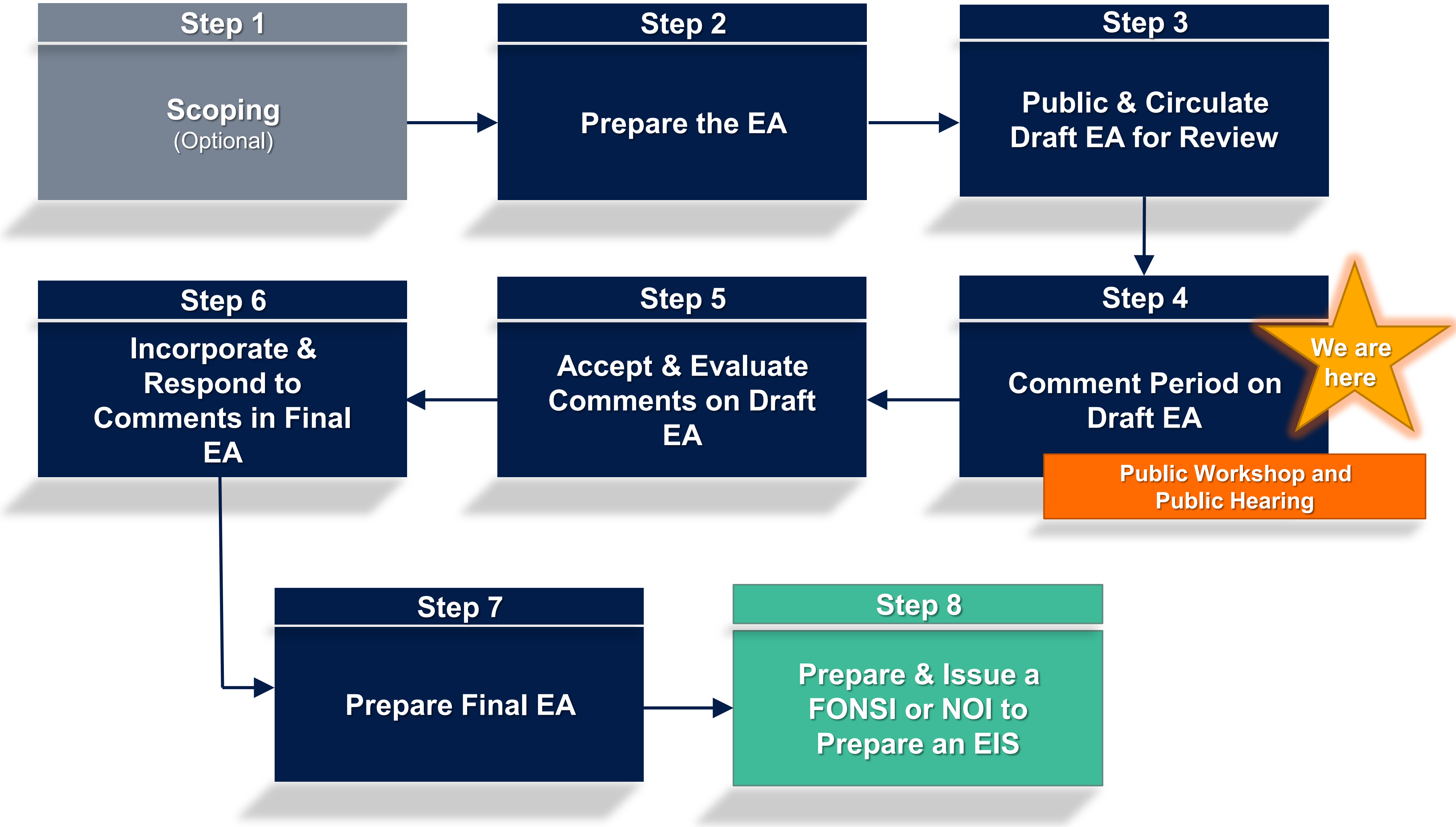
What is an EA?

- Concise public document that provides sufficient evidence and analysis for determining the level of potential environmental impacts
- Sponsor prepares and coordinates the EA with the Federal Aviation Administration (FAA) to evaluate the potential impacts to the environment and to provide a detailed review of the proposed development actions
- National Environmental Policy Act of 1969 (NEPA); Council on Environmental Quality's (CEQ) implementing regulations; and FAA Orders 1050.1F *Environmental Impacts: Policies and Procedures* and 5040.4B *NEPA Implementing Instructions for Airport Actions*

Purpose of an EA

- Assess the level of potential environmental impacts of the Proposed Action or alternatives
- If *no significant impacts* are found:
    - FAA may issue a Finding of No Significant Impact (FONSI)
- If *significant impacts* are found that cannot be mitigated:
    - FAA will make a decision to prepare a Notice of Intent (NOI) to prepare an Environmental Impact Statement (EIS)

Environmental Assessment Process



Step 1

Scoping
(Optional)

Step 2

Prepare the EA

Step 3

Public & Circulate Draft EA for Review

Step 4

Comment Period on Draft EA

We are here

Public Workshop and Public Hearing

Step 5

Accept & Evaluate Comments on Draft EA

Step 6

Incorporate & Respond to Comments in Final EA

Step 7

Prepare Final EA

Step 8

Prepare & Issue a FONSI or NOI to Prepare an EIS

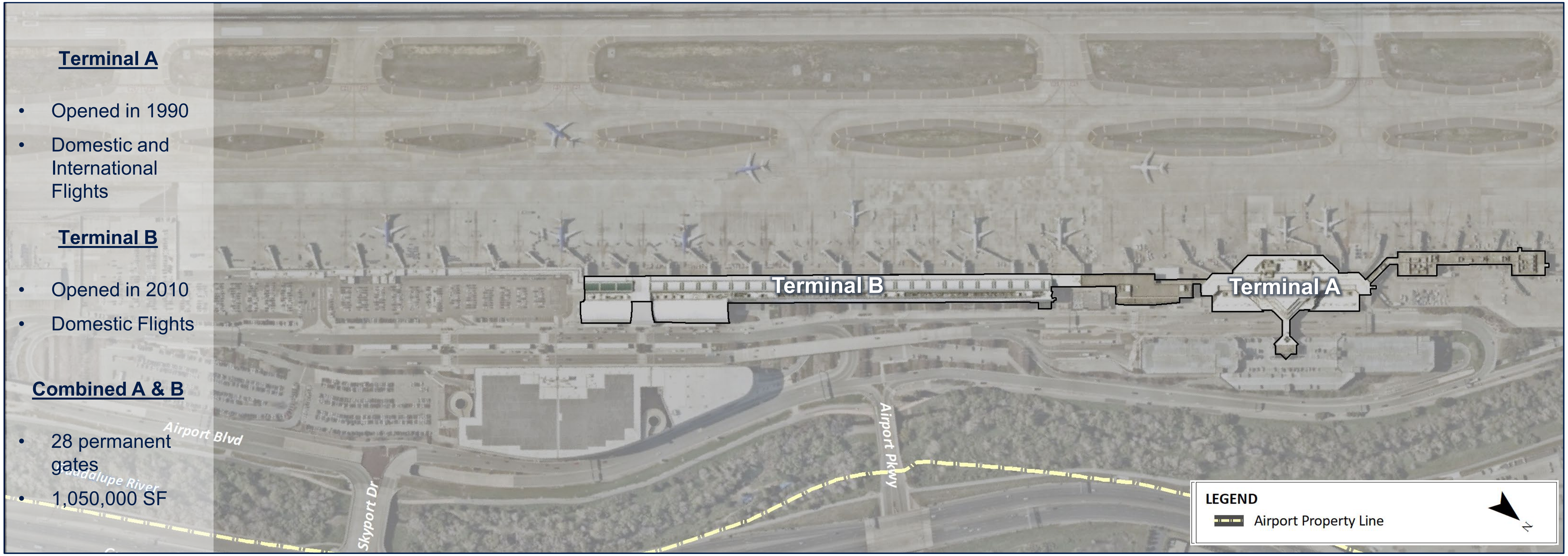
3.0

Project Background

Airport Layout

See Chapter 1, Purpose & Need

Terminal Area



Terminal A

- Opened in 1990
- Domestic and International Flights

Terminal B

- Opened in 2010
- Domestic Flights

Combined A & B

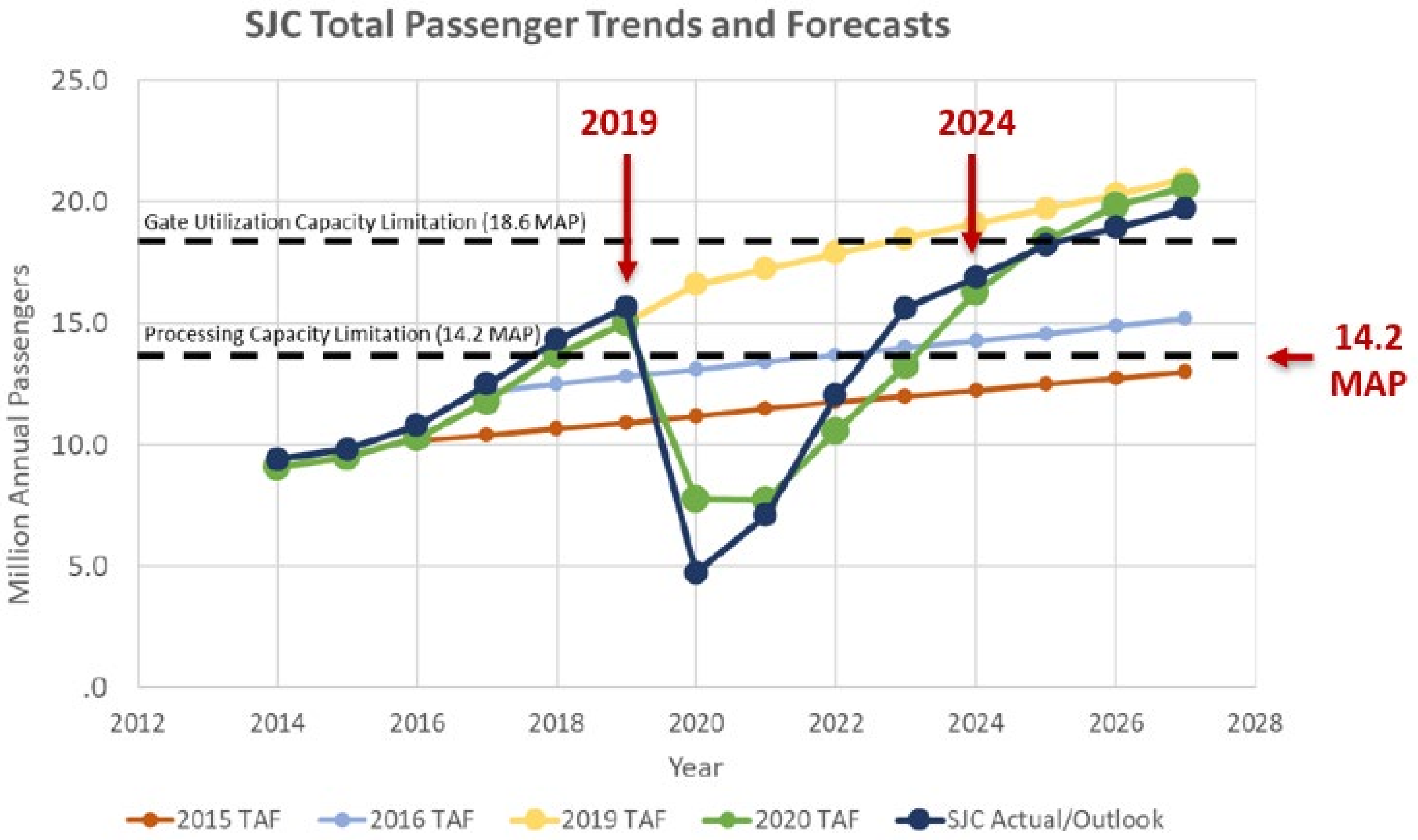
- 28 permanent gates
- 1,050,000 SF

	Terminal A	Terminal B
Gates	16 (1-16)	12 (17-28)
Area (SF)	450,000 SF	600,000 SF
Avg. SF/ Gate	28,100 SF	50,000 SF

See Chapter 1, Purpose & Need

Project Background

- During the five years preceding the COVID-19 Pandemic (2014 – 2019), SJC experienced record-breaking growth in air passenger activity
- 14.2 million annual passengers (MAP) = Activity level associated with limitations in terminal processing and degradation of level of service
- SJC surpassed 14.2 MAP in 2019, and is projected to reach again by 2024
- 21.8 MAP anticipated by 2029

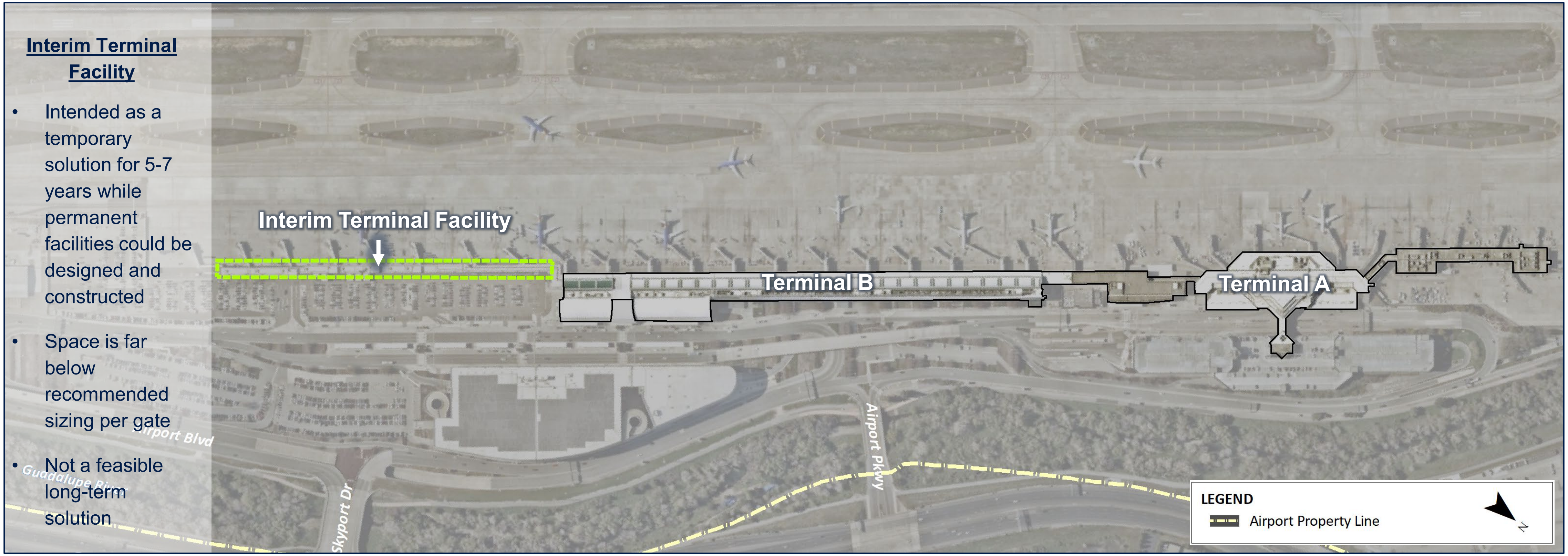


Source: SJC and FAA Data, see *Appendix B, Aviation Activity Forecasts of Draft EA*.

Terminal Area – Interim Terminal Facility

Interim Terminal Facility

- Intended as a temporary solution for 5-7 years while permanent facilities could be designed and constructed
- Space is far below recommended sizing per gate
- Not a feasible long-term solution



	Terminal A	Terminal B	Interim Facility
Gates	16 (1-16)	12 (17-28)	8 (29-36)
Area (SF)	450,000 SF	600,000 SF	50,000 SF
Avg. SF/ Gate	28,100 SF	50,000 SF	6,250 SF

4.0

Purpose and Need

Purpose and Need

Purpose

- The purpose of the Proposed Action is to provide the necessary terminal infrastructure to correct deficiencies in currently constrained facilities, and serve the traveling public with an appropriate level of service through 2029.

Need

- Improve Level of Service and Convenience for Airport Users
- Enhance Operational Efficiency
- Accommodate Projected Demand


5.0

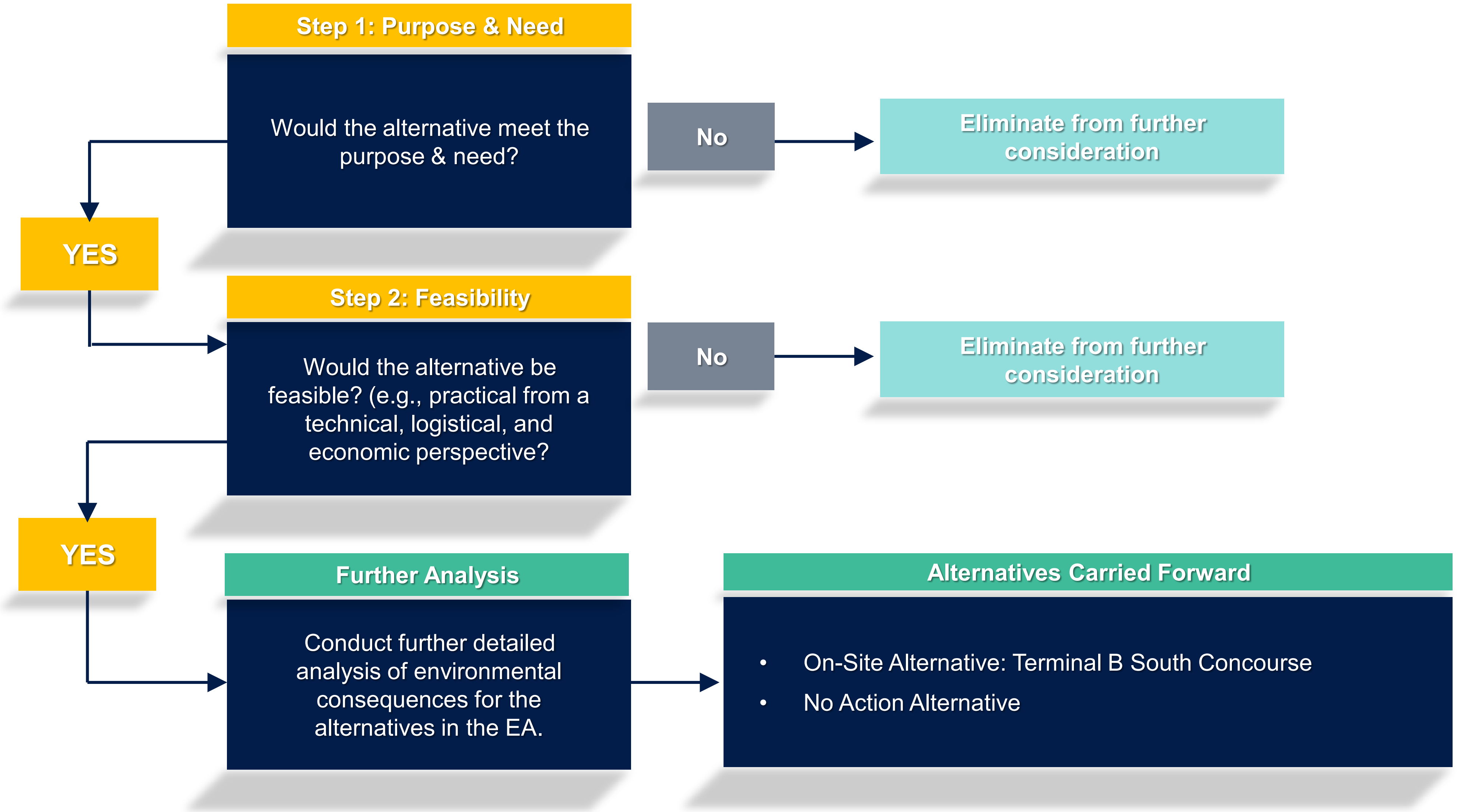
Alternatives

Range of Alternatives Considered

Type of Alternative	Example
Off-Site Alternative	• Relocation of SJC or construction of new airport • Use of other airports • Use of other modes of transportation
On-Site Alternative	• Extension of Terminal A • New Terminal Facility Location • Terminal B South Concourse (Proposed Action Alternative)
No Action Alternative	• Existing Interim Terminal Facility would continue to be used for arriving and departing passengers and airline flights; no additional space for passenger processing functions or level of service would be provided. ➢ Retained for analysis pursuant to CEQ regulations at 40 C.F.R. § 1502.14(d) ➢ Serves as a basis of comparison with other alternatives retained for analysis

See Chapter 2, Alternatives

Alternatives Screening Process



Step 1: Purpose & Need

Would the alternative meet the purpose & need?

No

Eliminate from further consideration

YES

Step 2: Feasibility

Would the alternative be feasible? (e.g., practical from a technical, logistical, and economic perspective?

No

Eliminate from further consideration

YES

Further Analysis

Conduct further detailed analysis of environmental consequences for the alternatives in the EA.

Alternatives Carried Forward

- On-Site Alternative: Terminal B South Concourse
- No Action Alternative

See Chapter 2, Alternatives

No Action Alternative

SJC

Proposed Action Alternative

Terminal B South Concourse Extension

- Construct 16 airline gates with jet bridges.
- Net increase of six gates.
- 750,000 SF of terminal building space.

Terminal Apron Reconstruction

- Reconstruct & strengthen 392,000 SF to support aircraft terminal parking.

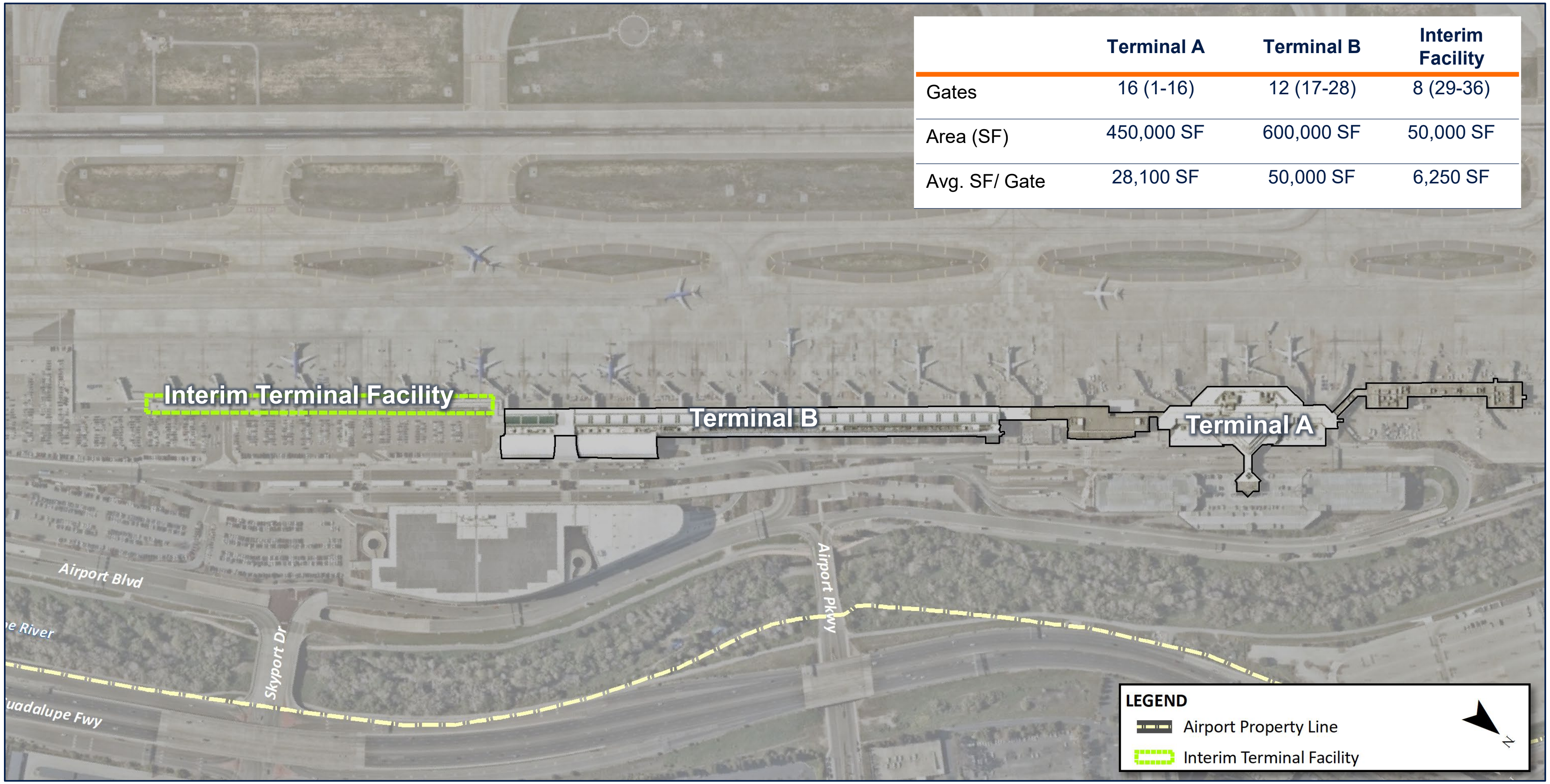
LEGEND

▬	Airport Property Line
▭	Interim Terminal Facility (to be replaced by Proposed South Concourse)
✈	New Gate (6)
✈	Relocated Gate (2)
✈	Convert Interim Terminal Gate (8)

No Action Alternative – Terminal Area

Interim Terminal Facility.

- Intended as a temporary solution for 5-7 years while permanent facilities could be designed and constructed
- Space is far below recommended sizing per gate
- Not a feasible long-term solution



	Terminal A	Terminal B	Interim Facility
Gates	16 (1-16)	12 (17-28)	8 (29-36)
Area (SF)	450,000 SF	600,000 SF	50,000 SF
Avg. SF/ Gate	28,100 SF	50,000 SF	6,250 SF

See Chapter 2, Alternatives

Proposed Action Alternative – Terminal Area

Terminal B South Concourse Extension

- Construct 16 airline gates with jet bridges
- Net increase of six gates
- 750,000 SF of terminal building space

Terminal Apron Reconstruction

- Reconstruct and strengthen 392,000 SF to support aircraft terminal parking

Proposed South Concourse	
Gates	16 (29-42 or 44)
Area (SF)	750,000 SF
Avg. SF/ Gate	46,875 SF (est.)

6.0

Environmental Impact Categories

Environmental Impact Categories

FAA Order 1050.1F Impact Categories

- **Air Quality**
- **Biological Resources** (Fish, Wildlife, Plants)
- **Climate**
- **Coastal Resources**
- **DOT Act: Section 4(f) Resources**
- **Farmlands**
- **Historical, Architectural, Archaeological, and Cultural Resources**
- **Land Use**
- **Natural Resources and Energy Supply**
- **Noise and Noise-Compatible Land Use**
- **Socioeconomic, Environmental Justice, and Children's Environmental Health and Safety Risks**
- **Visual Effects**
- **Water Resources** (Wetlands, Floodplains, Surface Waters, Groundwater, Wild & Scenic Rivers)

Environmental Impact Categories

FAA Order 1050.1F Impact Categories Analyzed

- **Air Quality**
- **Biological Resources** (Fish, Wildlife, Plants)
- **Climate**
- Coastal Resources
- **DOT Act: Section 4(f) Resources**
- Farmlands
- **Historical, Architectural, Archaeological, and Cultural Resources**
- **Land Use**
- **Natural Resources and Energy Supply**
- **Noise and Noise-Compatible Land Use**
- **Socioeconomic, Environmental Justice, and Children's Environmental Health and Safety Risks**
- **Visual Effects**
- **Water Resources** (Wetlands, Floodplains, Surface Waters, Groundwater, Wild & Scenic Rivers)

❖ ***Note:*** *Coastal resources, farmlands, wetlands, and wild and scenic rivers were not considered as these resources do not exist in the study area.*

See Chapter 3, Affected Environment and Chapter 4, Environmental Consequences

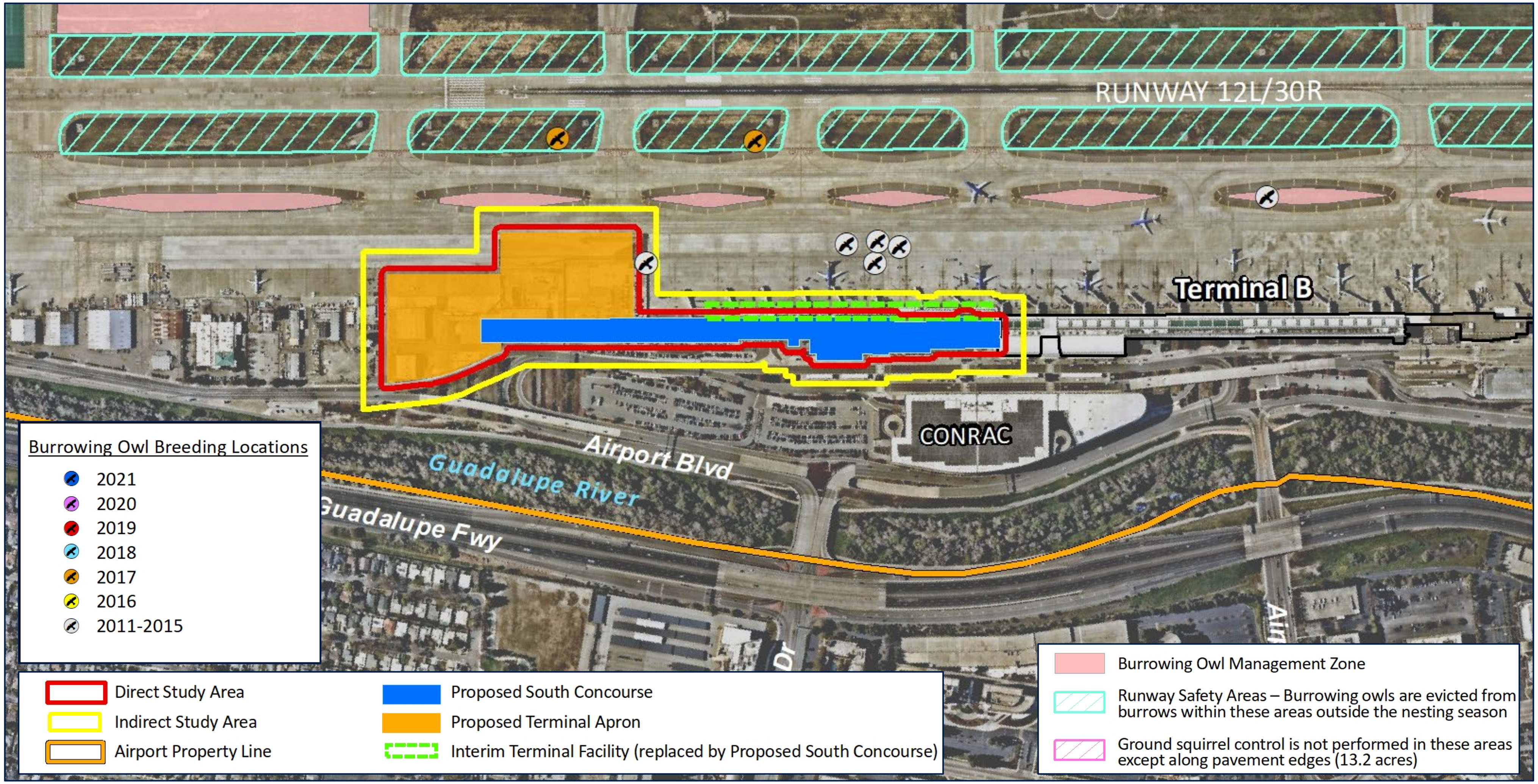
Air Quality

Emissions Analyzed	Years of Analysis		Results
Construction Emissions	**2023 – 2028**	Construction Years*	Emissions well below Clean Air Act General Conformity *de minimis* levels for all pollutants each year of construction
Operational Emissions (aircraft, GSE, APU)	**2019**	Existing Condition	The Proposed Action Alternative will not increase aircraft operations, therefore no change in the operational emissions between the Proposed Action Alternative and the No Action Alternative in either future year
	2029	1st full year after implementation	
	2034	5 years after implementation	

**Anticipated.*

- *Santa Clara County is designated by the USEPA to be in a non-attainment area for ozone (O_3) and particulate matter ($PM_{2.5}$).*
- *No significant impacts to air quality resulting from the construction or operation of the Proposed Action Alternative.*

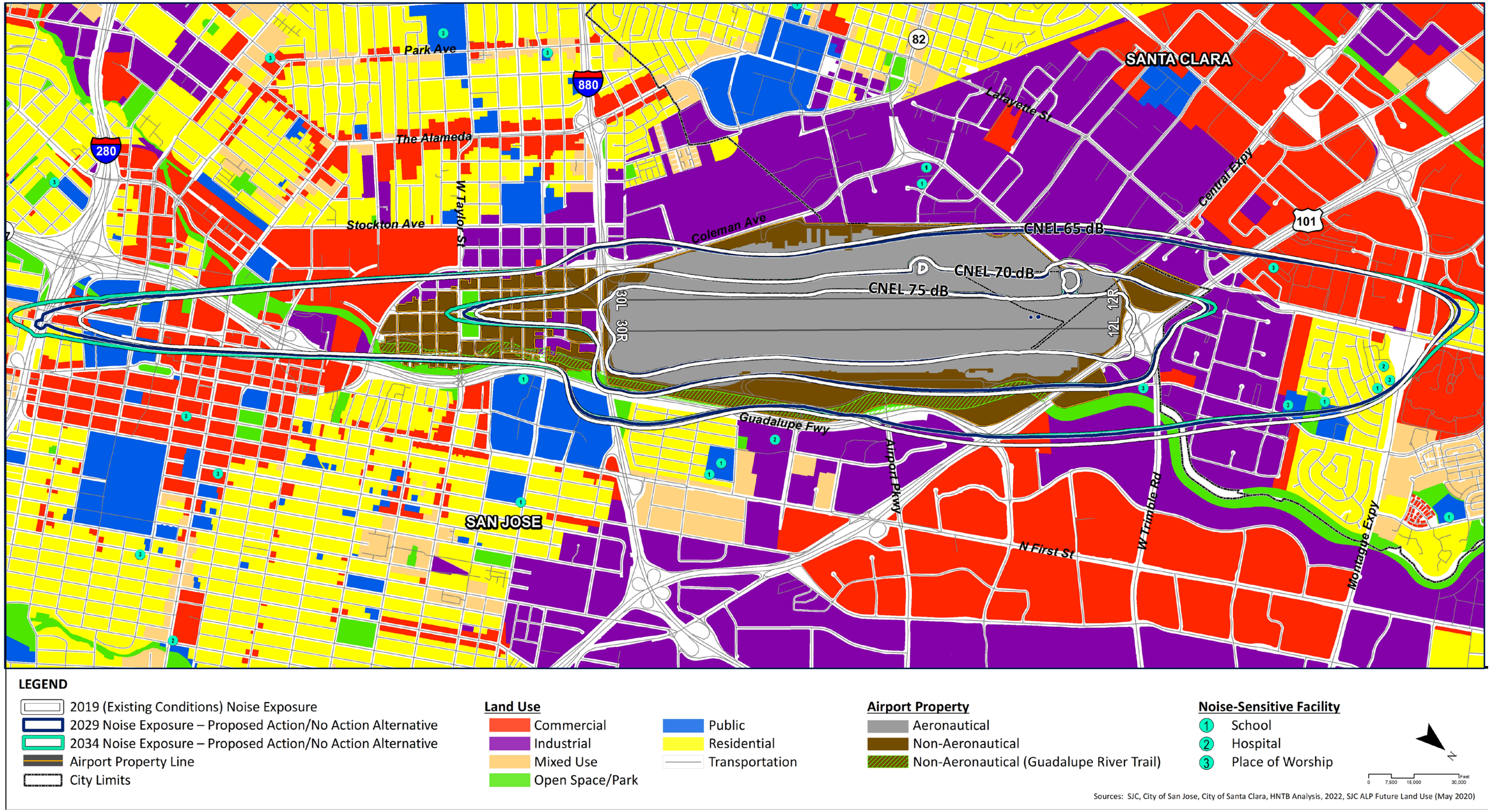
Biological Resources – Burrowing Owl



- *No Effect to Federal Listed Threatened or Endangered Species.*

SJC

Noise and Noise-Compatible Land Use



Sources: SJC, City of San Jose, City of Santa Clara, HNTB Analysis, 2022, SJC ALP Future Land Use (May 2020)

Noise Exposure

2019 ▭	Existing Condition CNEL 65-75 dB
2029 ▭	1st full year after implementation CNEL 65-75 dB
2034 ▭	5 years after implementation CNEL 65-75 dB

The Proposed Action Alternative will not increase aircraft operations or change the aircraft fleet mix operating at SJC when compared to the No Action Alternative.

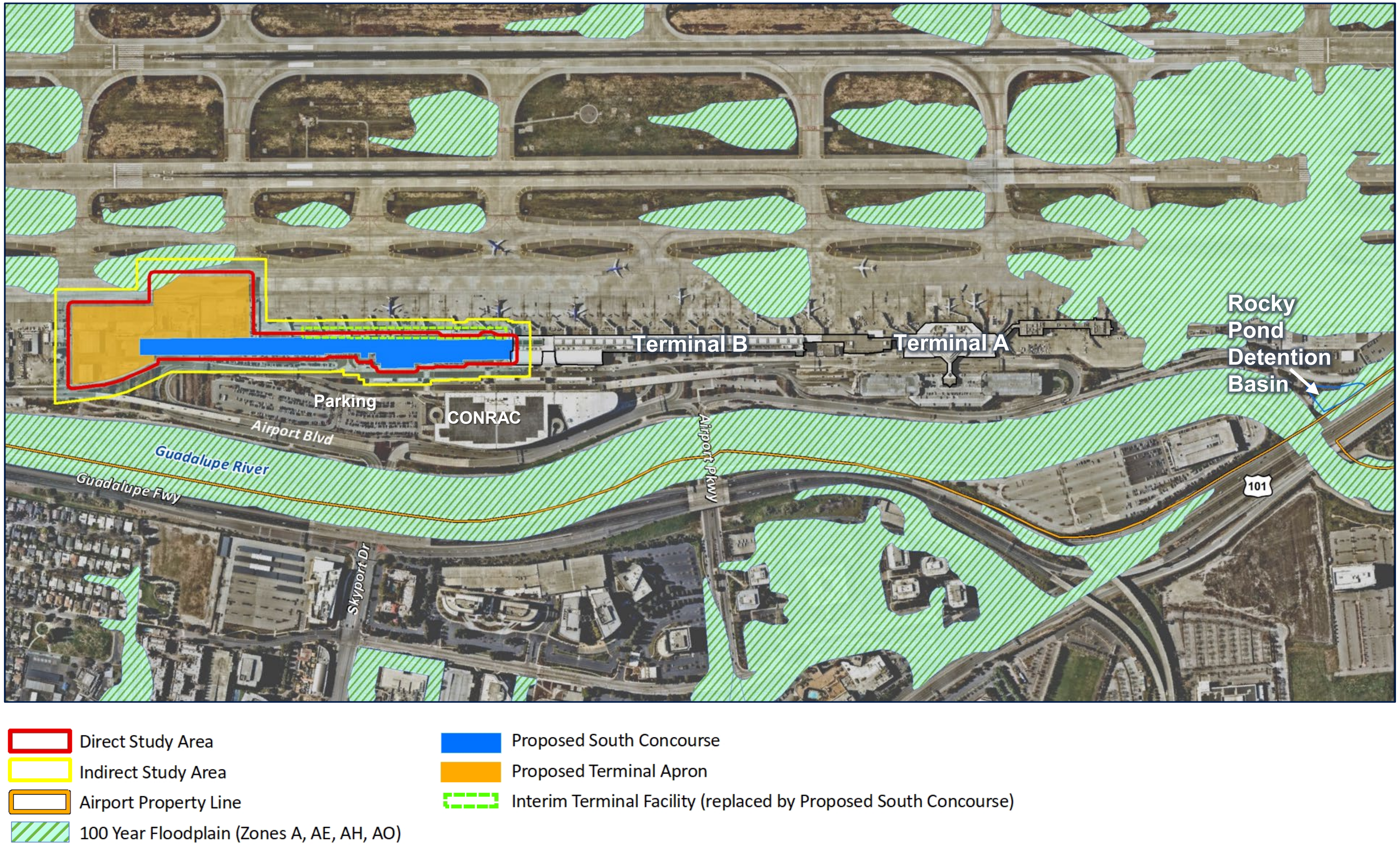
No change in the noise exposure between the Proposed Action Alternative and the No Action Alternative in either future year.

Community Noise Equivalent Level (CNEL) Contours shown for 65-75 decibel (dB)

- *No significant impacts related to noise or noise-compatible land uses.*

See Chapter 3, Affected Environment and Chapter 4, Environmental Consequences

Water Resources - Floodplains



Water Resources Impact Categories

The EA evaluated impacts to the floodplain, surface waters and groundwater.

Note: No wetlands, surface water, groundwater, or wild and scenic rivers exist within the Study Areas.

- *No significant impacts related to water resources.*

Environmental Impact Categories

FAA Order 1050.1F Impact Categories Analyzed

- **Air Quality**
- **Biological Resources** (Fish, Wildlife, Plants)
- **Climate**
- **DOT Act: Section 4(f) Resources**
- **Historical, Architectural, Archaeological, and Cultural Resources**
- **Land Use**
- **Natural Resources and Energy Supply**
- **Noise and Noise-Compatible Land Use**
- **Socioeconomic, Environmental Justice, and Children's Environmental Health and Safety Risks**
- **Visual Effects**
- **Water Resources** (Floodplains, Surface Waters, Groundwater)

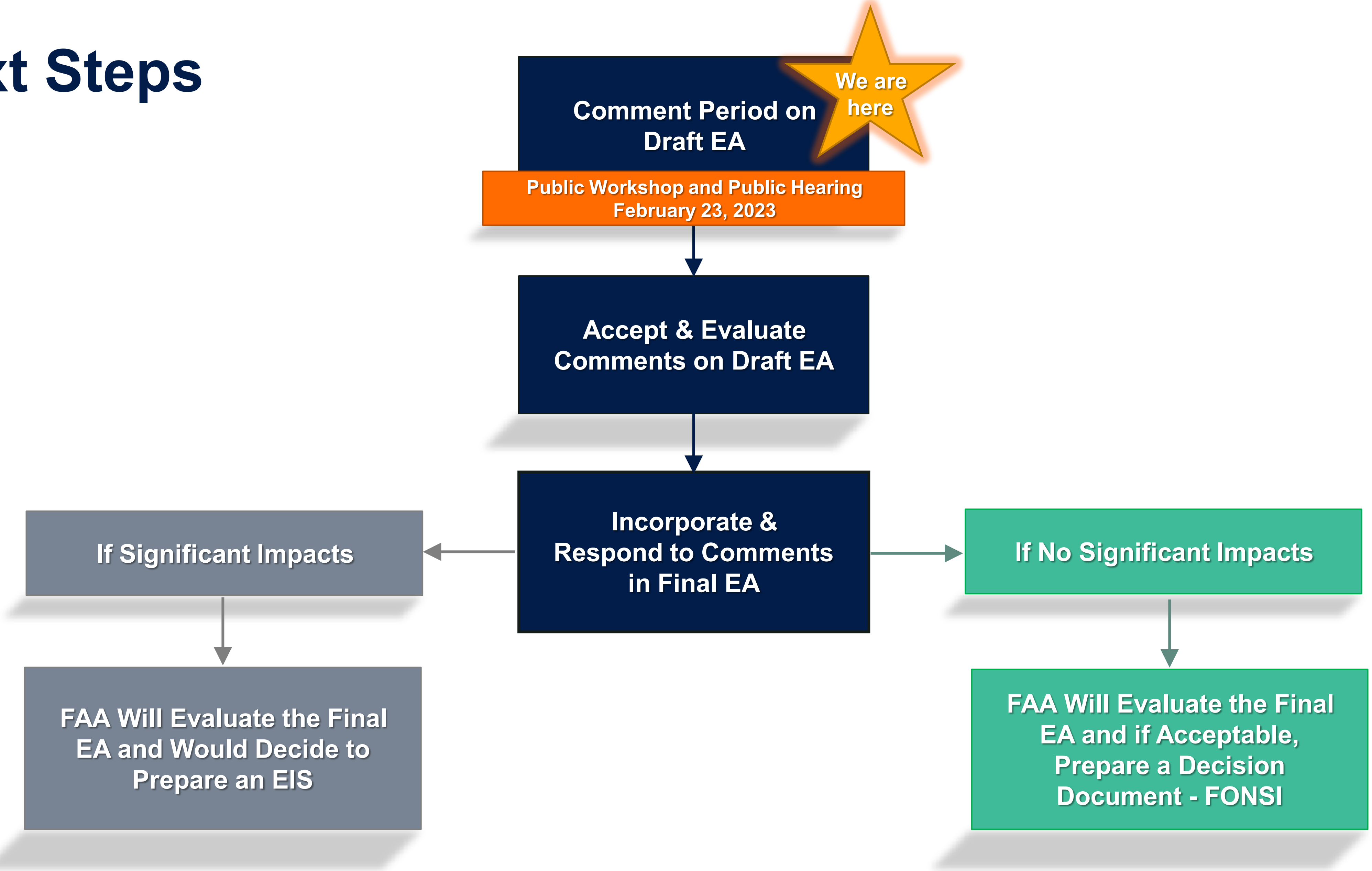
❖ *No significant impacts to the impact categories analyzed.*

❖ *Design and construction would comply with all environmental federal, state and local regulations, including permit requirements.*

7.0

Next Steps

Next Steps



Comment Period on Draft EA

We are here

Public Workshop and Public Hearing
February 23, 2023

Accept & Evaluate Comments on Draft EA

Incorporate & Respond to Comments in Final EA

If Significant Impacts

FAA Will Evaluate the Final EA and Would Decide to Prepare an EIS

If No Significant Impacts

FAA Will Evaluate the Final EA and if Acceptable, Prepare a Decision Document - FONSI

How to submit comments

1. Submit via mail or email

Ryan Sheelen, C.M.
Airport Planner IV, Planning and Development Division
San José Mineta International Airport
1701 Airport Blvd. Ste B-1130
San José, CA 95110

rsheelen@sjc.org

2. Sign up to speak tonight

- Provide name and information on the speaker sign-in sheet.
- Each speaker will have **3 minutes** to provide their verbal comments at the microphone. A moderator will inform you when 30 seconds remain, and again when the time is up.
- Responses to verbal comments will be provided in the Final EA along with a formal response. No response will be provided this evening.

3. Place in comment box

- Use provided comment form to write your comments tonight and leave in the comment box.

Submit comments by

Close of Business

March 3, 2023

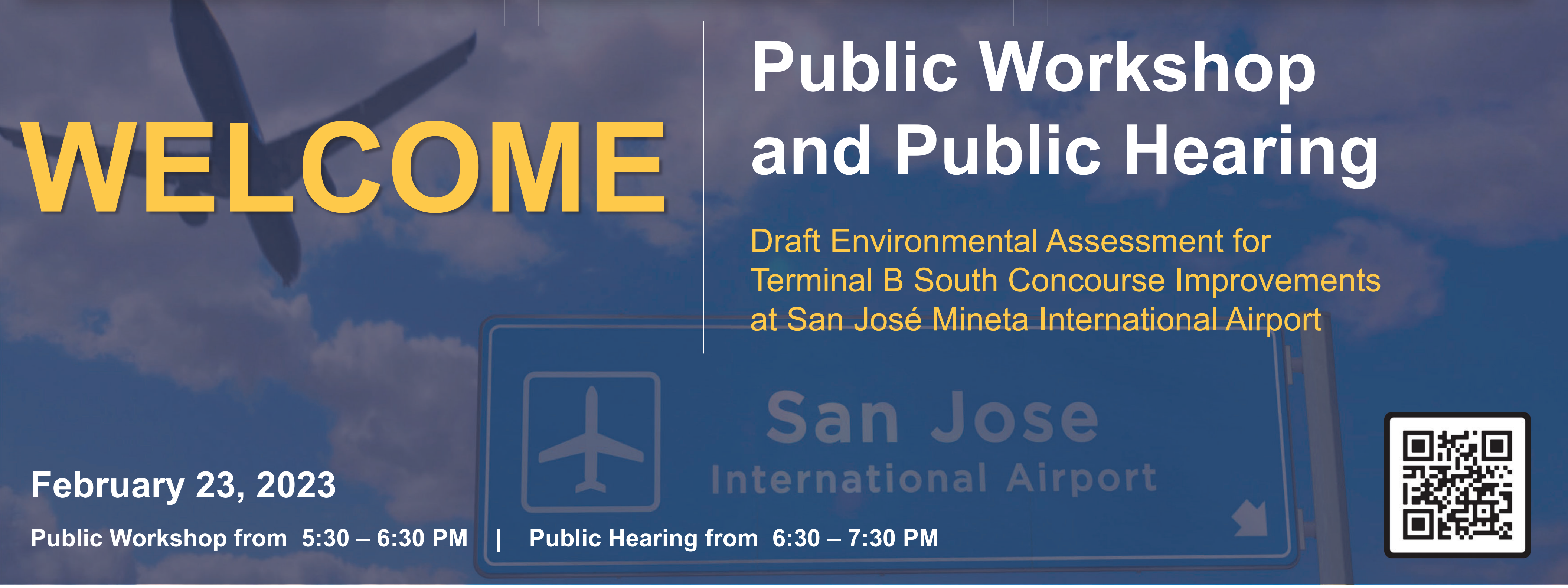
using one of these options to ensure your input is considered in the EA process.

https://www.flysanjose.com/environment/environment
or scan the QR code for the Draft EA and tonight's materials

SJC SAN JOSE MINETA INTERNATIONAL AIRPORT

Thank you

SJC SAN JOSE MINETA
INTERNATIONAL AIRPORT



WELCOME

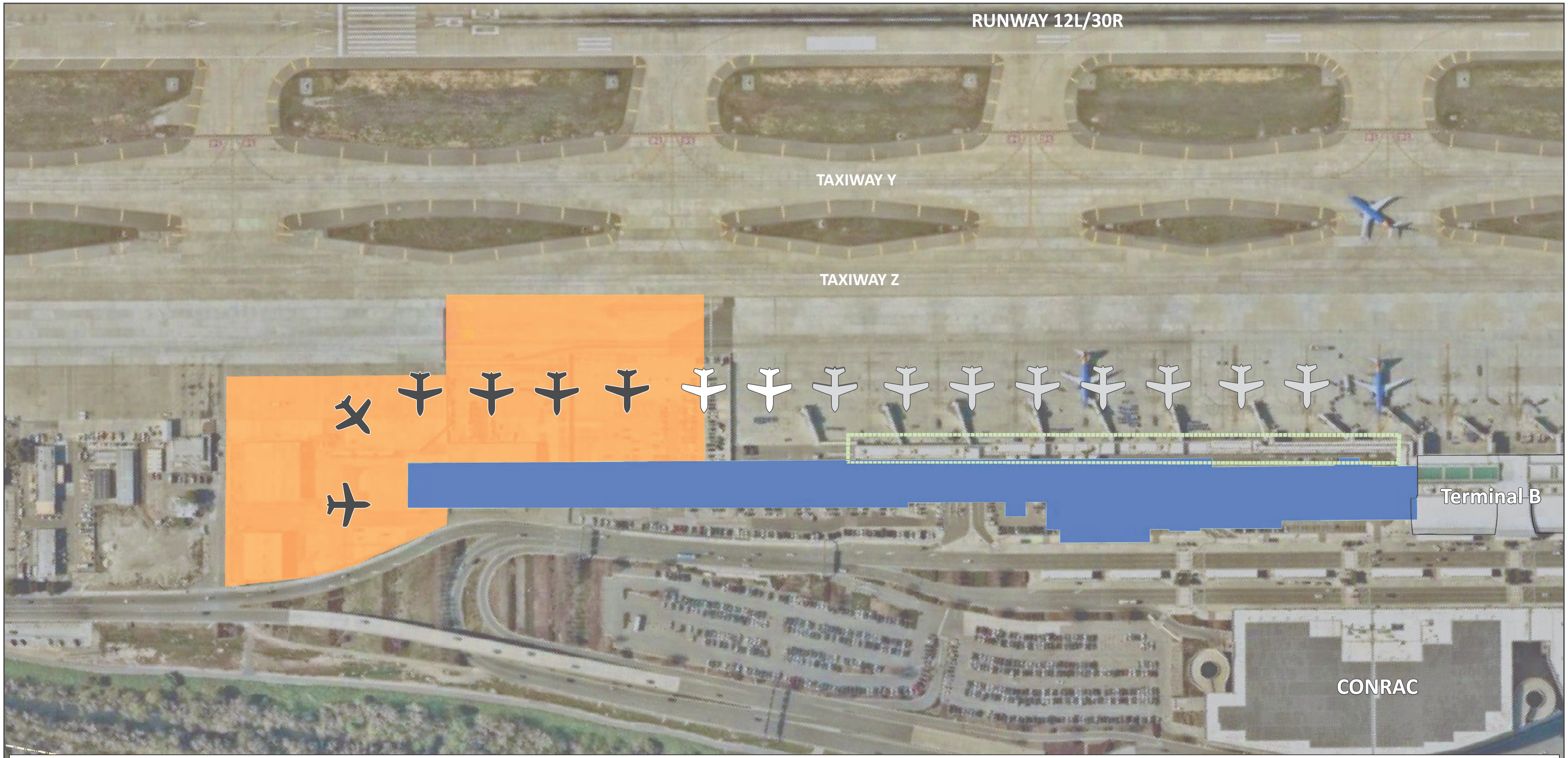
Public Workshop and Public Hearing

Draft Environmental Assessment for
Terminal B South Concourse Improvements
at San José Mineta International Airport

February 23, 2023

Public Workshop from 5:30 – 6:30 PM | Public Hearing from 6:30 – 7:30 PM

Proposed Action Alternative - Terminal Area



LEGEND

- ▬ Airport Property Line
- 🟩 Interim Terminal Facility (to be replaced by Proposed South Concourse)
- ✈ New Gate (6)
- ✈ Relocated Gate (2)
- ✈ Convert Interim Terminal Gate (8)

Terminal B South Concourse Extension

- Construct 16 airline gates with jet bridges.
- Net increase of six gates.
- 750,000 SF of terminal building space.

Terminal Apron Reconstruction

- Reconstruct & strengthen 392,000 SF to support aircraft terminal parking.

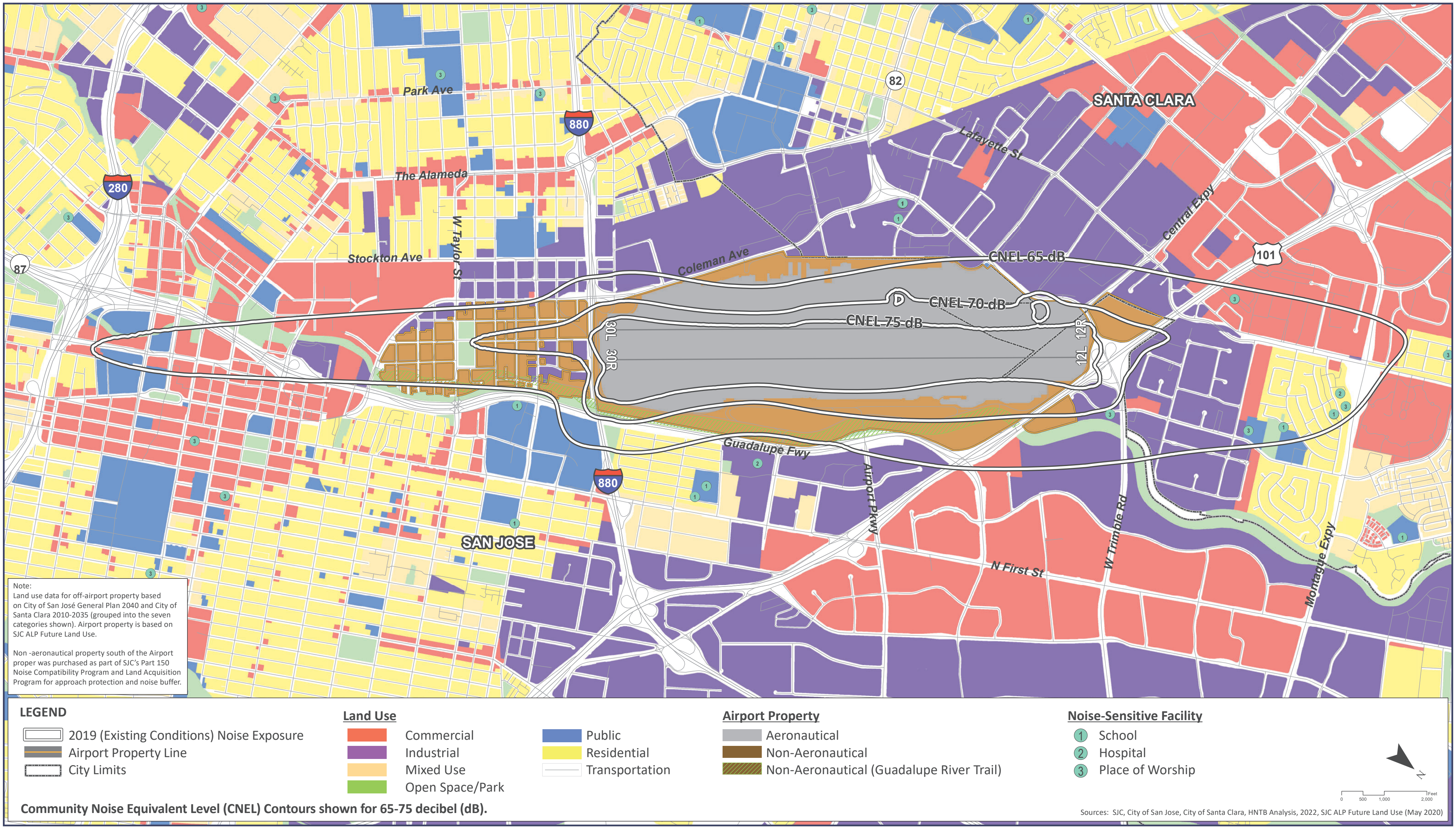
N

0 50 100 200 Feet

No Action Alternative

SJC SAN JOSE MINETA INTERNATIONAL AIRPORT

2019 (Existing Conditions) Noise Exposure



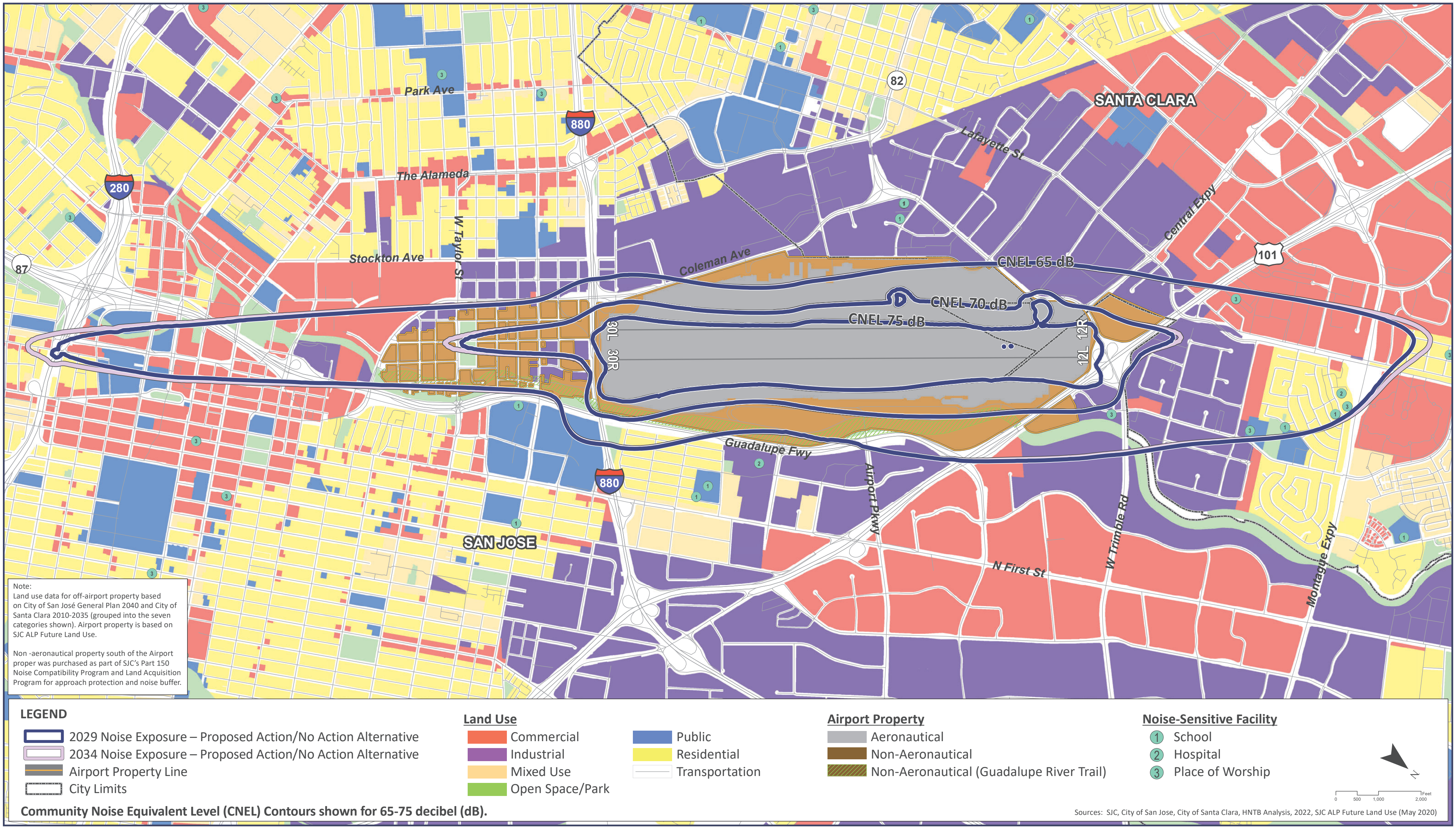
Note:
Land use data for off-airport property based on City of San José General Plan 2040 and City of Santa Clara 2010-2035 (grouped into the seven categories shown). Airport property is based on SJC ALP Future Land Use.

Non -aeronautical property south of the Airport proper was purchased as part of SJC's Part 150 Noise Compatibility Program and Land Acquisition Program for approach protection and noise buffer.

Community Noise Equivalent Level (CNEL) Contours shown for 65-75 decibel (dB).

Sources: SJC, City of San Jose, City of Santa Clara, HNTB Analysis, 2022, SJC ALP Future Land Use (May 2020)

2029 and 2034 Proposed Action/No Action Alternative Noise Exposure



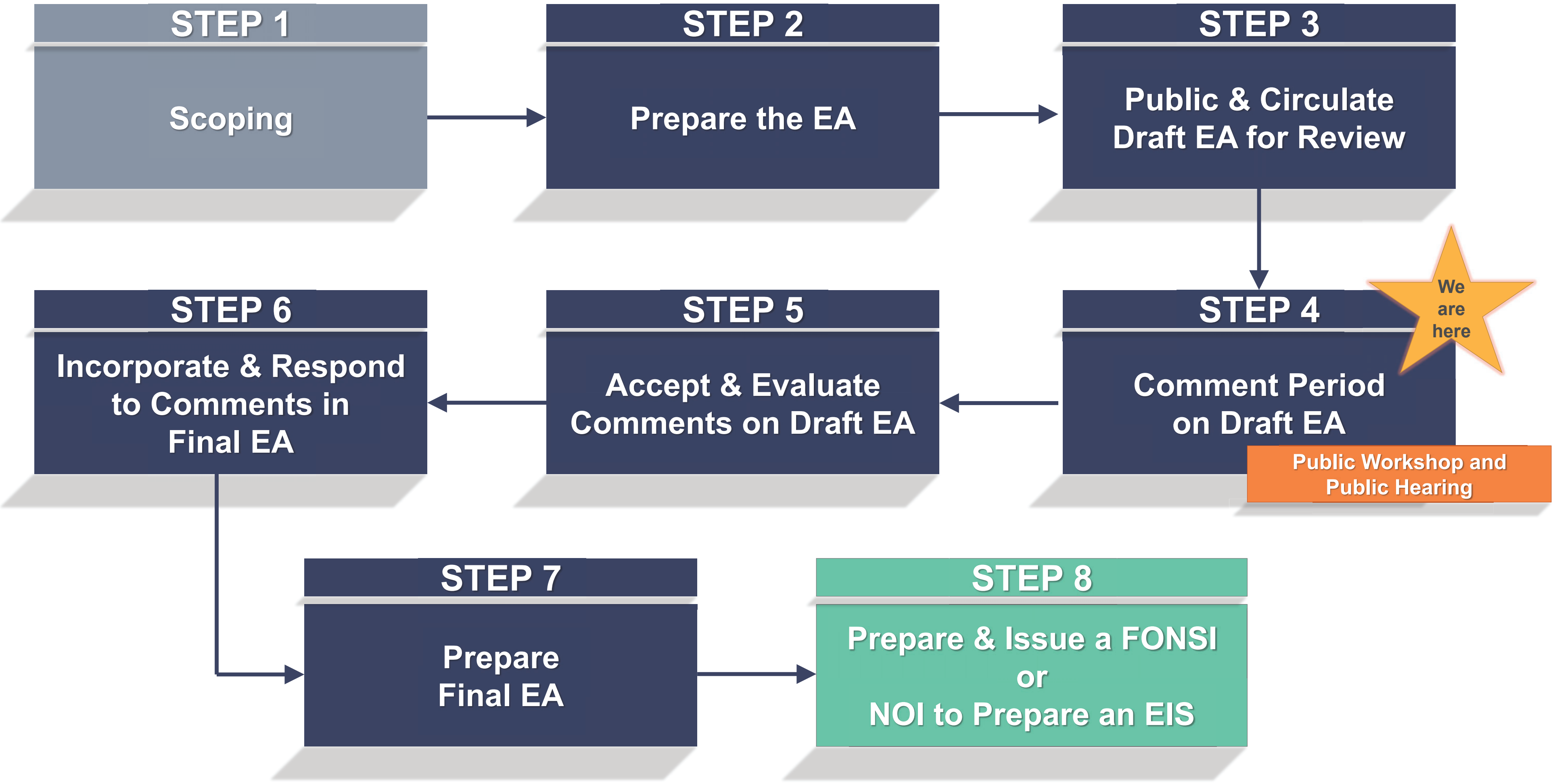
Note:
Land use data for off-airport property based on City of San José General Plan 2040 and City of Santa Clara 2010-2035 (grouped into the seven categories shown). Airport property is based on SJC ALP Future Land Use.

Non -aeronautical property south of the Airport proper was purchased as part of SJC's Part 150 Noise Compatibility Program and Land Acquisition Program for approach protection and noise buffer.

Community Noise Equivalent Level (CNEL) Contours shown for 65-75 decibel (dB).

Sources: SJC, City of San Jose, City of Santa Clara, HNTB Analysis, 2022, SJC ALP Future Land Use (May 2020)

Environmental Assessment Process



STEP 1
Scoping

STEP 2
Prepare the EA

STEP 3
Public & Circulate Draft EA for Review

STEP 4
Comment Period on Draft EA

We are here

Public Workshop and Public Hearing

STEP 5
Accept & Evaluate Comments on Draft EA

STEP 6
Incorporate & Respond to Comments in Final EA

STEP 7
Prepare Final EA

STEP 8
Prepare & Issue a FONSI
or
NOI to Prepare an EIS

Environmental Impact Analysis

FAA Order 1050.1F Environmental Impact Category	Proposed Action Alternative	No Action Alternative
Air Quality	Construction emissions below *de minimis* levels No impact on the forecasted operations at the Airport	No impact
Biological Resources	No significant impact	No impact
Climate	No significant impact	No impact
DOT Section 4(f) Resources	No significant impact	No impact
Hazardous Materials, Solid Waste, and Pollution Prevention	No significant impact	No impact
Historical, Architectural, Archaeological, and Cultural Resources	No historic properties affected (FAA/SHPO finding)	No impact
Land Use	No significant impact	No impact
Natural Resources and Energy Supply	No significant impact	No impact
Noise and Noise-Compatible Land Use	No impact on the forecasted operations at the Airport	No impact
Socioeconomic, Environmental Justice, and Children's Environmental Health and Safety Risks		
Socioeconomic	No significant impact	No impact
Environmental Justice and Children's Environmental Health and Safety Risks	No significant impact	No impact
Visual Effects	No significant impact	No impact
Water Resources		
Floodplains	6,580 SF apron reconstruction within floodplain (existing impervious area)	No impact
Surface Waters	No significant impact	No impact
Groundwater	No significant impact	No impact
Cumulative	No significant impact	No impact

No mitigation measures required as the project does not result in significant impacts.

Avoidance or Conservation Measures:
***Air Quality**: Use of Tier 4 Engines for all off-road construction equipment and Bay Area Air Quality Management District (BAAQMD) recommended construction best management practices (BMPs).*
***Biological Resources**: Pre-construction nesting bird and roosting bat surveys, avoidance of active roosts and maternity roosts, and exclusion of bats prior to disturbance (if needed).*
***Hazardous Materials**: Precautionary measures – visual inspection/pre-demolition survey for presence of asbestos containing materials and/or lead based paint.*
***Historic Resources**: Discontinuing work if previously unidentified resources uncovered and notification of FAA/SHPO.*
***Water Resources**: Groundwater dewatering, stormwater BMPs, post-construction stormwater controls, and erosion and sediment controls.*

How to Comment on the Draft EA

Submit comments by March 3, 2023 by 5:00 p.m. PST using one of these options to ensure your input is considered in the EA process:

Option 1 Submit via mail or email to:

Ryan Sheelen, C.M.
Planning and Development Division
Mineta San José International Airport
1701 Airport Blvd. Ste B-1130
San José, CA 95110
rsheelen@sjc.org

Option 2 Sign up to speak during the Public Hearing tonight starting at 6:30.

- Sign up to speak during the Public Hearing tonight starting at 6:30. Provide name and information on the speaker sign-in sheet.
- Each speaker will have **3 minutes** to provide their verbal comments at the microphone. A moderator will inform you when 30 seconds remain, and again when the time is up.

NOTE: *No responses to questions or comments will be provided tonight, however responses will be provided in the Final EA.*

Option 3 Use a Comment Form and place your comment in the Comment Box tonight.

https://www.flysanjose.com/environment/

or

scan QR Code to access the website for Draft EA Materials

SJC SAN JOSE MINETA INTERNATIONAL AIRPORT

Purpose and Need

The purpose of the Proposed Action is to provide necessary terminal infrastructure to serve the traveling public efficiently and with an appropriate level of service through the year 2029. The Proposed Action would include additional security area and hold rooms for each gate, ticketing, restrooms, concessions, public space, increased baggage handling capacity and extended curbside. Terminal improvements are needed to ***improve level of service and convenience for airport users, accommodate projected demand*** for commercial air carrier services at the Airport, and ***enhance operational efficiency***. Specifically, SJC terminal facilities need to be extended to reduce the need for gate sharing and ground loading, increase space for terminal processing and improve the associated apron pavement. The Project is not an airfield capacity enhancement project; rather it is being proposed to accommodate the forecast aviation demand that will occur with or without the improvements.

Alternatives

Alternatives were identified, screened, and either eliminated from further consideration or carried forward for environmental analysis. Both "action" and "no action" alternatives were considered. "Action" alternatives considered off-site and on-site alternatives, however only the Terminal B South Concourse (Proposed Action Alternative) on-site alternative was determined to be reasonable and meets the purpose and need. While a No Action Alternative may not address an identified area of need, evaluation of this alternative is required per CEQ regulations and serves as a basis of comparison with other alternatives retained for environmental analysis. Under the No Action Alternative, the existing Interim Terminal Facility would continue to be used for arriving and departing passengers and airline flights; no additional space for passenger processing functions or improved level of service would be provided. The Proposed Action Alternative and the No Action Alternative are carried forward for evaluation in the EA.

Environmental Analysis

Environmental categories identified in FAA Order 1050.1F and included in the NEPA analysis assessed in the Draft EA include: air quality; biological resources (including fish, wildlife, and plants); climate; Department of Transportation Section 4(f); hazardous materials, solid waste, and pollution prevention; historical, architectural, archaeological, and cultural resources; land use: natural resources and energy supply; noise and compatible land use; socioeconomics, environmental justice, and children's environmental health and safety risks; visual effects (including light emissions); and water resources (including floodplains, surface waters, and groundwater). Coastal resources, farmlands, wetlands, and wild and scenic rivers were not considered as these resources do not exist in the study area. Noise exposure was evaluated for the existing condition (2019) and two future years, 2029 (first full year after implementation), and 2034 (five years thereafter); however, there is no change in the noise exposure between the Proposed Action Alternative and the No Action Alternative in either year. This is because the Proposed Action Alternative will not increase aircraft operations or change the aircraft fleet mix operating at SJC when compared to the No Action Alternative.

Draft EA Review and Submitting Comments

The Draft EA is available for review online at http://www.flysanjose.com/environment or in hardcopy, available at the locations listed below:

SJC Administrative Offices
1701 Airport Blvd
San José, CA 95110

Dr. Martin Luther King, Jr. Library
150 E San Fernando St
San José, CA 95112

Mission Branch Library
1098 Lexington St
Santa Clara, CA 95050

The document will be available for review and comment until **March 3rd, 2023**. Comments can be mailed or emailed to the contact below and must be received by 5:00 PST. There is also an opportunity to submit verbal comments for the record at the Public Hearing.

Ryan Sheelen, C.M., Airport Planner IV
Planning and Development Division, Mineta San José International Airport
1701 Airport Blvd. Ste B-1130, San José, CA 95110
Email: rsheelen@sjc.org

Public Workshop and Public Hearing

Draft Environmental Assessment for
Terminal B South Concourse Improvements at SJC

February 23, 2023

Project Background

The City of San José (City), California, owner and operator of the Norman Y. Mineta San José International Airport (SJC or Airport) proposes to extend and modernize Terminal B through the construct a proposed Terminal B South Concourse Improvement Project. The extension is designed to provide an optimum user experience to the existing and projected passengers and airlines using this critical Silicon Valley – South Bay airport. During the five years preceding the COVID-19 Pandemic (2014 – 2019), SJC experienced record-breaking growth in air passenger activity. SJC has identified 14.2 million annual passengers (MAP) as the activity level associated with limitations in terminal processing functions and degradation of level of service. The Airport surpassed 14 MAP in 2019 and is projected to reach this level of passenger activity again by 2024.

The City prepared a Draft Environmental Assessment (EA) to identify and assess the potential environmental impacts resulting from the implementation of the proposed Terminal B South Concourse improvements. The Federal Aviation Administration (FAA) is the lead federal agency to ensure compliance with the National Environmental Policy Act of 1969 (NEPA) for the proposed improvements. The Draft EA was prepared in accordance with NEPA, the Council on Environmental Quality (CEQ) implementing regulations, which requires consideration of potential environmental impacts within an agency's decision-making process, and FAA Order 1050.1F, *Environmental Impacts: Policies and Procedures,* FAA 1050.1F Desk Reference (v2), and FAA Order 5050.4B, *NEPA Implementing Instructions for Airport Actions*. NEPA requires an analysis of human, cultural, and natural resources.

Proposed Action

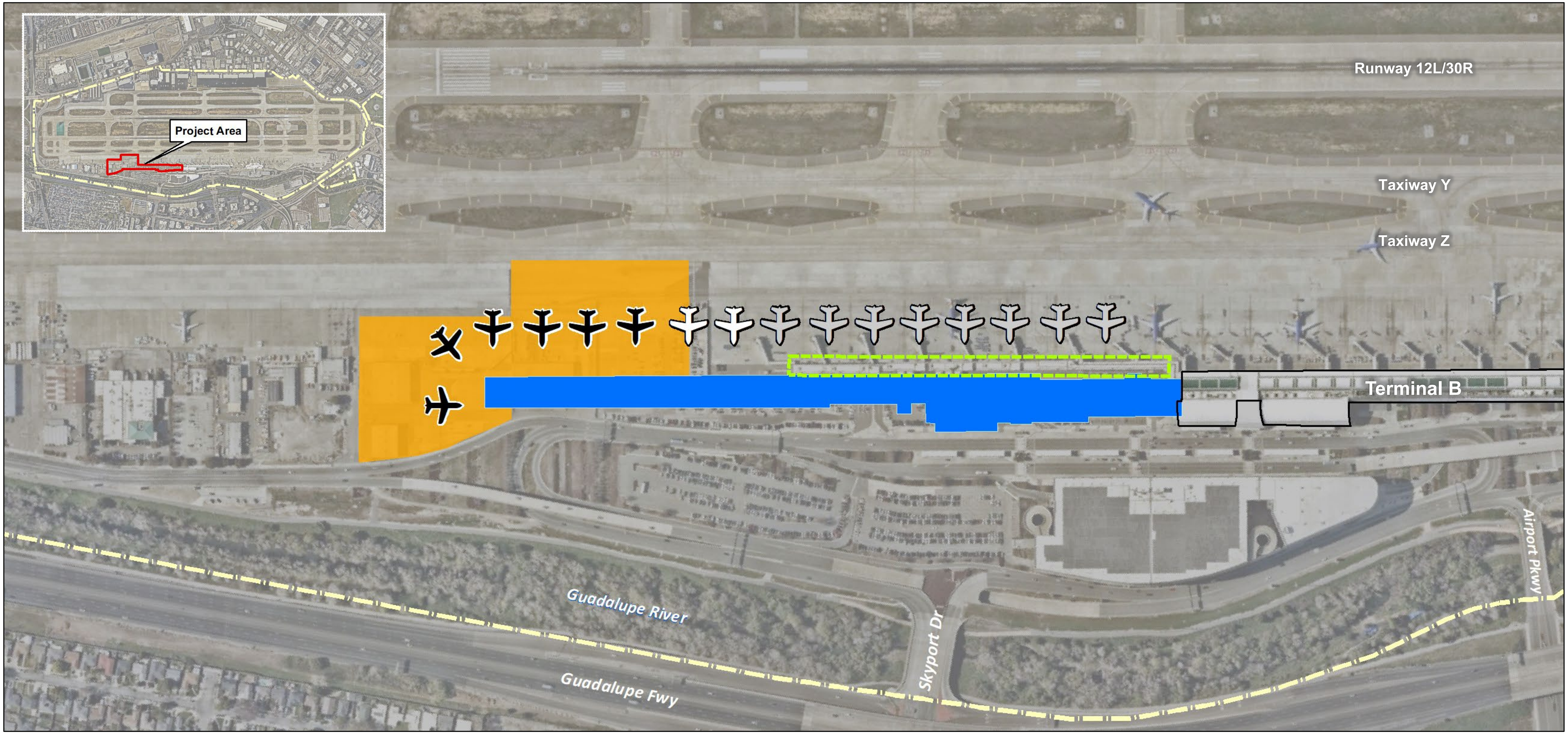
The City's Proposed Action is intended to improve the level of service for existing and projected passengers and airlines using SJC. The primary components of the Proposed Action, illustrated on the inside of this handout, are: (1) extending Terminal B through construction of the proposed South Concourse, including construction of 16 airline gates (net increase of six gates)[1] with jet bridges and up to 750,000 SF of terminal building space; and (2) reconstruction and strengthening up to 392,000 SF of deteriorated airfield apron at the south end of the proposed Terminal B South Concourse to support aircraft terminal parking. The Interim Terminal Facility would be demolished incrementally as the eight (8) airline gates are replaced with the proposed South Concourse to avoid any major disruption in service.

The Proposed Action would not increase aircraft operations, change the airport operating environment, or change the aircraft fleet mix operating at SJC. It is anticipated that construction of the Proposed Action would be completed in phases between November 2023 and March 2028.

---

[1] Eight airline gates currently exist in an Interim Terminal Facility (constructed as a temporary solution in 2017-2019), and two gates are existing gates that would be relocated from their current locations in existing terminals; thus the net increase would be six gates.

Proposed Action Alternative (Terminal B South Concourse)



LEGEND

- ▬ Airport Property Line
- ▭ Interim Terminal Facility (to be replaced by Proposed South Concourse)
- ✈ New Gate (6)
- ✈ Relocated Gate (2)
- ✈ Convert Interim Terminal Gate (8)

Terminal B South Concourse Extension

- Construct 16 airline gates with jet bridges.
- Net increase of six gates.
- 750,000 SF of terminal building space.

Terminal Apron Reconstruction

- Reconstruct & strengthen 392,000 SF to support aircraft terminal parking.

SAN JOSE MINETA INTERNATIONAL AIRPORT

DRAFT ENVIRONMENTAL)
ASSESSMENT FOR TERMINAL B)
SOUTH CONCOURSE)
IMPROVEMENTS)

CERTIFIED TRANSCRIPT

REPORTER'S TRANSCRIPT OF PUBLIC HEARING

Thursday, February 23, 2023

SAN JOSE MINETA INTERNATIONAL AIRPORT

1701 Airport Boulevard
Suite B-1130
San Jose, California

REPORTER PRO TEM:
Noelia Espinola, CSR #8060

#63202

Advantage Reporting Services, LLC
1083 Lincoln Ave., San Jose, CA 95125
(408) 920-0222

APPEARANCES

Speakers:
NORMAN Y. MINETA SAN JOSE INTERNATIONAL AIRPORT
JUDY ROSS, A.A.E.
Assistant Director of Aviation

HNTB CORPORATION
CAROLINE E. PINEGAR, AICP, ENV SP
Environmental Project Manager

HNTB CORPORATION
KIMBERLY C. HUGHES, P.E.
Associate Vice President

--o0o--

Thursday, February 23, 2023 6:33 p.m.

PROCEEDINGS

MS. ROSS: Welcome and thank you for joining us this evening. My name is Judy Ross. I'm the Assistant Director here at San Jose Mineta International Airport.

Today we appreciate you being here for today's workshop for the Airport Terminal Development Program. And this is the NEPA workshop regarding that particular program.

And this evening you'll hear from our environmental team and our consultants about the proposed project, and you'll have an opportunity to provide comment public. And we'll provide you additional information on how you can provide that public comment.

I do want to note, and as you'll probably hear several times this evening, that all comments will be received by March 3rd, 2023.

So at this time I'd like to -- I invite our presenters to introduce themselves. And thank you, again, for your attendance tonight, as well as for your support in this major step forward for the airport's future.

MS. PINEGAR: Thanks, Judy.

I'm Caroline Pinegar with HNTB. I'm the project manager for the environmental assessment. I'm here tonight with Kim Hughes, also at HNTB, who is going to be giving the second part of the presentation, as well as Justin Bychek.

Again, welcome. We hope that you've had the opportunity to look at the display boards and the public workshop part of tonight. And so we're now entering the second phase of the evening, the public hearing.

Just a note, this presentation will be available on the project website after tonight for your reference, so don't feel like you need to write down what's on here. There's also a handout with a concise summary of this information for you to take home. And that will also be on the project website.

You'll also note there's a QR code on several of the display boards where you can access the website where all of this information will be available for your use.

So tonight I will talk about why we're here, what an environmental assessment is, provide some project background for the environmental assessment. And then Kim will talk about environmental impact categories, next steps, and your options for commenting tonight.

So first you're hearing this brief presentation with the agenda I spoke about. Secondly, you'll have an opportunity if you signed up on the speaker list to provide verbal comments regarding the EA, which Kim will give further instruction on at the end of the presentation. And then, finally, you can also drop your written comments in the box tonight on your way out or e-mail or mail your comments to Ryan Sheelen, which we'll also tell you more about at the end of the presentation.

So what is an environmental assessment? An environmental assessment or EA is the process in which a sponsor, in this case SJC, evaluates the potential impacts of a proposed action on the environments. And if there are impacts, details any mitigations that may reduce or eliminate these impacts.

The sponsor prepares and coordinates this document with the federal agency involved, in this case the Federal Aviation Administration, or FAA, to evaluate the potential impacts to the environment and to provide a detailed review of the proposed development actions.

All EAs are prepared in accordance with the National Environmental Policy Act of 1969, or NEPA, as well as counsel on environmental qualities, implementing regulations. And in the case of airport sponsors, including SJC, the EA is also prepared in accordance with FAA Orders 1050.1F and 5050.4B.

The EA will assess the level of potential environmental impacts. And if no significant impacts are found, FAA may issue a Finding of No Significant Impact, or FONSI, and then the project can move onto further design, acquiring permits needed, et cetera. If significant impacts are found that cannot be mitigated or FAA decides that more impact assessment must be completed, FAA will prepare a Notice of Intent to prepare an Environmental Impact Statement, or EIS.

So this is typical of an EA process in this flowchart, but some of these charts are actually optional for an EA, depending on the scale and anticipated public interest of a project. This is also on a display board in the back as well if you have any questions further about this.

The important thing here is to note that following scoping, preparation of the Draft EA, and publishing the Draft EA on January 20th, 2023, we are at Step 4 in this process.

The comment period for the draft where we're seeking public and agency comments and holding the public workshop and public hearing. The next step is to take into account the relevant comments received on the EA. And if the FA determines we can move forward with the final EA, we will respond to comments formally in the EA, and update the EA with any changes needed based on the comments. The final EA will then be prepared and the FAA will either prepare and issue a finding of no significant impact, or it will make the decision to publish a Notice of Intent to prepare an EIS.

So I wanted to provide some -- orient you to the airport layout. SJC is located on about 1,000 acres of property, roughly two miles north of downtown San Jose. SJC has two 11,000-foot-long parallel runways with a parallel and connecting taxiway system. It's designated as a Medium Hub Commercial Service airport and serves most commercial airlines with national and international destinations, as well as cargo airlines and general aviation aircraft.

You're likely familiar with the terminal area of the airport from your travels, which I'll focus on more in just a bit. But to give you a feel for the overall layout of the airport, the west side is aviation support, general aviation and corporate aviation. The east side is cargo and commercial operations. And parking facilities under the CONRAC for rental car facilities are here, mostly north of the terminal on airport property.

Specific to the terminal area, SJC has two permanent passenger terminals, serving both domestic and international flights. Terminal A opened in 1990. Terminal B opened in 2010. There are a total of 28 permanent airline gates, and a little over a million square feet between the two terminals.

Now that I've given you some EA background knowledge and some airport background, let's give you some project background. This slide begins to tell the story of the need for the project. SJC experienced record-breaking growth in the five years leading up to the COVID-19 pandemic. SJC exceeded 14.2 million annual passengers, or MAP, in 2019. And 14.2 MAP is the activity level that SJC has associated with significant limitations and capacity of terminal processing functions and degradation of level of service. By 2019 SJC was experiencing these limitations in passenger processing functions, which resulted in congestion, long lines and unacceptable customer wait times that exceed industry standards for level of service.

As you can guess, the decline in passengers is due to COVID-19 in this chart. As the U.S. started to pull out of the pandemic, forecasts were reevaluated. Recovery projections were prepared with what we know about post-COVID passenger growth, and the airport supplemented those findings with additional information, like how the local and regional economy is faring. Using an FFA-approved forecast, SJC is projected to hit that 14.2 million annual passenger number again by 2024. And, hard to believe, but we're actually in 2023 now, so this is in the near future. And remember, again, that this 14.2 MAP is the level at which congested terminals and passenger processing functions are reaching at unacceptable level of service. Beyond 2024, the City anticipates SJC will need to efficiently accommodate 21.8 million passengers by 2029.

As a short-term gap, as SJC was experiencing that surge in passenger demand between 2016 and 2019 when it hit 14.2 million annual passengers, eight temporary gates were constructed. The facility was intended as a temporary solution to operate for five to seven years where permanent facilities could be designed and constructed. It was not constructed as a facility that was meant to be permanent and the public holding rooms are far below the recommended sizes.

So as I said, I hope I started to set up the purpose and need fairly well on the slides leading up to this.

The purpose of this project -- and I'm actually just going to read it directly so I don't miss any words because they're all important. The purpose is to provide the necessary terminal infrastructure to correct deficiencies in currently constrained facilities, and serve the traveling public with an appropriate level of service through 2029.

This project will provide that necessary terminal infrastructure to meet that purpose, but also to provide additional conveniences for airport users such as additional concessions and the modernization of airport features.

The project is limited to terminal improvements and will not increase aircraft operations, change the aircraft fleet mix operating at SJC, or change the approaches to and from the airport.

So let's talk a bit about the alternatives. Counsel on Environmental Quality, or CEQ, that I mentioned in one of the first slides about describing the environmental assessment process, CEQ regulations require that federal agencies evaluate reasonable alternatives to the proposed action. In this case, SJC looked at both off-site alternatives to maintain and improve the LOS, level of service, as well as other on-site alternatives.

CEQ also requires that a No Action Alternative is retained, even if it does not meet the purpose and need for the project that we just discussed. Among other reasons, No Action Alternative serves as a basis of comparison with the other alternatives retained for analysis.

This figure details the two-step screening process used, which ultimately led to only the Proposed Action Alternative and the No Action Alternative being carried forward for detailed analysis.

The first step addressed whether the alternative would meet the purpose and need. If not, it's eliminated. And if yes, it moves on to Step 2, which involves the feasibility of the alternative, specifically whether the alternative is practical from a technological and economic perspective.

Only the Terminal B South Concourse alternative passed the two-step screening process. And, again, while the No Action Alternative does not pass the screening process, its inclusion is required by CEQ.

So first we're going to show the full airport extents of the No Action proposed action and then we're going to zoom in following that. The No Action Alternative represents SJC in its current state without any proposed improvements. The existing interim terminal facility would continue to be used for arriving and departing passengers and airplane flights. No additional space for passenger processing functions or level of service would be provided.

Okay. So it seems like a lot of buildup but we are finally here. The proposed action is limited to only this northern part of -- in the terminal area. The Terminal B South Concourse extension, or the Proposed Action Alternative, includes extending Terminal B through construction of proposed South Concourse, including construction of 16 airline gates with jet bridges and up to 750,000 square feet of terminal building space.

Note that eight of these gates currently exist in the interim terminal facility, and two gates are existing gates that would be relocated from their current locations in existing terminals, so the net increase would be six gates.

The other component of the Proposed Action is the reconstruction and strengthening of 392,000 square feet of deteriorated airfield apron at the south end of the proposed Terminal B South Concourse to support aircraft terminal parking.

So as promised, here is a close-in view of the terminal area. This shows the No Action Alternative, again, where there is no change. But we have highlighted here that the interim terminal facility would remain. And, again, that was constructed as a temporary solution and not designed or constructed to be long term.

This closer view of the terminal area makes it easier to see that of those 16 gates, eight exist as part of the interim terminal facility and will be replaced. Two are being relocated from other locations at terminals that have constraints or issues that need resolution, and six are actually the new gates.

So Kim is going to now talk about the environmental impact categories that we studied as part of the environmental assessment.

MS. HUGHES: Thanks, Caroline.

FAA Order 1050.1F identifies environmental impact categories that the FAA must consider in reviewing actions undertaken by the FAA or for actions that the FAA approves. The impact categories identified on this slide are the environmental categories that are included in 1050.1f.

However, not all of the environmental impact categories that are included in 1050.1f are always applicable to a project. For the proposed action reviewed in the Draft EA, coastal resources, farmlands, wetlands and wild and scenic rivers are not considered because these resources do not exist in the study area.

Tonight I'm going to talk about some of the categories, but all categories are included in Chapter 4, Environmental Consequences within the Draft EA.

So let's talk about air quality. Under the Clean Air Act the Environmental Impact Agency -- I'm sorry -- yeah, the Environmental Protection Agency establishes national ambient air quality standards for six common pollutants. And if an area does not meet those standards, the area is considered to be non-attainment.

The airport is located in a non-attainment area for ozone and fine particulate matter and, therefore, analysis must be completed to determine if the Proposed Action will conform with the State Implementation Plan.

One method to determine if the Proposed Action will conform to the State Implementation Plan is to determine if emissions would be below de minimis levels for the pollutant of concern. The EPA establishes de minimis levels for each pollutant for purposes of determining conformity.

As part of the EA analysis, construction and operational emissions were analyzed to determine whether the Proposed Action Alternative would result in emissions that exceed the established de minimis levels also referred to as General Conformity de minimis thresholds.

Construction is proposed to occur in phases over six years, approximated between 2023 and 2028, and that's presuming that the environmental process is completed and the project moves forward.

Construction emissions were analyzed based on preliminary construction schedules and emissions in each year were compared to the applicable de minimis thresholds.

Construction emissions were all well below General Conformity de minimis thresholds for each construction year.

There would be no construction emissions associated with the No Action Alternative.

Operational emissions were analyzed for three years as was -- as was also done for the noise analysis that you'll hear about soon. So the years of analysis were existing conditions in 2019, the first full year of implementation in 2029, and then five years after 2034.

Because the proposed action would not increase aircraft operations, result in a change in fleet mix or how the airfield is operated, there would be no change in operational emissions between the Proposed Ation and the No Action Alternative. Therefore, it was determined that there would be no significant impacts to air quality resulting from the construction or operation of the Proposed Action or the No Action Alternative.

So review of biological resources includes the consideration of fish, wildlife and plants, and typically for species that are considered threatened or endangered on a federal or state level. Because the Proposed Action occurs on previously disturbed area, there is limited potential for impact to biological resources.

The slide illustrates the direct study area, which is the construction -- which is the area where construction activity would take place. This red line. And the indirect study area, which is about 100 feet beyond the direct study area, is also reviewed to allow for consideration of potential effects that are a bit further than expected for construction purposes.

Should be noted that there are no federally listed species within the direct or indirect study area, so none within the bounds of the yellow or red line.

The burrowing owl is a state-listed species and has been observed on the airport, as is shown on the slide, as you can see by designation by the little birds here, however, they have not been observed in the direct or indirect study area since the 2011 through 2015 time frame.

Because this area no longer functions as foraging, roosting or a breeding habitat, primarily due to construction or current airfield maintenance practices that deter the occupation of burrows.

Due to the lack of burrowing owl habitat within the direct study area, and the very small amount of suitable foraging habitat within the indirect study area, the proposed action would not have impact on burrowing owls.

The No Action Alternative would not include any construction and therefore would have no impact on burrowing owls.

So let's talk noise and noise-compatible land use. FAA ordered 1051.1F directs analysis of noise and noise-compatible land use to review the changes to noise exposure due to a proposed action by comparing the noise exposure with and without the proposed action over noise-sensitive land uses for future years.

FAA considers noise-sensitive land uses to be residential, schools, hospitals, nursing homes, places of worship and some recreational uses such as parks when a certain amount of quietude is expected.

The analysis reviewed changes in noise over noise-sensitive land uses using the community noise equivalent level, referred to as the CNEL metric, which is the metric used by FAA in California to assess noise impacts. The current federally established threshold for determining non-compatible land use is the 65 CNEL over noise-sensitive land uses.

This slide illustrates CNEL 65, 70 and 75, for existing conditions and two future years. Again, 2029 and 2034 time frame over land use. The land use shown is taken from San Jose and Santa Clara's General Plans. Residential land use, which is a sensitive land use, is shown in yellow and noise and specific noise-sensitive facilities are identified by number in this blue, as you can see here. As I said, as with air quality, noise exposure was evaluated for 2019, 2029 and 2034.

Because the Proposed Action Alternative will not increase aircraft operations, change the aircraft fleet mix operating at San Jose, nor change how the airfield is operated when compared to the No Action, the noise exposure is expected to be the same between the two alternatives. So there are no residential land uses within the CNEL 70 or 75. You see here.

But let's talk a little bit of history. San Jose completed a Part 150 and Airport Noise Compatibility Study between 1985 and 1986, which set forth Noise Control Program measures to ensure that lands adjacent to San Jose are compatible with aviation noise.

From 1995 through 2009, the airport managed an Acoustical Treatment Program to treat affected residences within the CNEL 65 to 70 noise contour, and there were certain homes also mitigated within the CNEL 60. It should be noted, however, that some homeowners within that Part 150 mitigation area declined to participate in the Acoustical Treatment Program.

But there is a silver lining. The noise contours for 2029 and 2034 are within the area included in the Acoustical Treatment Program that was completed in 2009 and, therefore, residents within the CNEL 65 to 70 contour, this area here, are considered compatible with noise generated by aircraft in San Jose.

Therefore, neither the Proposed Action

Alternative nor the No Action Alternative would have significant noise or noise-compatible land use impacts.

Water resources. The environmental assessment evaluated impacts to floodplain, surface waters and groundwater resulting from the Proposed Action and No Action Alternatives.

As shown on the slide, the projects included in the Proposed Action Alternative are generally located outside of hundred-year floodplain. And the hundred-year floodplain is designated by this hatched area, which you see on the Guadalupe River as well as within the islands on the airfield. There is an exception to that, which is this small corner where the existing terminal apron will be reconstructed.

There are no surface waters, general groundwater, wetlands or wild or scenic rivers within the study area. But as I pointed out, the Guadalupe River is the closest waterway located just north of the project. So here's the project, here's the waterway.

The Proposed Action Alternative includes reconstructive or redeveloped impervious surfaces, so there will be no increase in impervious areas resulting from the project within the proposed action.

The terminal reconstruction and apron reconstruction would include storm water management, design measures to direct runoff into storm drain systems, consistent with existing operations at the airport and in compliance with existing permits for storm water discharges.

During construction, best management practices would be used to minimize erosion and sedimentation impacts to storm water runoff.

The No Action Alternative would have no changes in impervious surfaces and all current practices to protect water resources would continue.

Therefore, neither alternative would have a significant impact on water resources.

So in summary, there are no significant impacts to the categories analyzed for either the Proposed Action or No Action Alternatives. And should the Proposed Action Alternative be approved, design and construction efforts would comply with environmental regulation and permit requirements.

So let's talk next steps. The next steps in the environmental review processor illustrated on this slide. After the Draft EA comment period closes, comments will be addressed. And modifications to the Draft EA in response to those comments will be made. The FAA will review the Final EA and prepare a decision document. The document may be a finding of no significant impact or a decision to prepare an EIS.

How to submit comments. You heard Caroline allude to this at the beginning. But as a reminder, if you have not signed up to speak, please do. The sign-up is at the back of the room. Each speaker will have three minutes to comment on the Draft EA.

As indicated on the slide, we will not be responding to comments tonight but will address all comments that you have on the Draft EA in the Final EA. If you do not wish to speak, please provide your comments by mail and preferably e-mail to Ryan Sheelen at the addresses shown on this slide. If during the workshop you've taken the opportunity to provide a written comment on the forms that were provided in the back, please make sure to drop them in the comment box before you leave this evening.

Thank you for your attention. Now that you've heard the presentation, we're going to open up the hearing to comments. Once your name is called, please step up and speak. Thank you.

(Proceedings concluded at 7:03 p.m.)

I, the undersigned, a Certified Shorthand Reporter of the State of California, do hereby certify: That the foregoing proceedings was taken before me at the time and place herein set forth; that a record of the proceedings was made by me using machine shorthand which was thereafter transcribed under my direction; that the foregoing transcript is a true record of the proceedings.

IN WITNESS WHEREOF, I have this date subscribed my name.

Dated: March 13, 2023

NOELIA ESPINOLA
CSR NO. 8060

Appendix K

Comments and Responses

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TABLE OF CONTENTS

LIST OF TABLES

1 Introduction

The City of San José prepared an Environmental Assessment (EA) to evaluate the potential environmental effects associated with the Proposed Terminal B South Concourse Improvement Project at Norman Y. Mineta San Jose International Airport (SJC). The Federal Aviation Administration (FAA) is the lead federal agency to ensure compliance with NEPA for the proposed terminal improvements. The EA was prepared in accordance with FAA Order 1050.1F, *Environmental Impacts: Policies and Procedures*; *FAA 1050.1F Desk Reference (v2)*; and FAA Order 5050.4B, *NEPA Implementing Instructions for Airport Actions.* In accordance with the requirements of the above-mentioned regulatory framework, responses to all comments received on the Draft EA have been prepared.

The Draft EA was available for review and comment by the public and agencies for 42 days from January 20th through March 3rd, 2023. A Notice of Availability (NOA) for the Draft EA was published in the legal section of The Mercury News newspaper on January 20th, 2023. The Draft EA was available electronically for public review on the SJC website at https://www.flysanjose.com/environment.

Advertisement of a Public Workshop and Public Hearing for the Draft EA was included in the NOA. A Public Workshop on the Draft EA was held on Thursday, February 23rd, 2023, from 5:30 p.m. to 6:30 p.m. Pacific Daylight Time (PDT) in the SJC Administrative Offices. A Public Hearing was held immediately after the Public Workshop from 6:30 p.m. to 7:30 p.m. PDT and included a PowerPoint presentation and an opportunity to provide oral and written comments.

Section 3, Comments and Responses to the Draft EA, in this appendix contains comments received regarding the Draft EA, and responses to those comments. Three organizations provided written (emailed) comments on the Draft EA. There were no comments provided by the general public on the Draft EA. No one from the general public attended the Public Workshop or the Public Hearing and no oral or written comments were provided during the Public Hearing.

2 Comment Index

Table K-1 provides an indexed list of all comment letters received from agencies and organizations. The comment letters and responses can be viewed in *Attachment K-2*.

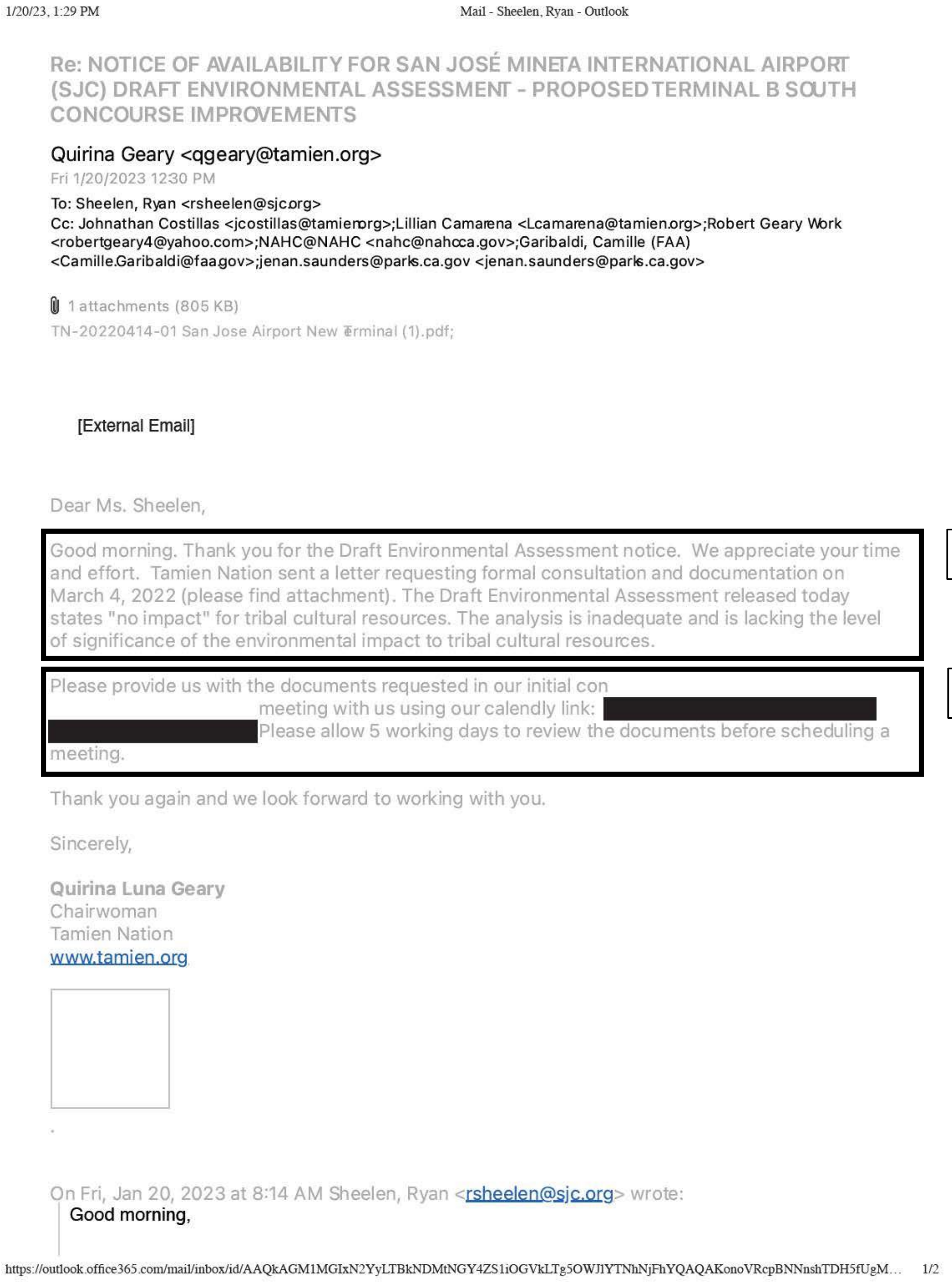
Table K-1: Index of Comment Letters

Commenter #	Author	Agency/ Affiliation	Topic	Date Received
01	Quirina Geary, Chairwoman	Tamien Nation	Consultation	1/20/2023
02	Plan Review Team	Pacific Gas & Electric (PG&E)	General Info & Requirements	1/23/2023
03	Plan Review Team, Land Management	PG&E	General Info & Requirements	1/27/2023

3 Comments and Responses to the Draft EA

Commenter 01

Quirina Geary, Chairwoman
Tamien Nation



1/20/23, 1:29 PM Mail - Sheelen, Ryan - Outlook

Re: NOTICE OF AVAILABILITY FOR SAN JOSÉ MINETA INTERNATIONAL AIRPORT (SJC) DRAFT ENVIRONMENTAL ASSESSMENT - PROPOSED TERMINAL B SOUTH CONCOURSE IMPROVEMENTS

Quirina Geary <qgeary@tamien.org>
Fri 1/20/2023 12:30 PM
To: Sheelen, Ryan <rsheelen@sjc.org>
Cc: Johnathan Costillas <jcostillas@tamien.org>;Lillian Camarena <Lcamarena@tamien.org>;Robert Geary Work <robertgeary4@yahoo.com>;NAHC@NAHC <nahc@nahc.ca.gov>;Garibaldi, Camille (FAA) <Camille.Garibaldi@faa.gov>;jenan.saunders@parks.ca.gov <jenan.saunders@parks.ca.gov>

1 attachments (805 KB)
TN-20220414-01 San Jose Airport New Terminal (1).pdf;

[External Email]

Dear Ms. Sheelen,

1 Good morning. Thank you for the Draft Environmental Assessment notice. We appreciate your time and effort. Tamien Nation sent a letter requesting formal consultation and documentation on March 4, 2022 (please find attachment). The Draft Environmental Assessment released today states "no impact" for tribal cultural resources. The analysis is inadequate and is lacking the level of significance of the environmental impact to tribal cultural resources.

2 Please provide us with the documents requested in our initial con meeting with us using our calendly link: [redacted] Please allow 5 working days to review the documents before scheduling a meeting.

Thank you again and we look forward to working with you.

Sincerely,

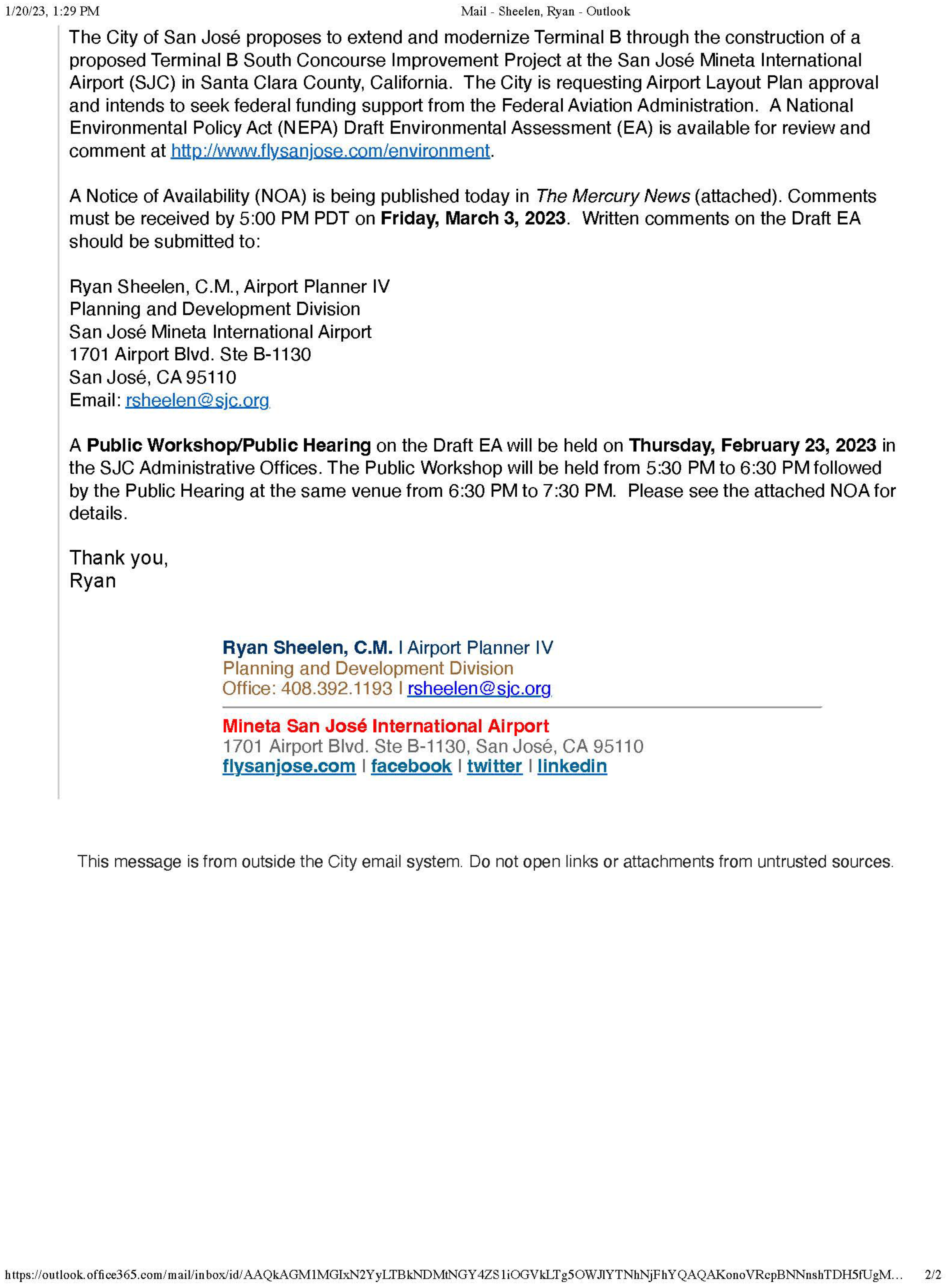
Quirina Luna Geary
Chairwoman
Tamien Nation
www.tamien.org

.

On Fri, Jan 20, 2023 at 8:14 AM Sheelen, Ryan <rsheelen@sjc.org> wrote:

> Good morning,

https://outlook.office365.com/mail/inbox/id/AAQkAGM1MGIxN2YyLTBkNDMtNGY4ZS1iOGVkLTg5OWJlYTNhNjFhYQAQAKonoVRcpBNNnshTDH5fUgM… 1/2



The City of San José proposes to extend and modernize Terminal B through the construction of a proposed Terminal B South Concourse Improvement Project at the San José Mineta International Airport (SJC) in Santa Clara County, California. The City is requesting Airport Layout Plan approval and intends to seek federal funding support from the Federal Aviation Administration. A National Environmental Policy Act (NEPA) Draft Environmental Assessment (EA) is available for review and comment at http://www.flysanjose.com/environment.

A Notice of Availability (NOA) is being published today in *The Mercury News* (attached). Comments must be received by 5:00 PM PDT on **Friday, March 3, 2023**. Written comments on the Draft EA should be submitted to:

Ryan Sheelen, C.M., Airport Planner IV
Planning and Development Division
San José Mineta International Airport
1701 Airport Blvd. Ste B-1130
San José, CA 95110
Email: rsheelen@sjc.org

A **Public Workshop/Public Hearing** on the Draft EA will be held on **Thursday, February 23, 2023** in the SJC Administrative Offices. The Public Workshop will be held from 5:30 PM to 6:30 PM followed by the Public Hearing at the same venue from 6:30 PM to 7:30 PM. Please see the attached NOA for details.

Thank you,
Ryan

Ryan Sheelen, C.M. I Airport Planner IV
Planning and Development Division
Office: 408.392.1193 I rsheelen@sjc.org

Mineta San José International Airport
1701 Airport Blvd. Ste B-1130, San José, CA 95110
flysanjose.com I **facebook** I **twitter** I **linkedin**

TN-20220414-01

TAMIEN NATION
P.O. Box 8053, San Jose, California 95155
(707) 295-4011 tamien@tamien.org

May 4, 2022

Camille Garibaldi, Environmental Protection Specialist

Federal Aviation Administration

(405) 666-1068

Sent Via Email: Camille.Garibaldi@faa.gov

RE: <u>Request for Tribal Consultation</u>

Project: Terminal B Improvement Project at Norman Y. Mineta San Jose International Airport, San Jose

Dear Ms. Garibaldi

Thank you for reaching out to our Tribe. Your time and effort is appreciated. This letter constitutes a formal request for tribal consultation under the provisions of the California Environmental Quality Act (CEQA) (Public Resources Code section 21080.3.1 subdivisions (b), (d) and (e)) for the mitigation of potential project impacts to tribal cultural resource for the above referenced project.

Tamien Nation requests consultation on the following topics checked below, which shall be included in consultation if requested (Public Resources Code section 21080.3.2

☑ Alternatives to the project
☑ Recommended mitigation measures
☑ Significant effects of the project

Tamien Nation also requests consultation on the following discretionary topics checked below (Public Resources Code section 21080.3.2(, subd. (a):

☑ Type of environmental review necessary
☑ Significance of tribal cultural resources, including any regulations, policies standards used by you agency or to determine significance of tribal cultural resources
☑ Significance of the project's impacts on tribal cultural resources

Project alternatives and/or appropriate measures for preservation or mitigation that we may recommend, including, but not limited to:

(1) Avoidance and preservation of the resources in place, pursuant to Public Resources Code section 21084.3, including, but not limited to, planning and construction to avoid the resources and protect the cultural and natural context, or planning greenspace, parks or other open space, to incorporate the resources with culturally appropriate protection and management criteria;
(2) Treating the resources with culturally appropriate dignity taking into account the tribal cultural values and meaning of the resources, including but not limited to the following:
   a. Protecting the cultural character and integrity of the resource;
   b. Protection the traditional use of the resource; and
   c. Protecting the confidentiality of the resource.
(3) Permanent conservation easements or other interests in real property,with culturally appropriate management criteria for the purposes of preserving or utilizing the resources or places.
(4) Protecting the resource.

Additionally, Tamien Nation would like to receive any cultural resources assessments or other assessments that have been completed on all or part of the project's potential "area of project effect" (APE), including, but not limited to:

1. The results of any record search that may have been conducted at an Information Center of the California Historical Resources Information System(CHRIS), including, but not limited to:

   - A listing of any and all known cultural resources have already been recordedon or adjacent to the APE;

   - Copies of any and all cultural resource records and study reports that may have been provided by the Information Center as part of the records searchresponse;

   - If the probability is low, moderate, or high that cultural resources are locatedin the APE.

   - Whether the records search indicates a low, moderate or high probability that unrecorded cultural resources are located in the potential APE; and

   - If a survey is recommended by the Information Center to determine whether previously unrecorded cultural resources are present.

2. The results of any archaeological inventory survey that was conducted, including:

   - Any report that may contain site forms, site significance, and suggested mitigation measures.

All information regarding site locations, Native American human remains, andassociated funerary objects should be in a separate confidential addendum, and not be made available for public disclosure in accordance with Government Code Section 6254.10.

3. The results of any Sacred Lands File (SFL) check conducted through Native American Heritage Commission. The request form can be found at http://www.nahc.ca.gov/slf_request.html. USGS 7.5-minute quadrangle name, township, range, and section required for the search.

4. Any ethnographic studies conducted for any area including all or part of the potential APE; and

5. Any geotechnical reports regarding all or part of the potential APE.

We would like to remind your agency that CEQA Guidelines section 15126.4, subdivision (b)(3) states that preservation in place is the preferred manner of mitigating impacts to archaeological sites. Section 15126.4, subd. (b)(3) of the CEQA Guidelines has been interpreted by the California Court of Appeal to mean that "feasible preservation in place must be adopted to mitigate impacts to historical resources of an archaeological nature unless the lead agency determines that another form of mitigation is available and provides superior mitigation of impacts." *Madera Oversight Coalition v. County of Madera* (2011) 199 Cal.App.4th 48, disapproved on other grounds, *Neighbors for Smart Rail v. Exposition Metro Line Construction Authority* (2013) 57 Cal.4th 439.

Tamien Nation expects to begin consultation within 30 days of your receipt of this letter. Please contact Tamien Nation lead contacts:

Quirina Geary,
Chairwoman
PO Box 8053
San Jose, CA 95155
(707) 295-4011
qgeary@tamien.org

Johnathan Costillas
Tamien Nation, THPO
PO Box 866
Clearlake Oaks, CA 95423
(925) 336-5359
jcostillas@tamien.org

Please refer to identification number TN-20220414-01 in any correspondence concerning this project. Thank you for providing us with this notice and the opportunity to comment.

Sincerely,

Quirina Geary
Chairwoman

cc: Native American Heritage Commission

Responses to Commenter 01

01-1	Contact information for the Tamien Nation was provided to FAA by State of California, Native American Heritage Commission (NAHC). As noted in *Section 3.8.5, Native American Consultation*, of the Environmental Assessment (EA), the FAA initiated consultation with the Tamien Nation on April 14, 2022. No response was received from the Tamien Nation by the FAA prior to completion of the National Historic Preservation Act (NHPA), Section 106 consultation process. The FAA received a response from the Tamien Nation on November 2, 2022, with an email attachment requesting formal consultation under California Environmental Quality Act (CEQA) and California Public Resource Code (CA PRC) provisions. On November 14, 2022, FAA responded to the Tamien Nation's request by indicating that CEQA and CA PRC are not applicable to proposed federal actions and NHPA and NEPA processes, but acknowledged the desire to be protective of potential cultural resources, if present, and providing a copy of the FAA's NHPA Section 106 consultation with the California State Historic Preservation Office (SHPO), the *Cultural Resources Report* (includes the record search conducted through the California Historical Resources Information System [CHRIS]), and the California SHPO's concurrence with FAA's finding of *No Historic Properties Affected*. Tribal consultation materials are included in *Appendix F, Cultural Resources*, of the EA.[1] As noted in *Section 4.7, Historical, Architectural, Archaeological and Cultural Resources* of the EA, the Direct and Indirect Area of Potential Effects (APEs) are within the built environment of the Airport. These locations have been extensively disturbed, are not within the defined archaeologically sensitive areas (ASAs) within SJC, and the potential for buried resources is low. Therefore, no adverse effects to archaeological resources are anticipated. There are no mitigation measures required for Historical, Architectural, Archaeological, and Cultural Resources, however an unanticipated discovery plan will be utilized for the Proposed Action Alternative. If previously unidentified prehistoric or historic archaeological resources are uncovered during construction activities, work would be discontinued within a 100-foot radius of the find. SJC will secure services of a qualified archaeologist to evaluate the resource, and the FAA will be notified for coordination with the SHPO. A report evaluating the find and identifying mitigation for impacts would be prepared by the archaeologist and submitted to the FAA; the City's Director of Planning, Building, and Code Enforcement; and the Director of the Airport. As appropriate, notification and coordination with interested Native American tribal communities will occur. The unanticipated discovery plan is consistent with FAA Order 1050.1F Desk Reference *Section 8.8, Post-NEPA Review Discoveries* and NHPA 36 CFR § 800.13(b)(3) Post-review discoveries.
01-2	See response to Comment #01-1.

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[1] Note that the City complied with CEQA requirements as part of the *Integrated Final Environmental Impact Report: Amendment to Norman Y. Mineta San Jose International Airport Master Plan*, which included the Proposed Action Alternative, approved in April 2020.

Commenter 02

Pacific Gas & Electric (PG&E)
Plan Review Team

Pacific Gas and Electric Company

Plan Review Team
Land Management

PGEPlanReview@pge.com

January 23, 2023

Ryan Sheelen
Mineta San Jose International Airport
1701 Airport Blvd, Ste B-1130
San Jose, CA 95110

Ref: Gas and Electric Transmission and Distribution

Dear Ryan Sheelen,

Thank you for submitting the Terminal B South Concourse Improvement plans for our review. PG&E will review the submitted plans in relationship to any existing Gas and Electric facilities within the project area. If the proposed project is adjacent/or within PG&E owned property and/or easements, we will be working with you to ensure compatible uses and activities near our facilities.

Attached you will find information and requirements as it relates to Gas facilities (Attachment 1) and Electric facilities (Attachment 2). Please review these in detail, as it is critical to ensure your safety and to protect PG&E's facilities and its existing rights.

Below is additional information for your review:

1

1. This plan review process does not replace the application process for PG&E gas or electric service your project may require. For these requests, please continue to work with PG&E Service Planning: https://www.pge.com/en_US/business/services/building-and-renovation/overview/overview.page.

2. If the project being submitted is part of a larger project, please include the entire scope of your project, and not just a portion of it. PG&E's facilities are to be incorporated within any CEQA document. PG&E needs to verify that the CEQA document will identify any required future PG&E services.

3. An engineering deposit may be required to review plans for a project depending on the size, scope, and location of the project and as it relates to any rearrangement or new installation of PG&E facilities.

Any proposed uses within the PG&E fee strip and/or easement, may include a California Public Utility Commission (CPUC) Section 851 filing. This requires the CPUC to render approval for a conveyance of rights for specific uses on PG&E's fee strip or easement. PG&E will advise if the necessity to incorporate a CPUC Section 851filing is required.

This letter does not constitute PG&E's consent to use any portion of its easement for any purpose not previously conveyed. PG&E will provide a project specific response as required.

Sincerely,

Plan Review Team
Land Management

2

Attachment 1 – Gas Facilities

There could be gas transmission pipelines in this area which would be considered critical facilities for PG&E and a high priority subsurface installation under California law. Care must be taken to ensure safety and accessibility. So, please ensure that if PG&E approves work near gas transmission pipelines it is done in adherence with the below stipulations. Additionally, the following link provides additional information regarding legal requirements under California excavation laws: https://www.usanorth811.org/images/pdfs/CA-LAW-2018.pdf

1. Standby Inspection: A PG&E Gas Transmission Standby Inspector must be present during any demolition or construction activity that comes within 10 feet of the gas pipeline. This includes all grading, trenching, substructure depth verifications (potholes), asphalt or concrete demolition/removal, removal of trees, signs, light poles, etc. This inspection can be coordinated through the Underground Service Alert (USA) service at 811. A minimum notice of 48 hours is required. Ensure the USA markings and notifications are maintained throughout the duration of your work.

2. Access: At any time, PG&E may need to access, excavate, and perform work on the gas pipeline. Any construction equipment, materials, or spoils may need to be removed upon notice. Any temporary construction fencing installed within PG&E's easement would also need to be capable of being removed at any time upon notice. Any plans to cut temporary slopes exceeding a 1:4 grade within 10 feet of a gas transmission pipeline need to be approved by PG&E Pipeline Services in writing PRIOR to performing the work.

3. Wheel Loads: To prevent damage to the buried gas pipeline, there are weight limits that must be enforced whenever any equipment gets within 10 feet of traversing the pipe.

Ensure a list of the axle weights of all equipment being used is available for PG&E's Standby Inspector. To confirm the depth of cover, the pipeline may need to be potholed by hand in a few areas.

Due to the complex variability of tracked equipment, vibratory compaction equipment, and cranes, PG&E must evaluate those items on a case-by-case basis prior to use over the gas pipeline (provide a list of any proposed equipment of this type noting model numbers and specific attachments).

No equipment may be set up over the gas pipeline while operating. Ensure crane outriggers are at least 10 feet from the centerline of the gas pipeline. Transport trucks must not be parked over the gas pipeline while being loaded or unloaded.

4. Grading: PG&E requires a minimum of 36 inches of cover over gas pipelines (or existing grade if less) and a maximum of 7 feet of cover at all locations. The graded surface cannot exceed a cross slope of 1:4.

5. Excavating: Any digging within 2 feet of a gas pipeline must be dug by hand. Note that while the minimum clearance is only 24 inches, any excavation work within 24 inches of the edge of a pipeline must be done with hand tools. So to avoid having to dig a trench entirely with hand tools, the edge of the trench must be over 24 inches away. (Doing the math for a 24 inch

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2

wide trench being dug along a 36 inch pipeline, the centerline of the trench would need to be at least 54 inches [24/2 + 24 + 36/2 = 54] away, or be entirely dug by hand.)

Water jetting to assist vacuum excavating must be limited to 1000 psig and directed at a 40° angle to the pipe. All pile driving must be kept a minimum of 3 feet away.

Any plans to expose and support a PG&E gas transmission pipeline across an open excavation need to be approved by PG&E Pipeline Services in writing PRIOR to performing the work.

6. Boring/Trenchless Installations: PG&E Pipeline Services must review and approve all plans to bore across or parallel to (within 10 feet) a gas transmission pipeline. There are stringent criteria to pothole the gas transmission facility at regular intervals for all parallel bore installations.

For bore paths that cross gas transmission pipelines perpendicularly, the pipeline must be potholed a minimum of 2 feet in the horizontal direction of the bore path and a minimum of 24 inches in the vertical direction from the bottom of the pipe with minimum clearances measured from the edge of the pipe in both directions. Standby personnel must watch the locator trace (and every ream pass) the path of the bore as it approaches the pipeline and visually monitor the pothole (with the exposed transmission pipe) as the bore traverses the pipeline to ensure adequate clearance with the pipeline. The pothole width must account for the inaccuracy of the locating equipment.

7. Substructures: All utility crossings of a gas pipeline should be made as close to perpendicular as feasible (90° +/- 15°). All utility lines crossing the gas pipeline must have a minimum of 24 inches of separation from the gas pipeline. Parallel utilities, pole bases, water line ‘kicker blocks’, storm drain inlets, water meters, valves, back pressure devices or other utility substructures are not allowed in the PG&E gas pipeline easement.

If previously retired PG&E facilities are in conflict with proposed substructures, PG&E must verify they are safe prior to removal. This includes verification testing of the contents of the facilities, as well as environmental testing of the coating and internal surfaces. Timelines for PG&E completion of this verification will vary depending on the type and location of facilities in conflict.

8. Structures: No structures are to be built within the PG&E gas pipeline easement. This includes buildings, retaining walls, fences, decks, patios, carports, septic tanks, storage sheds, tanks, loading ramps, or any structure that could limit PG&E’s ability to access its facilities.

9. Fencing: Permanent fencing is not allowed within PG&E easements except for perpendicular crossings which must include a 16 foot wide gate for vehicular access. Gates will be secured with PG&E corporation locks.

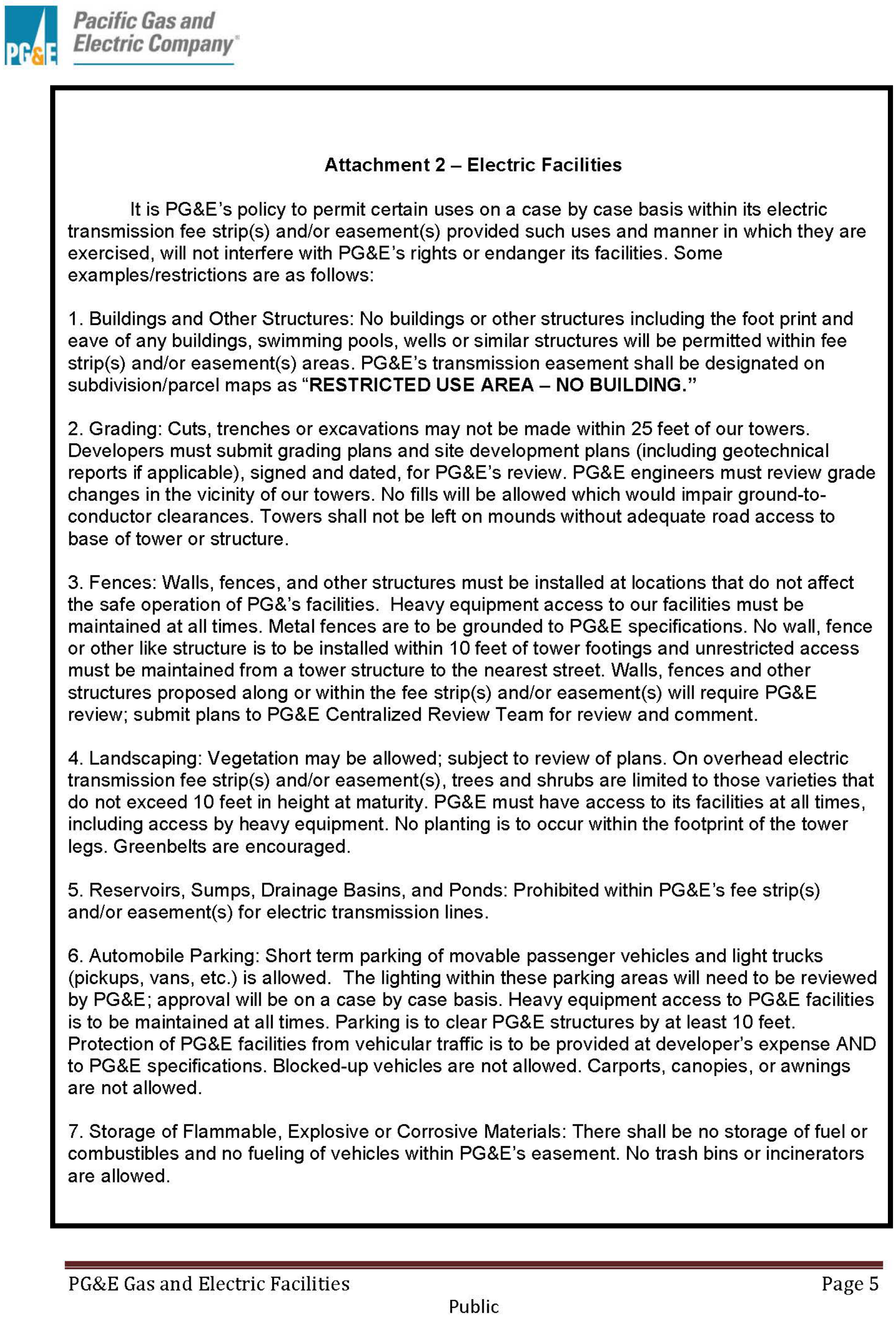
10. Landscaping: Landscaping must be designed to allow PG&E to access the pipeline for maintenance and not interfere with pipeline coatings or other cathodic protection systems. No trees, shrubs, brush, vines, and other vegetation may be planted within the easement area. Only those plants, ground covers, grasses, flowers, and low-growing plants that grow unsupported to a maximum of four feet (4’) in height at maturity may be planted within the easement area.

2

11. Cathodic Protection: PG&E pipelines are protected from corrosion with an "Impressed Current" cathodic protection system. Any proposed facilities, such as metal conduit, pipes, service lines, ground rods, anodes, wires, etc. that might affect the pipeline cathodic protection system must be reviewed and approved by PG&E Corrosion Engineering.

12. Pipeline Marker Signs: PG&E needs to maintain pipeline marker signs for gas transmission pipelines in order to ensure public awareness of the presence of the pipelines. With prior written approval from PG&E Pipeline Services, an existing PG&E pipeline marker sign that is in direct conflict with proposed developments may be temporarily relocated to accommodate construction work. The pipeline marker must be moved back once construction is complete.

13. PG&E is also the provider of distribution facilities throughout many of the areas within the state of California. Therefore, any plans that impact PG&E's facilities must be reviewed and approved by PG&E to ensure that no impact occurs which may endanger the safe operation of its facilities.



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Attachment 2 – Electric Facilities

It is PG&E's policy to permit certain uses on a case by case basis within its electric transmission fee strip(s) and/or easement(s) provided such uses and manner in which they are exercised, will not interfere with PG&E's rights or endanger its facilities. Some examples/restrictions are as follows:

1. Buildings and Other Structures: No buildings or other structures including the foot print and eave of any buildings, swimming pools, wells or similar structures will be permitted within fee strip(s) and/or easement(s) areas. PG&E's transmission easement shall be designated on subdivision/parcel maps as "**RESTRICTED USE AREA – NO BUILDING.**"

2. Grading: Cuts, trenches or excavations may not be made within 25 feet of our towers. Developers must submit grading plans and site development plans (including geotechnical reports if applicable), signed and dated, for PG&E's review. PG&E engineers must review grade changes in the vicinity of our towers. No fills will be allowed which would impair ground-to-conductor clearances. Towers shall not be left on mounds without adequate road access to base of tower or structure.

3. Fences: Walls, fences, and other structures must be installed at locations that do not affect the safe operation of PG&'s facilities. Heavy equipment access to our facilities must be maintained at all times. Metal fences are to be grounded to PG&E specifications. No wall, fence or other like structure is to be installed within 10 feet of tower footings and unrestricted access must be maintained from a tower structure to the nearest street. Walls, fences and other structures proposed along or within the fee strip(s) and/or easement(s) will require PG&E review; submit plans to PG&E Centralized Review Team for review and comment.

4. Landscaping: Vegetation may be allowed; subject to review of plans. On overhead electric transmission fee strip(s) and/or easement(s), trees and shrubs are limited to those varieties that do not exceed 10 feet in height at maturity. PG&E must have access to its facilities at all times, including access by heavy equipment. No planting is to occur within the footprint of the tower legs. Greenbelts are encouraged.

5. Reservoirs, Sumps, Drainage Basins, and Ponds: Prohibited within PG&E's fee strip(s) and/or easement(s) for electric transmission lines.

6. Automobile Parking: Short term parking of movable passenger vehicles and light trucks (pickups, vans, etc.) is allowed. The lighting within these parking areas will need to be reviewed by PG&E; approval will be on a case by case basis. Heavy equipment access to PG&E facilities is to be maintained at all times. Parking is to clear PG&E structures by at least 10 feet. Protection of PG&E facilities from vehicular traffic is to be provided at developer's expense AND to PG&E specifications. Blocked-up vehicles are not allowed. Carports, canopies, or awnings are not allowed.

7. Storage of Flammable, Explosive or Corrosive Materials: There shall be no storage of fuel or combustibles and no fueling of vehicles within PG&E's easement. No trash bins or incinerators are allowed.

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8. Streets and Roads: Access to facilities must be maintained at all times. Street lights may be allowed in the fee strip(s) and/or easement(s) but in all cases must be reviewed by PG&E for proper clearance. Roads and utilities should cross the transmission easement as nearly at right angles as possible. Road intersections will not be allowed within the transmission easement.

9. Pipelines: Pipelines may be allowed provided crossings are held to a minimum and to be as nearly perpendicular as possible. Pipelines within 25 feet of PG&E structures require review by PG&E. Sprinklers systems may be allowed; subject to review. Leach fields and septic tanks are not allowed. Construction plans must be submitted to PG&E for review and approval prior to the commencement of any construction.

10. Signs: Signs are not allowed except in rare cases subject to individual review by PG&E.

11. Recreation Areas: Playgrounds, parks, tennis courts, basketball courts, barbecue and light trucks (pickups, vans, etc.) may be allowed; subject to review of plans. Heavy equipment access to PG&E facilities is to be maintained at all times. Parking is to clear PG&E structures by at least 10 feet. Protection of PG&E facilities from vehicular traffic is to be provided at developer's expense AND to PG&E specifications.

12. Construction Activity: Since construction activity will take place near PG&E's overhead electric lines, please be advised it is the contractor's responsibility to be aware of, and observe the minimum clearances for both workers and equipment operating near high voltage electric lines set out in the High-Voltage Electrical Safety Orders of the California Division of Industrial Safety (https://www.dir.ca.gov/Title8/sb5g2.html), as well as any other safety regulations. Contractors shall comply with California Public Utilities Commission General Order 95 (http://www.cpuc.ca.gov/gos/GO95/go_95_startup_page.html) and all other safety rules. No construction may occur within 25 feet of PG&E's towers. All excavation activities may only commence after 811 protocols has been followed.

Contractor shall ensure the protection of PG&E's towers and poles from vehicular damage by (installing protective barriers) Plans for protection barriers must be approved by PG&E prior to construction.

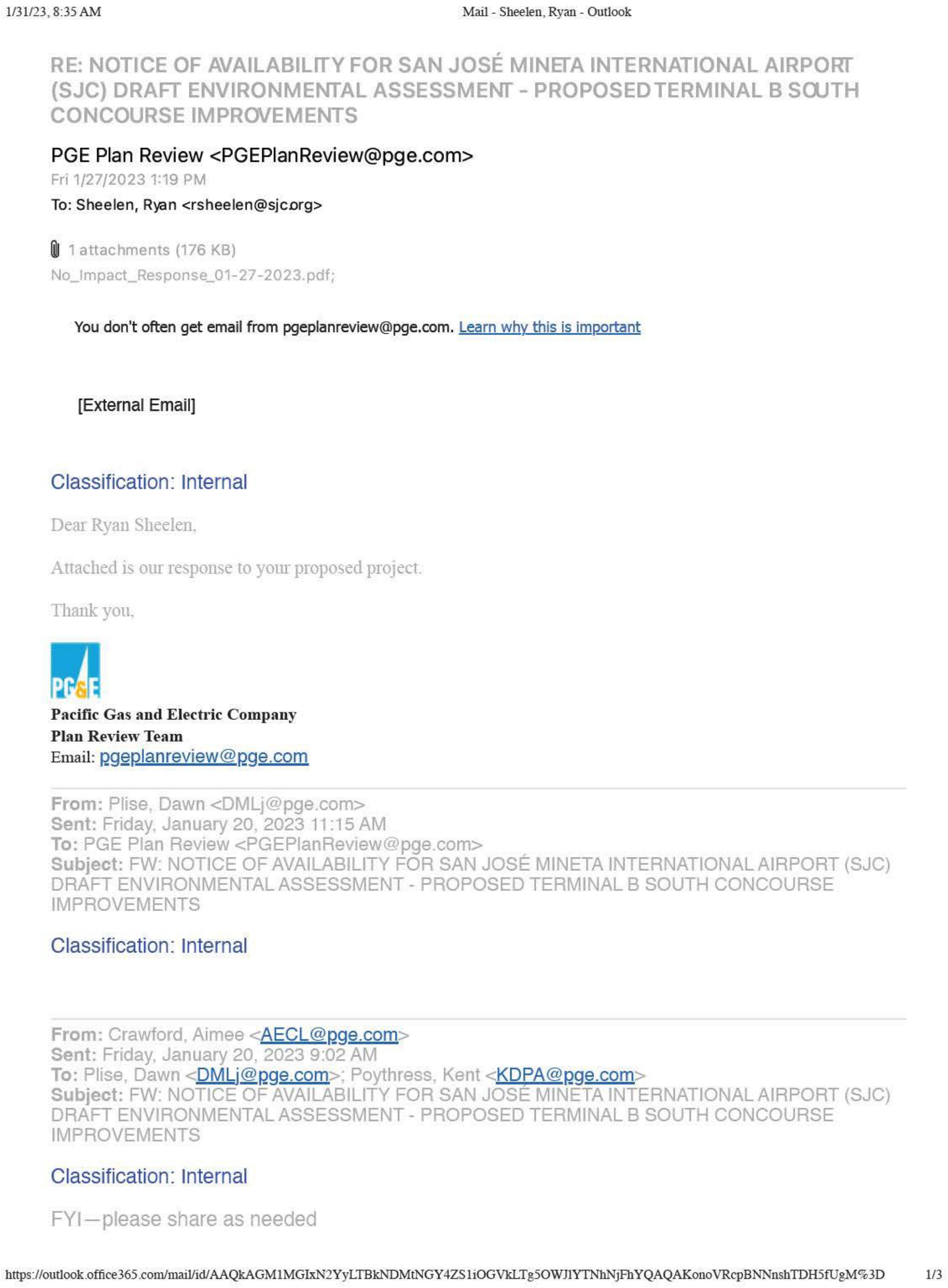
13. PG&E is also the owner of distribution facilities throughout many of the areas within the state of California. Therefore, any plans that impact PG&E's facilities must be reviewed and approved by PG&E to ensure that no impact occurs that may endanger the safe and reliable operation of its facilities.

Responses to Commenter 02

02-1	The City complied with CEQA requirements as part of the Integrated Final Environmental Impact Report: Amendment to Norman Y. Mineta San Jose International Airport Master Plan, which included the Proposed Action Alternative, approved in April 2020. Comment noted, the City of San José will coordinate with PG&E and comply with all applicable state and local laws and regulations before and during design and construction of the proposed improvements.
02-2	Comment noted, the City of San José will coordinate with PG&E and comply with all applicable state and local laws and regulations before and during design and construction of the proposed improvements.
02-3	Comment noted, the City of San José will coordinate with PG&E and comply with all applicable state and local laws and regulations before and during design and construction of the proposed improvements.

Commenter 03

Pacific Gas & Electric (PG&E)
Plan Review Team



RE: NOTICE OF AVAILABILITY FOR SAN JOSÉ MINETA INTERNATIONAL AIRPORT (SJC) DRAFT ENVIRONMENTAL ASSESSMENT - PROPOSED TERMINAL B SOUTH CONCOURSE IMPROVEMENTS

PGE Plan Review <PGEPlanReview@pge.com>
Fri 1/27/2023 1:19 PM
To: Sheelen, Ryan <rsheelen@sjc.org>

1 attachments (176 KB)
No_Impact_Response_01-27-2023.pdf;

You don't often get email from pgeplanreview@pge.com. Learn why this is important

[External Email]

Classification: Internal

Dear Ryan Sheelen,

Attached is our response to your proposed project.

Thank you,

Pacific Gas and Electric Company
Plan Review Team
Email: pgeplanreview@pge.com

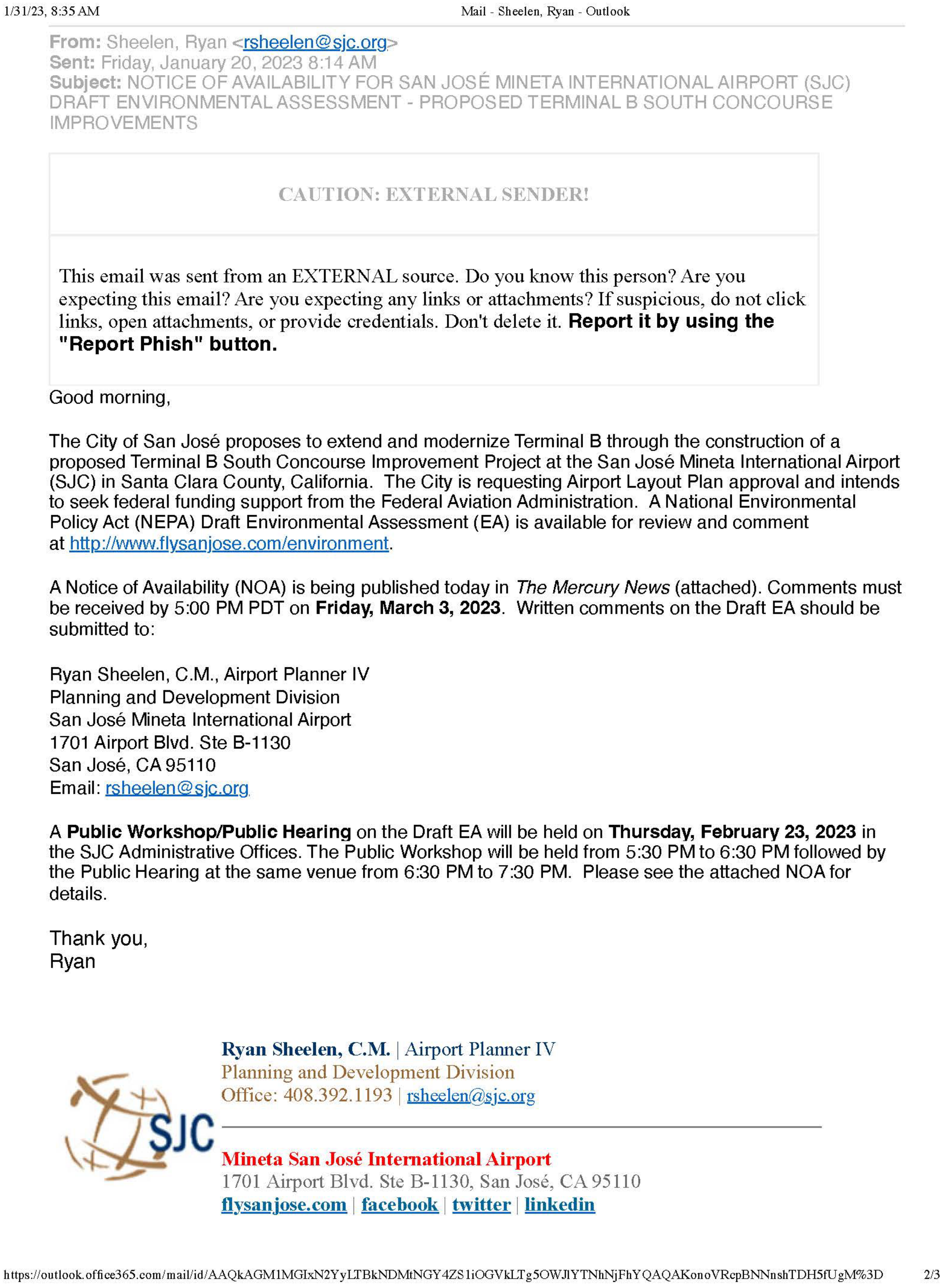
From: Plise, Dawn <DMLj@pge.com>
Sent: Friday, January 20, 2023 11:15 AM
To: PGE Plan Review <PGEPlanReview@pge.com>
Subject: FW: NOTICE OF AVAILABILITY FOR SAN JOSÉ MINETA INTERNATIONAL AIRPORT (SJC) DRAFT ENVIRONMENTAL ASSESSMENT - PROPOSED TERMINAL B SOUTH CONCOURSE IMPROVEMENTS

Classification: Internal

From: Crawford, Aimee <AECL@pge.com>
Sent: Friday, January 20, 2023 9:02 AM
To: Plise, Dawn <DMLj@pge.com>; Poythress, Kent <KDPA@pge.com>
Subject: FW: NOTICE OF AVAILABILITY FOR SAN JOSÉ MINETA INTERNATIONAL AIRPORT (SJC) DRAFT ENVIRONMENTAL ASSESSMENT - PROPOSED TERMINAL B SOUTH CONCOURSE IMPROVEMENTS

Classification: Internal

FYI—please share as needed



From: Sheelen, Ryan <rsheelen@sjc.org>
Sent: Friday, January 20, 2023 8:14 AM
Subject: NOTICE OF AVAILABILITY FOR SAN JOSÉ MINETA INTERNATIONAL AIRPORT (SJC) DRAFT ENVIRONMENTAL ASSESSMENT - PROPOSED TERMINAL B SOUTH CONCOURSE IMPROVEMENTS

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Good morning,

The City of San José proposes to extend and modernize Terminal B through the construction of a proposed Terminal B South Concourse Improvement Project at the San José Mineta International Airport (SJC) in Santa Clara County, California. The City is requesting Airport Layout Plan approval and intends to seek federal funding support from the Federal Aviation Administration. A National Environmental Policy Act (NEPA) Draft Environmental Assessment (EA) is available for review and comment at http://www.flysanjose.com/environment.

A Notice of Availability (NOA) is being published today in *The Mercury News* (attached). Comments must be received by 5:00 PM PDT on **Friday, March 3, 2023**. Written comments on the Draft EA should be submitted to:

Ryan Sheelen, C.M., Airport Planner IV
Planning and Development Division
San José Mineta International Airport
1701 Airport Blvd. Ste B-1130
San José, CA 95110
Email: rsheelen@sjc.org

A **Public Workshop/Public Hearing** on the Draft EA will be held on **Thursday, February 23, 2023** in the SJC Administrative Offices. The Public Workshop will be held from 5:30 PM to 6:30 PM followed by the Public Hearing at the same venue from 6:30 PM to 7:30 PM. Please see the attached NOA for details.

Thank you,
Ryan

Ryan Sheelen, C.M. | Airport Planner IV
Planning and Development Division
Office: 408.392.1193 | rsheelen@sjc.org

Mineta San José International Airport
1701 Airport Blvd. Ste B-1130, San José, CA 95110
flysanjose.com | **facebook** | **twitter** | **linkedin**

You can read about PG&E's data privacy practices here or at PGE.com/privacy.

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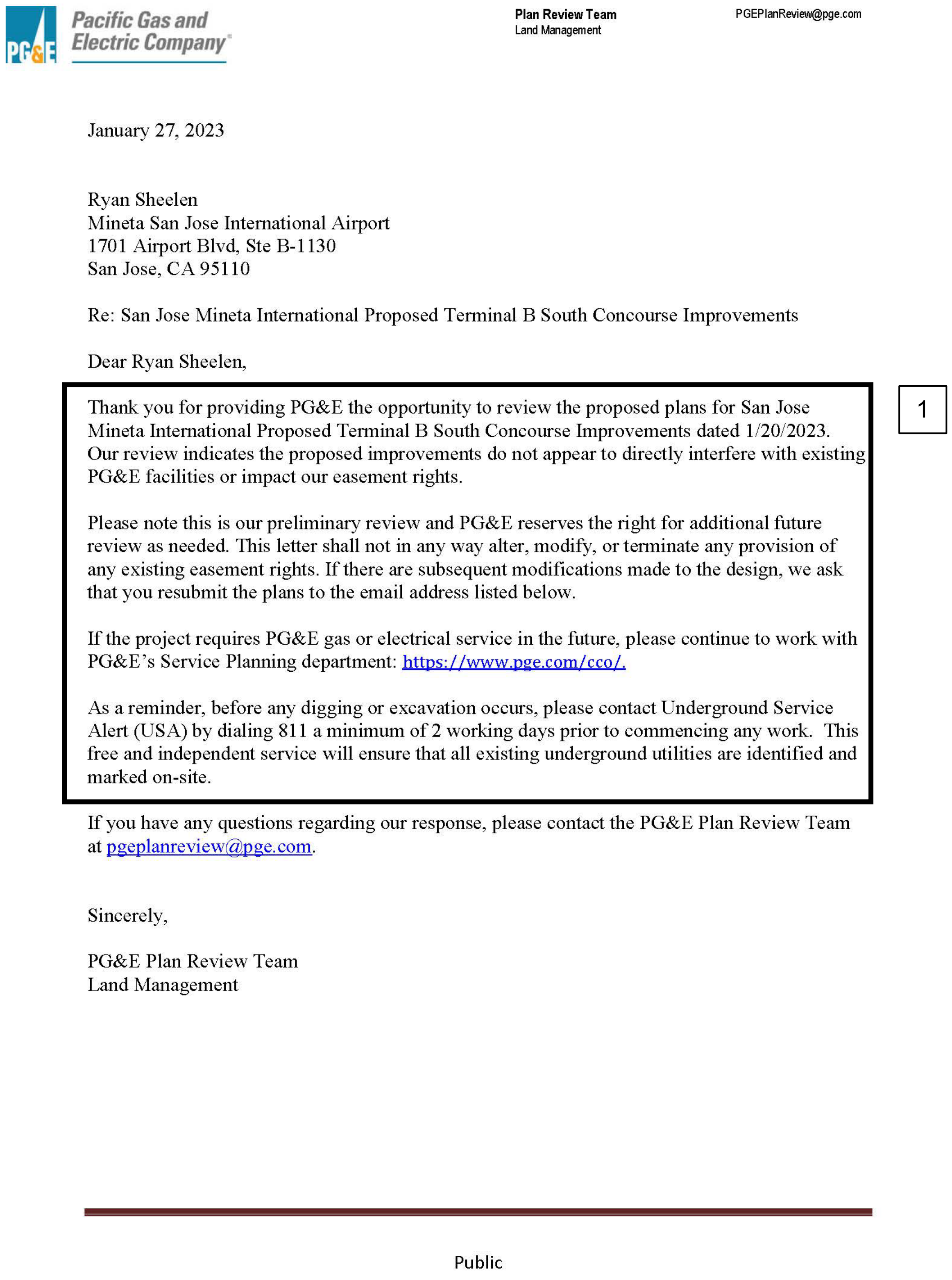

Pacific Gas and Electric Company

Plan Review Team
Land Management

PGEPlanReview@pge.com

January 27, 2023

Ryan Sheelen
Mineta San Jose International Airport
1701 Airport Blvd, Ste B-1130
San Jose, CA 95110

Re: San Jose Mineta International Proposed Terminal B South Concourse Improvements

Dear Ryan Sheelen,

1

Thank you for providing PG&E the opportunity to review the proposed plans for San Jose Mineta International Proposed Terminal B South Concourse Improvements dated 1/20/2023. Our review indicates the proposed improvements do not appear to directly interfere with existing PG&E facilities or impact our easement rights.

Please note this is our preliminary review and PG&E reserves the right for additional future review as needed. This letter shall not in any way alter, modify, or terminate any provision of any existing easement rights. If there are subsequent modifications made to the design, we ask that you resubmit the plans to the email address listed below.

If the project requires PG&E gas or electrical service in the future, please continue to work with PG&E's Service Planning department: https://www.pge.com/cco/.

As a reminder, before any digging or excavation occurs, please contact Underground Service Alert (USA) by dialing 811 a minimum of 2 working days prior to commencing any work. This free and independent service will ensure that all existing underground utilities are identified and marked on-site.

If you have any questions regarding our response, please contact the PG&E Plan Review Team at pgeplanreview@pge.com.

Sincerely,

PG&E Plan Review Team
Land Management

Public

Responses to Commenter 03

03-1	Comment noted, the City of San José will coordinate with PG&E and comply with all applicable state and local laws and regulations before and during design and construction of the proposed improvements. Also note that the City complied with CEQA requirements as part of the *Integrated Final Environmental Impact Report: Amendment to Norman Y. Mineta San Jose International Airport Master Plan*, which included the Proposed Action Alternative, approved in April 2020.

Appendix L

Acronyms and Abbreviations

Acronyms and Abbreviations

$\mu g/m^3$	micrograms per cubic meter
§	Public Law
AC	Advisory Circular
ACEIT	Airport Construction Emissions Inventory Tool
ACM	Aircraft Certification Manual
ACM	Asbestos containing materials
ACM	Avoidance Conservation Measure
ACHP	Advisory Council on Historic Preservation
ACRP	Airport Cooperative Research Program
ACS	American Community Survey
ADG	Aircraft Design Group
ADRM	Airport Design Reference Manual
AEDT	Aviation Environmental Design Tool
AFFF	Aqueous film forming foam
AIP	Airport Improvement Program
Airport	San José International Airport
ALP	Airport Layout Plan
ALUC	Santa Clara County Airport Land Use Commission
ANOMS	Airport Noise and Operations Monitoring System
APE	Area of Potential Effects
APU	Auxiliary Power Units
ASA	Archaeologically Sensitive Area
AST	Aboveground storage tanks
AQMD	Air Quality Management District
BAAQMD	Bay Area Air Quality Management District
Basin	San Francisco Bay Area Air Basin
BCMM	Basic Construction Mitigation Measures
BGEPA	Bald and Golden Eagle Protection Act
BHS	Baggage Handling System
Bio-CO_2	Biogenic Carbon Dioxide
BIL	Bipartisan Infrastructure Law
BMPs	Best Management Practices
BOMP	Burrowing Owl Management Plan
BRAC	Base Realignment and Closure
CAA	Clean Air Act
CAAQS	California ambient air quality standards
CalEEMod	California Emissions Estimator Model
CalEPA	California Environmental Protection Agency
Cal Fire	California Department of Forestry and Fire Protection
CAP	Criteria Air Pollutant
CARB	California Air Resources Board

CATEX	Categorical Exclusion
CCC	Central California Coast
CCR	California Code of Regulations
CDFW	California Department of Fish and Wildlife
CEC	California Energy Commission
CES	CalEnviroScreen
CEQ	Council on Environmental Quality
CEQA	California Environmental Quality Act
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CESA	California Endangered Species Act
CFR	Code of Federal Regulations
CH_4	Methane
CHC	Cultural Heritage Commission
CHRIS	California Historical Resources Information System
City	City of San José
CLUP	Comprehensive Land Use Plan
CMP	Congestion Management Program
CNDDB	California Natural Diversity Database
CNEL	Community Noise Equivalent Level
CNPS	California Native Plant Society
CRPR	California Rare Plant Rank
CO	Carbon monoxide
CO_2	Carbon dioxide
CO_2e	Carbon dioxide equivalents
COA	Certificate of Appropriateness
CONRAC	Consolidated Rental Car Center
Cortese List	DTSC Hazardous Waste and Substances Site List
CREC	Controlled Recognized Environmental Condition
CSSC	California Species of Special Concern
CT	Census Tract
CUPA	Certified Unified Program Agency
CWA	Clean Water Act
CZMA	Coastal Zone Management Act
dB	decibel
DDFS	Design Day Flight Schedule
DEIR	Draft Environmental Impact Report
DNL	Day-night average sound level
DSA	Direct Study Area
DOT	Department of Transportation
DPS	Distinct Population Segment
DTSC	California Department of Toxic Substances Control
EA	Environmental Assessment
EB	Exploratory Boring
EFH	Essential Fish Habitat

EIR	Environmental Impact Report
EISA	Energy Independence and Security Act
EJ	Environmental Justice
EJSCREEN	USEPA Environmental Justice Screening and Mapping Tool
EPA	Environmental Protection Agency
EO	Executive Order
ESA	Endangered Species Act
ESA	Environmental Site Assessment
ESL	Environmental Screening Levels
ESU	Evolutionary Significant Units
FAA	Federal Aviation Administration
FEIR	Final Environmental Impact Report
FBO	Fixed Base Operator
FEMA	Federal Emergency Management Agency
FESA	Federal Endangered Species Act
FHWA	Federal Highway Administration
FIRM	Flood Insurance Rate Map
FIS	Federal Inspection Services
FMP	Fishery Management Plan
FR	Federal Register
FT	Federally threatened
FTA	Federal Transit Administration
GA	General Aviation
GHGs	Greenhouse Gases
GSE	Ground Support Equipment
GWP	Global Warming Potential
HI	Heavy Industrial
HMBP	Hazardous material business plan
HPER	*Historic Property Evaluation Report* (GPA Consulting, August 2018)
HSC	California Health and Safety Code
HVAC	heating, ventilation, and air conditioning
IATA	International Air Transport Association
IWMP	Integrated waste management plan
IP	Industrial Park
IPaC	Information for Planning and Consultation
IPCC	Intergovernmental Panel on Climate Change
ISA	Indirect Study Area
kV	kilo-volt
kW	kilowatt
LBP	Lead-based paint

LED	Light-emitting diode
LEED	Leadership in Energy and Environmental Design
LHA	Lifetime Health Advisory
LOS	Level of service
LUST	Leaking underground storage tank
MAP	million annual passengers
MBTA	Migratory Bird Treaty Act
MM	Mitigation Measure
MMPA	Marine Mammal Protection Act
MOU	Memorandum of Understanding
MRF	Materials Recovery Facility
MS4	Municipal Separate Storm Sewer System
MT	Metric ton
MSFCMA	Magnuson-Stevens Fishery Conservation and Management Act
MW	megawatt
MWh	megawatt-hour
N_2O	Nitrous oxide
Nbio-CO_2	Non-Biogenic Carbon Dioxide
NAAQS	National Ambient Air Quality Standards
NASA	National Aeronautics and Space Administration
NCP	Noise Compatibility Program
NEPA	National Environmental Policy Act
Ng/L	Nanograms per Liter
NHPA	National Historic Preservation Act
NESHAP	National Emission Standards for Hazardous Air Pollutants
NL	Notification Level
NMFS	National Marine Fisheries Service
NO_2	Nitrogen dioxide
NO_x	Nitrogen oxides
NOA	Notice of Availability
NOAA	National Oceanic and Atmospheric Administration
NPDES	National Pollutant Discharge Elimination System
NPIAS	National Plan of Integrated Airport System
NPL	National Priorities List
NPS	National Park Service
NRC	National Research Council
NRHP	National Register of Historic Places
NWI	National Wetlands Inventory
O_3	Ozone
OEHHA	CalEPA Office of Environmental Health Hazard Assessment
OSHA	Occupational Safety and Health Administration
P2	Pollution Prevention

Pb	Lead
PD	Planned Development
PDT	Pacific Daylight Time
PFAS	Polyfluoroalkyl substances
PFC	Passenger Facility Charge
PFOA	Perfluorooctanoic Acid
PFOS	Perfluorooctane Sulfonate
PG&E	Pacific Gas & Electric Company
PL	Public Law
PM	Particulate matter
PM_{10}	Coarse particle matter
$PM_{2.5}$	Fine particle matter
PPA	Federal Pollution Prevention Act
ppb	parts per billion
ppm	parts per million
PQP	Public/Quasi-Public
RCRA	Resource Conservation and Recovery Act
REC	Recognized Environmental Condition
RIM	Runway Incursion Mitigation
ROG	Reactive organic gases
RTE	Rare, threatened, and endangered species
RWQCB	San Francisco Regional Water Quality Control Board
R-1-8	Single-family residential up to eight dwellings per unit acre zoning district
R-2	Two-family residential zoning district
SBWR	South Bay Water Recycling
SCAG	Southern California Association of Governments
SCAQMD	South Coast Air Quality Management District
SCCDEH	Santa Clara County Department of Environmental Health
SCE	Southern California Edison
SF	square feet
SFBAAB	San Francisco Bay Area Basin or Basin
SHPO	State Historic Preservation Officer
SIP	State Implementation Plan
SJC	San José International Airport
SJCE	San José Clean Energy
SJPD	San José Police Department
SMP	Soil Management Plan
SO_2	Sulfur dioxide
SOI	Secretary of the Interior
SPCC	Spill, Prevention, Control and Countermeasures
SR	State Route
SWDA	Solid Waste Disposal Act
SWRCB	State Water Resources Control Board
SWPPP	Stormwater Pollution Prevention Plan

TAF	Terminal Area Forecast
TRB	Transportation Research Board
TSA	Transportation Security Administration
URA	Uniform Relocation Assistance and Real Property Acquisition Policy Act
USACE	U.S. Army Corps of Engineers
USC	United States Code
USDA	United States Department of Agriculture
USDOT	U.S. Department of Transportation
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
USGCRP	U.S. Global Change Research Program
UST	Underground Storage Tank
VCP	Voluntary Cleanup Program
VOC	Volatile organic compound
VOR	Very High-Frequency (VHF) Omnidirectional Range
VMT	Vehicle Miles Traveled
VTA	Santa Clara Valley Transportation Authority
WHMP	Wildlife Hazard Management Plan
WOTUS	Waters of the U.S.