SFPP Norwalk Pump Station
Norwalk, California

Fourth Quarter 2018 Remediation Progress Report

Final

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Kinder Morgan, Inc.

SFPP Norwalk Pump Station, Norwalk, California

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Client Name:	Kinder Morgan, Inc.
Project Manager:	Eric Davis
Author:	Vladimir Carino

Jacobs Engineering Group Inc.

2600 Michelson Drive, Suite 500
Irvine, California 92612
United States
T +1.949.224.7500
F +1.949.224.7501
www.jacobs.com

The material and data presented in this report were prepared consistent with current and generally accepted consulting principles and practices. This work was supervised by the following Jacobs licensed professional.

William Breedlove
California Professional Chemical Engineer, No. 5142

January 15, 2019
Date

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Acronyms and Abbreviations

µg/L	microgram(s) per liter
1,2-DCA	1,2-dichloroethane
Air Tech	Air Technology Laboratories
Asset	Asset Laboratories
ASTM	ASTM International
BC	BC Laboratories, Inc.
BTEX	benzene, toluene, ethylbenzene, and total xylenes
CH2M	CH2M HILL Engineers, Inc., now part of Jacobs Engineering Group Inc.
COPC	chemical of potential concern
DAF	dissolved air flotation
DFSP	Defense Fuel Support Point
DIPE	di-isopropyl ether
DTSC	Department of Toxic Substances Control
EPA	U.S. Environmental Protection Agency
GWE	groundwater extraction
GWTS	groundwater treatment system
in. H2O	inches of water
Jacobs	Jacobs Engineering Group Inc.
Kinder Morgan	Kinder Morgan, Inc.
LGAC	liquid-phase granular activated carbon
LNAPL	light nonaqueous phase liquid
MTBE	methyl tertiary butyl ether
No.	number
O&M	operations and maintenance
OWS	oil-water separator
PCE	tetrachloroethylene
ppmv	parts per million by volume
PVC	polyvinyl chloride
RTO	regenerative thermal oxidizer
SCE	Southern California Edison
scfm	standard cubic feet per minute
SFPP	SFPP, L.P.
SGI	Source Group, Inc.
SVE	soil vapor extraction
TBA	tertiary butyl alcohol
TFE	total fluids extraction

TPH	total petroleum hydrocarbons
TPH-d	total petroleum hydrocarbons quantified as diesel
TPH-g	total petroleum hydrocarbons quantified as gasoline
TPH-o	total petroleum hydrocarbons quantified as oil
TPH-total	total petroleum hydrocarbons quantified as gasoline, diesel, and oil
VOC	volatile organic compound
Water Board	California Regional Water Quality Control Board, Los Angeles Region
WSB	West Side Barrier

1. Introduction

On behalf of SFPP, L.P. (SFPP), an operating partnership of Kinder Morgan, Inc. (Kinder Morgan), CH2M HILL Engineers, Inc. (CH2M), now a wholly owned subsidiary of Jacobs Engineering Group Inc. (Jacobs), prepared this report to summarize remediation activities performed at the SFPP Norwalk Pump Station located within the Defense Fuel Support Point (DFSP) Norwalk, at 15306 Norwalk Boulevard, Norwalk, California (the site; Figure 1) during the fourth quarter 2018 reporting period.

This progress report is submitted pursuant to a request from the California Regional Water Quality Control Board, Los Angeles Region (Water Board) in its letter dated October 25, 2006 (Water Board, 2006). Additional site background information can be found in the report titled, *Conceptual Site Model and Proposed Alternate Interim Remedy for Soil, Groundwater, and LNAPL* (CH2M, 2013), and in previously submitted semiannual groundwater monitoring reports.

This report summarizes the remediation systems present at the site and describes remediation activities for the period of October through December 2018 with documentation of the following tasks:

- Operations and maintenance (O&M) of remediation systems performed by Kinder Morgan field personnel
- Remediation system evaluation

The remediation activities performed from October through December 2018 and the progress achieved through those activities are summarized in the following sections.

2. Remediation Systems

Kinder Morgan operates remediation systems consisting of soil vapor extraction (SVE), total fluids extraction (TFE; extraction of free product and/or groundwater using a top-loading pump), groundwater extraction (GWE; extraction of groundwater using a bottom-loading pump), and treatment of extracted soil vapors and groundwater to address the south-central and southeastern areas of the site. Biosparging is also employed in the south-central area to enhance natural attenuation of hydrocarbon constituents.

Operation of the West Side Barrier (WSB) GWE system for remediation of the western offsite area was discontinued in August 2008 based on the reduced lateral extent and low concentrations of volatile organic compounds (VOCs) west of the site.

The objectives of the remediation systems are to contain and control the migration of hydrocarbon constituents in groundwater and soil vapor, and to remove hydrocarbon mass from soil and groundwater. The remediation systems include the following wells:

- South-Central Area
  - 20 TFE wells
  - 24 onsite and 6 offsite SVE wells (most collocated with TFE wells)
  - 2 horizontal SVE wells
  - 1 horizontal biosparge well
- Southeastern Area (24-inch Block Valve Area)
  - 4 TFE wells (GMW-O-15, GMW-O-18, GMW-36, and GMW-SF-9)
  - 3 SVE wells (collocated with TFE wells)
  - 1 GWE well (GMW-SF-10)

A summary of remediation wells in the south-central, southeastern, and WSB areas is presented in Table 1. Table 1 includes well identifications, well construction details, well function, and operational status at the end of the fourth quarter 2018. The remediation system layout is shown on Figure 2. A brief description of each system is provided in Sections 2.1 through 2.3.

Kinder Morgan currently operates three refined fuel pipelines (two 16-inch and one 24-inch) that traverse the southern border of the site. These pipelines previously supplied fuel products to the former tank farm, and various block valves and other connection points were identified as potential sources of subsurface releases in the south-central and southeastern areas of the site. Between the third quarter of 2016 and the second quarter of 2017, the pipelines were modified to remove all valves and connections so that the pipelines now span across the site in a continuous manner, reducing the potential for future releases that could have occurred at those connection points.

2.1 Soil Vapor Extraction System

SVE is performed using a blower to remove soil vapors from the south-central and southeastern areas of the site. The extracted vapors are conveyed to a knock-out tank that separates entrained moisture from the soil vapors. Accumulated moisture in the knock-out tank is treated by the main groundwater treatment system (GWTS) described in Section 2.2. The soil vapors are then treated in a regenerative thermal oxidizer (RTO) where VOCs are converted to carbon dioxide and water prior to being discharged to the atmosphere. Operation of the GWTS and SVE system is conducted in accordance with Permits to Operate (Permit Number [No.] G46188 A/N 578779 and No. G46187 A/N 578777) issued by the South Coast Air Quality Management District.

2.2 Groundwater Treatment System

The main GWTS processes free product and groundwater recovered from the south-central and southeastern parts of the site. Free product and groundwater recovered by pneumatically operated, top-loading total fluid pumps and bottom-loading groundwater pumps are piped to a dissolved air flotation (DAF) unit (oil-water separator [OWS]). Free product, if any, from the OWS is collected in a storage tank and recycled at an offsite location. Water from the OWS is treated using liquid-phase granular activated carbon (LGAC). Treated water is routed through an onsite 3,000-gallon equalization tank. Two fluidized bed bioreactors installed downstream of the equalization tank treat fuel oxygenates such as tertiary butyl alcohol (TBA) and methyl tertiary butyl ether (MTBE). The treated groundwater then passes through polishing LGAC units prior to discharge to a storm drain that leads to Coyote Creek. Discharge to Coyote Creek is performed in accordance with a National Pollutant Discharge Elimination System permit (Permit No. CA0063509; Order No. R4-2016-0309).

2.3 Horizontal Biosparge System

In December 2015, Kinder Morgan completed installation of a horizontal biosparge system in the south-central area of the site, which consists of a horizontal well and a 500-standard-cubic-foot-per-minute (scfm) compressor. To reduce the potential for off-gassing of VOCs during biosparging, the SVE system has an interlock that will not allow the biosparge to operate without the SVE running. The biosparge well is constructed of 4-inch-diameter Schedule 80 polyvinyl chloride (PVC) casing and screen completed to a vertical depth of approximately 45 feet below ground surface. The lateral distance of the screen interval is 600 feet centered below the central portion of the south-central area hydrocarbon plume. Further details regarding the construction of the biosparge well are documented in the report titled, *Horizontal Biosparge Well and Soil Vapor Monitoring Probe Completion Report* (CH2M, 2015).

Pilot testing of the biosparge system commenced in early January 2016 and continued through October 2016. A comprehensive evaluation report that incorporates soil vapor and groundwater data was submitted to the Water Board in August 2017 (CH2M, 2017). Based on the favorable results of the pilot study, a second horizontal biosparge well was installed in the southeastern area of the site in November 2017. The design of the second biosparge well is similar to the south-central biosparge well, consisting of 4-inch-diameter Schedule 80 PVC casing and screen completed to a vertical depth of approximately 45 feet below ground surface. The lateral distance of the screen interval is 240 feet centered below the southeastern area hydrocarbon plume. A construction completion report documenting construction activities and specifications was submitted on July 12, 2018 (Jacobs, 2018). The 500-scfm sparge compressor was turned off temporarily and a new air sparge compressor (883 scfm) was installed in the fourth quarter 2018 to deliver ambient air to both the south-central and southeastern sparge wells. The 500-scfm and 883-scfm compressors are appropriately sized to deliver ambient air to both the south-central and southeastern sparge wells, and to allow for future system expansion.

3. Operations and Maintenance

During the fourth quarter 2018 reporting period, O&M of the remediation systems included the following tasks:

- Performed ongoing weekly maintenance on the GWTS.
- Removed, inspected, and repaired existing TFE/GWE pumps and associated discharge lines.
- Installed pumps and associated equipment necessary for TFE at select wells with measurable free product.
- Installed the 883-scfm air compressor for the biosparge system in the south-central and southeastern wells.

The remediation systems operated continuously during the fourth quarter 2018, with the following exceptions:

- The SVE system was shut down on October 15, 2018, due to a high combustion temperature on the RTO. The system was restarted on October 16, 2018.
- The air sparge system was shut down on October 15, 2018, to accommodate installation of the new air sparge system. The 883-scfm air sparge system is tentatively scheduled to come online in January 2019.
- The GWTS was shut down from October 22 through November 9, 2018, to facilitate gauging and sampling activities during the DFSP second semiannual groundwater sampling event that was conducted November 5 to November 9, 2018.
- The SVE and air sparge systems were shut down from October 22 through November 15, 2018, to facilitate gauging and sampling activities during the DFSP second semiannual groundwater sampling event that was conducted November 5 to November 9, 2018, and the annual soil vapor sampling event that was conducted from November 12 to November 14, 2018.
- The SVE system, air sparge system, and GWTS were shut down on December 22 to December 31, 2018, due to the systems shutting down; the shutdowns were caused by the motors and pressure regulators of the 2007 and 2008 air compressors. The 2007 and 2008 air compressors supply air to the GWTS well pumps and the poppet valves on the RTO.

During the fourth quarter 2018, the GWTS was operational approximately 61 percent of the time (81 percent of the time excluding planned shutdowns and power outages). The SVE system was operational approximately 61 percent of the time (86 percent of the time excluding planned shutdowns). The biosparge system was operational 28 percent of the time (100 percent of the time excluding planned shutdowns). Table 2 presents the SVE system operation summary. Photoionization detector (PID) measurements and analytical results for extracted vapor during the fourth quarter 2018 are summarized in Tables 3 and 4, respectively. The groundwater remediation system operation activities for the fourth quarter 2018 are summarized in Table 5. The extracted groundwater analytical results for the fourth quarter 2018 are summarized in Table 6. Table 7 presents the biosparge system operation summary. Table 8 presents the soil vapor probe analytical results for November 2018. Historical (post-2007) gauging results of select TFE and SVE wells are provided in Table 9. Pre-2007 data can be found in previous semiannual groundwater monitoring reports.

Water samples from the GWTS influent were collected on October 23, November 12, and December 14, 2018. The water samples were delivered to Asset Laboratories (Asset) of Las Vegas, Nevada, and BC Laboratories, Inc. (BC) of Bakersfield, California, for analysis. Asset and BC are certified by the California Department of Public Health Environmental Laboratory Accreditation Program.

Asset analyzed the water samples for VOCs using EPA Method 8260B. BC analyzed the water samples for total petroleum hydrocarbons (TPH) quantified as gasoline (TPH-g), TPH quantified as diesel (TPH-d),

and TPH quantified as oil (TPH-o) (collectively referred to as TPH-total) using U.S. Environmental Protection Agency (EPA) Method 8015(M).

Vapor samples from the SVE influent were collected on October 5, November 20, and December 7, 2018. The vapor samples were delivered to Air Technology Laboratories (Air Tech), located in City of Industry, California, for analysis.

Air Tech analyzed the vapor samples for the following:

- Fixed gases (methane, carbon dioxide, oxygen, and argon) using ASTM International (ASTM) D1946
- VOCs using EPA Method TO-15
- Total VOCs using EPA Method TO-3

The laboratory analytical reports and chain-of-custody documents for these samples are included in Appendix A.

Soil vapor sampling was conducted from soil vapor probes SVM-1, SVM-2, SVM-3, SVM-5 through SVM-8, and SVM-10 through SVM-16 in the south-central area to ensure that shallow subsurface vapors do not pose an unacceptable human health risk to residents in the offsite area south of the site. SFPP's SVE system was shut down on October 22, 2018, to allow the vadose zone to reach equilibrium prior to sample collection. The soil vapor probes from each monitoring location were purged and sampled using a vacuum/pressure sampling pump calibrated to a flow rate of 200 milliliters per minute in accordance with recommended flow rates in the *Advisory for Active Soil Gas Investigations* (DTSC, 2015). The American Analytics mobile laboratory conducted these events on November 12 to November 14, 2018. Results of these activities are presented in Table 8.

A soil vapor sample was not collected at the deep probe of SVM-2 and shallow probe of SVM-10 due to flow restrictions (excessive vacuum) observed during purging activities with a hand-held sampling pump. Soil vapor samples also were not collected from the shallow or deep probes of SVM-4 due to property access restrictions.

In accordance with the Advisory (DTSC, 2015), field duplicate samples were collected at a minimum frequency of 1 per every 20 primary samples collected. Duplicate soil vapor samples were collected at SVM-7 (13-foot depth), SVM-12 (22-foot depth), and SVM-14R (23-foot depth) during the November 2018 event. The duplicate samples were collected and analyzed in the same manner as the primary samples.

Ambient air samples were also collected each day of sampling and analyzed by the mobile laboratory for VOCs and TPH-g. The purpose of the ambient air samples is to quantify background concentrations of chemicals of potential concern (COPCs) near select sampling locations.

American Analytics analyzed the soil vapor samples for the following:

- Fixed gases (methane, carbon dioxide, and oxygen) using EPA Method 3CM
- VOCs using EPA Method TO-15
- Gasoline-range organics using EPA Method TO-3

The laboratory analytical reports and chain-of-custody documents for these samples are included in Appendix A.

4. Summary of Remediation Progress

Based on weekly monitoring of the influent vapor concentration, vapor extraction flow rate, and hours of operation, the total mass of VOCs removed by SVE was 8,958 pounds during the fourth quarter 2018. The cumulative mass of VOCs removed since SVE was implemented in September 1995 is 3,557,848 pounds (Table 2). The cumulative mass removed by SVE does not include the mass removed by naturally occurring in situ biodegradation. The highest VOC concentration measured with a PID is from the southeastern area SVE wells GMW-36, GMW-O-15, and GMW-O-18 (Table 3). Laboratory analytical data (Table 4) show that the influent VOC concentrations (benzene, toluene, ethylbenzene, and total xylenes [BTEX] and MTBE) decreased slightly from the third quarter 2018 to the fourth quarter 2018.

A total of 544,102 gallons of groundwater was extracted during the fourth quarter 2018 (Table 5). No water was extracted from the WSB area during the fourth quarter 2018. Approximately 105.4 million gallons of groundwater has been extracted from the south-central, southeastern, and WSB areas since GWTS operations first began in 1996.

GWE was discontinued in the WSB region during the third quarter 2008 based on the reduced lateral extent and low concentrations of MTBE and 1,2-dichloroethane (1,2-DCA) west of the site. 1,2-DCA, MTBE, and TBA concentrations in the western area during the semiannual groundwater monitoring event conducted in November 2018 did not warrant restarting the WSB system.

Free product did not accumulate in the product holding tank during the fourth quarter 2018. Since 1995, a total of 14,426 gallons of product has been removed by TFE, vacuum truck, or manual bailing operations. The estimated mass removal (pounds) of hydrocarbons by the GWTS is shown in Table 5. Mass removal estimates between 1996 and 2005 are based on BTEX and MTBE concentrations in the groundwater influent (TPH data were not available) and total volume of extracted groundwater. Mass removal estimates between 2006 and 2011 are based on groundwater influent concentrations of TPH-g and TPH quantified as fuel product, and the total volume of extracted groundwater. Mass removal estimates between 2012 and the fourth quarter 2018 are based on groundwater influent TPH-total concentrations (TPH-total includes TPH-g, TPH-d, and TPH-o) and the total volume of extracted groundwater.

Since GWE first began in 1996, hydrocarbon mass removed by the GWTS is estimated to be 18,448 pounds. During the fourth quarter 2018, the mass removal of hydrocarbons was estimated to be 2 pounds (Table 5). Table 6 shows the extracted groundwater analytical results for the samples collected on October 23, November 12, and December 14, 2018. TPH, BTEX, and MTBE concentrations during the fourth quarter 2018 were less than the concentrations reported in late 2015 and early 2016. This reduction in dissolved-phase hydrocarbon concentrations can be attributed to biosparge operations in the south-central area. Appendix B includes time series charts of select wells that show this general decrease in dissolved-phase hydrocarbons in the south-central area.

The biosparge system operated for 649 hours in the fourth quarter 2018 (Table 7). The biosparge system flow (air injection) rate ranged from 114 to 475 scfm during the fourth quarter 2018. Soil vapor samples were collected from 14 locations around the south-central area biosparge well in November 2018, but during equilibrium conditions with the SVE and sparge wells off.

5. Soil Vapor Monitoring Results

During the fourth quarter 2018, soil vapor samples were collected during equilibrium conditions with both the SVE and biosparge systems turned off. Therefore, field VOC measurements with a PID and vacuum measurements were not collected at this time. Soil vapor samples were collected using 1.4-liter Summa canisters and glass syringes, and were analyzed by the American Analytics onsite mobile laboratory for VOCs using EPA Method TO-15. TPH-g was analyzed using EPA Method TO-3, and fixed gases (carbon dioxide, methane, and oxygen) were analyzed using EPA Method 3CM. Included in the TO-15 list of analytes were BTEX, MTBE, naphthalene, TBA, 1,2-DCA, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, n-butylbenzene, sec-butylbenzene, isopropylbenzene, n-propylbenzene, and 2-propanol (the leak test compound). These constituents were identified as COPCs based on the results of the 2006 soil gas investigation and human health risk assessment (Geomatrix, 2006).

5.1 Mobile Laboratory Results

Table 8 presents the analytical results for samples collected during the November 2018 sampling event. Laboratory analytical reports are included in Appendix A. A summary of results is provided below.

- During the fourth quarter 2018 sampling event, COPCs were not detected in any of the offsite and onsite probes.
- Other non-COPCs that were detected during this sampling event included acetone, ethanol, tetrachloroethylene (PCE), and TPH-g. There are no established screening levels for ethanol. The detected concentrations for acetone, PCE, and TPH-g were all below their respective screening levels.

6. System Evaluation and Optimization

During the fourth quarter 2018, SVE well valves in the south-central area were fully open to ensure maximum vapor extraction from the offsite area. The following repairs were conducted during this reporting period:

- Hoses were installed in the conveyance piping for groundwater extraction well GMW-O-21 in order to have that well online.
- Bottom-loading pumps were purchased for wells that currently have short water columns (MW-SF-6, GMW-10, and GMW-O-18). The pumps will be installed and the wells will be put online as soon as the pumps are received.
- The air injection pump for the DAF unit shutdown due to the pump seizing. The air injection pump was removed and will be replaced.
- The 2007 and 2008 air compressors were inspected due to frequent shutdowns. The motors and the pressure regulators for both compressors required to be replaced.
- Installation of the 883-scfm air sparge compressor began on November 7, 2018, and it will be turned on in January of 2019.

The SVE wells in the southeastern area also were fully open to ensure maximum vapor extraction in that area.

7. Planned First Quarter 2019 Activities

During the first quarter 2019, Kinder Morgan plans to continue to focus remedial efforts on the south-central and southeastern areas. The following maintenance and other activities are planned:

- Continue operation of the SVE system.
- Test and start up the 883-scfm biosparge compressor and run the south-central horizontal biosparge well using that compressor.
- Continue with the upgrade of the southeastern SVE wells and conveyance system.
- Conduct one quarterly soil vapor monitoring event for all soil vapor probes in the south-central area.
- Measure weekly VOC concentrations as hexane at the influent and effluent of the RTO system.
- Collect monthly vapor samples at the influent and effluent of the RTO system, and analyze the samples using Methods TO-15 (VOCs), TO-3 (total VOCs as hexane), and ASTM D1946 (fixed gases).
- Continue weekly maintenance and monitoring of the south-central and southeastern SVE and TFE/GWE treatment systems, and the biosparge system.
- Measure quarterly individual well vapor concentrations with a PID at the manifold.
- Collect and analyze system influent vapor and groundwater samples.
- Perform as-needed carbon changeouts of the LGAC vessels.
- Perform as-needed monitoring and remediation well rehabilitation to remove biofouling and sediment occluding the well screens.
- Remove, inspect, and repair existing TFE/GWE pumps and associated discharge lines.
- Install pumps and associated equipment necessary for TFE at select wells with measurable free product.
- Replace the air injection pump for the DAF unit/OWS.
- Repair the motors and pressure regulators for the 2007 and 2008 air compressor to run both the SVE and the GWTS pumps.

The TFE, GWE, and SVE systems for the south-central and southeastern areas will continue to operate. Operation of the TFE system in the southeastern area will be monitored closely and adjustments will be made to improve fluid recovery. The horizontal biosparge system will continue to operate at ideal air flow to decrease product thickness in the south-central area. System inspections will continue on a weekly basis; system evaluation parameters will be collected as needed. The remediation activities and progress for the first quarter 2019 will be described in the First Quarter 2019 Remediation Progress Report, to be submitted by April 15, 2019.

8. References

California Regional Water Quality Control Board, Los Angeles Region (Water Board). 2006. Letter to Mr. Kola Olowu, Defense Energy Support Center, Los Angeles, and Mr. Michael Pitta, Kinder Morgan Energy Partners; Conditional Approval of Revised Remedial Action Plan and Second Addendum to Remedial Action Plan for the Defense Fuel Support Point Norwalk, 15306 Norwalk Boulevard, Norwalk (SLIC No. 0286A, DOD No. 16638). October 25.

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Tables

Table 1. Remediation Well Construction and Status

SFPP Norwalk Pump Station, Norwalk, California

Remediation Area	Remediation Well ID	Installation Date	Top of Well Casing Elevation (feet msl)	Well Screen Interval (feet bgs)	Remediation Well Function	Well Operation Status During Fourth Quarter 2018	
						SVE/BS	TFE/GWE
South-Central	MW-SF-1	6/18/1990	78.93	25 - 40	SVE	ON	--
	MW-SF-2	6/18/1990	78.53	25 - 40	SVE; TFE	ON	OFF
	MW-SF-3	6/18/1990	78.12	25 - 40	SVE; TFE	ON	ON
	MW-SF-4	6/19/1990	79.38	25 - 40	SVE	ON	--
	MW-SF-5	9/19/1990	79.74	23 - 38	SVE	ON	--
	MW-SF-6	9/19/1990	76.80	25 - 40	SVE; TFE	ON	OFF
	MW-SF-9	6/15/1995	74.10	--	SVE	ON	--
	MW-SF-10	9/23/2003	76.53	10 - 30	SVE	ON	--
	MW-SF-11	6/19/2007	78.56	20 - 40	SVE; TFE	ON	OFF
	MW-SF-12	6/18/2007	78.07	20 - 40	SVE; TFE	ON	OFF
	MW-SF-13	6/19/2007	73.40	20 - 40	SVE; TFE	ON	OFF
	MW-SF-14	6/21/2007	78.16	20 - 40	SVE; TFE	ON	OFF
	MW-SF-15	6/21/2007	78.27	20 - 40	SVE; TFE	ON	ON
	MW-SF-16	6/20/2007	78.21	20 - 40	SVE; TFE	ON	OFF
	MW-SF-17	--	--	--	SVE	--	--
	GMW-9	7/8/1991	77.16	20 - 50	SVE; TFE	ON	ON
	GMW-10	7/8/1991	N/A	25 - 50	SVE; TFE	ON	OFF
	GMW-22	8/2/1991	77.24	25 - 60	SVE; TFE	ON	OFF
	GMW-24	8/5/1991	77.48	25 - 60	SVE; TFE	ON	OFF
	GMW-25	1/10/1992	78.14	20 - 50	SVE; TFE	ON	OFF
	GWR-3	1/10/1992	77.60	20 - 50	SVE; TFE	ON	OFF
	VEW-1	09/19/90	--	5 - 25	SVE	ON	--
	VEW-2	09/19/90	--	5 - 25	SVE	ON	--
	MW-O-1	1/22/1991	75.48	25 - 40	SVE; TFE	ON	OFF
	MW-O-2	1/23/1991	71.90	25 - 40	SVE; TFE	ON	OFF
	GMW-O-11	5/20/1992	74.17	20 - 50	SVE; TFE	ON	ON
	GMW-O-12	5/21/1992	73.49	20 - 50	SVE	ON	--
	GMW-O-20	6/15/1995	73.32	--	SVE; TFE	ON	ON
	GMW-O-21	10/1/1997	71.43	26 - 46	TFE	--	OFF
	GMW-O-23	6/25/2007	73.63	20 - 40	SVE; TFE	ON	ON
	MW-18 (MID)	6/10/1991	75.67	50 - 60	SVE	ON	--
	HW-1	09/06/92	--	--	SVE	ON	--
	HW-2	09/06/92	--	--	SVE	ON	--
	BS-01	08/27/14	75.06	--	BIOSPARGE	ON	--
	BS-02	11/21/17	--	--	BIOSPARGE	OFF	--
Southeastern	GMW-O-15	4/19/1994	74.23	20 - 50	SVE; TFE	ON	ON
	GMW-O-18	7/25/1994	74.36	21 - 40	SVE; TFE	ON	OFF
	GMW-36	4/11/1994	76.66	20 - 50	SVE; TFE	ON	ON
	GMW-SF-9	4/1/2003	73.05	37 - 46	TFE	--	ON
	GMW-SF-10	4/2/2003	75.77	37 - 46	TFE	--	--
West Side Barrier	BW-2	5/20/1996	73.57	27 - 47	GWE	--	OFF
	BW-3	5/17/1996	74.16	31 - 50	GWE	--	OFF
	BW-4	5/20/1996	74.61	28 - 47	GWE	--	OFF
	BW-5	5/23/1996	73.59	27 - 46	GWE	--	OFF
	BW-6	5/22/1996	73.48	28 - 47	GWE	--	OFF
	BW-7	5/22/1996	74.65	27 - 46	GWE	--	OFF
	BW-8	5/21/1996	75.08	27 - 46	GWE	--	OFF
	BW-9	5/21/1996	76.19	27 - 46	GWE	--	OFF

Notes:

-- = information not available or not applicable

BS = biosparge

feet bgs = feet below ground surface

feet msl = feet above mean sea level based on the National Geodetic Vertical Datum of 1929

GWE = groundwater extraction

SVE = soil vapor extraction

TFE = total fluids extraction

Table 2. Vapor Remediation System Operation Summary

SFPP Norwalk Pump Station, Norwalk, California

System Inspection Date	Cumulative Hours of Operation (hours)	Incremental Hours of Operation (hours)	Influent PID Reading (ppmv as hexane)	System Flow (scfm)	Header Vacuum (in. H_2O)	Mass Removed (pounds)[a]
1995 Totals	1,240		--	--	--	281,065
1996 Totals	7,208	5,968	--	--	--	516,717
1997 Totals	12,865	5,657	--	--	--	489,526
1998 Totals	17,877	5,012	--	--	--	223,055
1999 Totals	23,600	5,723	--	--	--	390,836
2000 Totals	29,690	6,090	--	--	--	359,092
2001 Totals	33,671	3,981	--	--	--	224,091
2002 Totals	36,358	2,687	--	--	--	79,363
2003 Totals	39,676	3,319	--	--	--	64,671
2004 Totals	44,193	4,517	--	--	--	120,240
2005 Totals	49,750	5,557	--	--	--	212,175
2006 Totals	52,735	2,985	--	--	--	17,263
2007 Totals	58,319	2,058	--	--	--	7,378
2008 Totals	64,233	5,915	--	--	--	5,878
2009 Totals	68,858	4,625	--	--	--	9,387
2010 Totals	72,369	3,511	--	--	--	1,507
2011 Totals	77,489	5,120	--	--	--	14,629
2012 Totals	84,173	6,684	--	--	--	22,260
2013 Totals	90,414	6,241	--	--	--	90,880
2014 Totals	94,083	3,688	--	--	--	67,744
2015 Totals	98,408	4,325	--	--	--	122,706
2016 Totals	104,405	7,694	--	--	--	156,193
2017 Totals	108,262	3,857	--	--	--	42,194
1/2/2018	108,424	162	702	1,392	50	2,089
1/4/2018	108,474	50	681	1,479	50	626
1/9/2018	108,594	120	722	1,321	50	1,197
1/23/2018	108,668	74	238	1,343	50	272
1/30/2018	108,839	171	150	1,379	50	389
2/6/2018	109,000	161	162	1,329	50	408
2/8/2018	109,048	48	268	1,406	50	201
2/15/2018	109,215	167	212	1,480	50	553
2/20/2018	109,337	122	226	1,448	50	471
2/27/2018	109,485	148	196	1,449	50	540
3/6/2018	109,653	168	234	1,450	50	732
3/9/2018	109,653	0	210	1,450	50	0
3/13/2018	109,747	94	180	1,500	50	307
3/20/2018	109,906	159	162	1,471	50	479
3/27/2018	110,074	168	196	1,447	50	558
First Quarter 2018 Totals	**110,074**	**1,812**	--	--	--	**8,821**
4/3/2018	110,242	168	138	1,448	50	392
4/5/2018	110,291	49	146	1,476	50	121
4/20/2018	110,414	123	156	1,885	50	325
4/24/2018	110,459	45	150	1,739	50	149
5/1/2018	110,627	168	146	1,610	50	528
5/8/2018	110,793	166	180	1,474	50	511
5/11/2018	110,867	74	184	1,550	50	233

Table 2. Vapor Remediation System Operation Summary

SFPP Norwalk Pump Station, Norwalk, California

System Inspection Date	Cumulative Hours of Operation (hours)	Incremental Hours of Operation (hours)	Influent PID Reading (ppmv as hexane)	System Flow (scfm)	Header Vacuum (in. H_2O)	Mass Removed (pounds)[a]
5/15/2018	110,963	96	138	1,525	50	245
5/22/2018	111,127	164	158	1,417	50	416
5/29/2018	111,297	170	168	1,541	50	459
6/5/2018	111,463	166	158	1,496	50	462
6/12/2018	111,587	124	116	1,603	50	266
6/19/2018	111,754	167	115	1,538	50	347
6/26/2018	111,921	167	104	1,836	60	388
Second Quarter 2018 Totals	**111,921**	**1,847**	--	--	--	**4,841**
7/3/2018	112,089	168	452	1,556	50	1,379
7/12/2018	112,169	80	440	1,816	50	639
7/17/2018	112,283	114	404	1,901	50	870
7/24/2018	112,451	168	490	1,674	50	1,522
7/31/2018	112,600	149	398	1,614	50	1,118
8/2/2018	112,650	50	401	1,698	50	378
8/7/2018	112,770	120	402	1,706	50	928
8/14/2018	112,936	166	410	1,584	50	1,310
8/23/2018	113,157	221	415	1,634	50	1,742
8/28/2018	113,276	119	478	1,680	50	1,096
9/4/2018	113,443	167	498	1,552	50	1,571
9/11/2018	113,599	156	452	1,617	50	1,332
9/18/2018	113,765	166	322	1,896	50	1,282
9/25/2018	113,933	168	378	1,621	50	1,210
Third Quarter 2018 Totals	**113,933**	**2,012**	--	--	--	**16,379**
10/5/2018	114,177	244	390	1,748	50	1,702
10/9/2018	114,270	93	378	1,695	50	707
10/16/2018	114,434	164	234	1,613	50	714
10/22/2018	114,581	147	267	1,656	50	728
11/15/2018	114,581	0	118	2,066	50	0
11/20/2018	114,692	111	279	1,697	50	697
11/27/2018	114,860	168	302	1,763	50	1,150
11/29/2018	114,908	48	312	1,732	50	339
12/6/2018	115,073	165	298	1,675	50	1,053
12/11/2018	115,196	123	336	1,917	50	1,011
12/17/2018	115,346	150	341	2,418	50	856
Fourth Quarter 2018 Totals	**115,346**	**1,413**	--	--	--	**8,958**
Cumulative Totals	**115,346**	--	--	--	--	**3,557,848**

Notes:

[a] The total mass removed is based on influent FID or PID readings, hours of operation, and flow rate.

-- = not applicable or not available

FID = flame ionization detector

in. H_2O = inches of water

PID = photoionization detector

ppmv = parts per million by volume

scfm = standard cubic feet per minute

TPH-g = total petroleum hydrocarbons quantified as gasoline (C4-C12)

Table 3. Remediation Well Vapor Concentrations

SFPP Norwalk Pump Station, Norwalk, California

Remediation Area	Remediation Well ID	Remediation Well Function	10/22/2018 (ppmv as Hexane)[a]
South-Central	MW-SF-1	SVE	0
	MW-SF-2	SVE; TFE	57
	MW-SF-3	SVE; TFE	68
	MW-SF-4	SVE	18
	MW-SF-5	SVE	0
	MW-SF-6	SVE; TFE	75
	MW-SF-9	SVE	0
	MW-SF-10	SVE	33
	MW-SF-11	SVE; TFE	NM
	MW-SF-12	SVE; TFE	118
	MW-SF-13	SVE; TFE	0
	MW-SF-14	SVE; TFE	0
	MW-SF-15	SVE; TFE	38
	MW-SF-16	SVE; TFE	0
	MW-SF-17	SVE; TFE	--
	GMW-9	SVE; TFE	61
	GMW-10	SVE	96
	GMW-22	SVE; TFE	61
	GMW-24	SVE; TFE	410
	GMW-25	SVE; GWE	410
	GWR-3	SVE; GWE	816
	VEW-1	SVE	NM
	VEW-2	SVE	0
	MW-O-1	SVE; TFE	NM
	MW-O-2	SVE; TFE	0
	GMW-O-11	SVE; TFE	272
	GMW-O-12	SVE	0
	GMW-O-20	SVE; TFE	1,850
	GMW-O-23	SVE; TFE	0
	MW-18 (MID)	SVE	133
	HW-1	SVE	520
	HW-2	SVE	375
Southeastern	GMW-36	SVE; TFE	3,715
	GMW-O-15	SVE; TFE	3,715
	GMW-O-18	SVE; TFE	3,715

Notes:

[a] Vapor readings measured in the field with an Eagle 2 photoionization detector (PID) calibrated using 50 ppmv of hexane.

-- = not applicable or not available

GWE = groundwater extraction

NM = Not measured due to condensation in the pipeline.

ppmv = parts per million by volume

SVE = soil vapor extraction

TFE = total fluids extraction

Table 4. Extracted Vapor Analytical Results[a]

SFPP Norwalk Pump Station, Norwalk, California

Date Sampled	ASTM D-1946			EPA TO-3		SCAQMD 25.1	EPA TO-15 (VOCs)[b]				
	Methane (%v)	Carbon Dioxide (%v)	Oxygen and Argon (%v)	TPH-g (ppmv)	TVOC (ppmv)	TGNMOC (ppmv)	Benzene (ppbv)	Ethylbenzene (ppbv)	Toluene (ppbv)	Xylenes (ppbv)	MTBE (ppbv)
8/3/2007	<0.5	<0.5	22.0	63	---	---	650	220	1,100	1,420	55
9/5/2007	<0.5	<0.5	22.0	9	---	---	32	48	140	320	18
10/2/2007	<0.5	<0.5	21.9	27	---	---	250	75	430	610	20
11/2/2007	<0.5	<0.5	22.1	5	---	---	40	10	74	95	7
2/1/2008	<0.5	<0.5	21.8	100	---	---	830	260	2,200	1,850	<50
3/4/2008	<0.5	<0.5	21.7	50	---	---	380	98	570	1,250	36
4/8/2008	<0.5	<0.5	22.2	69	---	---	290	110	480	1,040	41
5/23/2008	<0.5	<0.5	21.8	14	---	---	180	24	190	280	23
6/3/2008	<0.5	<0.5	21.7	30	---	---	380	42	400	330	70
7/2/2008	<0.5	<0.5	21.4	49	---	---	32	6	34	45	10
8/19/2008	<0.5	1.7	20.8	50	---	---	390	63	230	450	40
9/5/2008	<0.5	2.0	21.2	22	---	---	130	39	130	340	42
10/7/2008	<0.5	1.43	21.4	10	---	---	41	15	54	181	6.8
11/4/2008	<0.5	2.08	21.1	7.5	---	---	31	47	190	242	<2.0
3/6/2009	<0.5	<0.5	22.0	83	---	---	1,900	180	990	770	240
4/17/2009	<0.5	<0.5	22.2	3.1	---	---	140	8	37	68	26
5/29/2009	<0.5	1.08	21.0	130	---	---	1,700	640	3,700	3,100	100
8/18/2009	<0.5	0.78	21.7	28	---	---	380	37	290	310	33
8/25/2009	<0.5	0.87	20.6	37	---	---	500	44	320	293	20
9/18/2009	<0.5	0.37	21.6	11	---	---	75	11	39	107	3
10/29/2009	<0.5	1.80	18.2	77	---	---	350	45	250	440	4
11/25/2009	<0.5	<0.5	21.1	14	---	---	110	12	110	164	11
12/15/2009	<0.5	<0.5	21.7	7	---	---	28	3	20	47	<3.2
2/26/2010	<0.5	0.4	21.2	20	---	---	300	18	220	260	21
3/26/2010	<0.5	1.0	20.2	18	---	---	380	20	110	90	5
5/4/2010	<0.5	0.4	21.4	13	---	---	100	42	170	222	3
6/29/2010	<0.5	0.4	21.3	9	---	---	74	13	66	82	<5.0
8/3/2010	<0.5	0.6	20.4	29	---	---	210	13	64	85	9
8/31/2010	0.0039[c]	<0.5	21.4	11	---	---	72	12	66	87	8
9/14/2010	<0.5	<0.5	21.6	6	---	---	63	15	57	84	<3.2
11/2/2010	--	--	--	11	---	---	140	<10	31	28	<10
11/17/2010	0.00075	0.4	22.0	--	---	---	--	--	--	--	--
12/28/2010	0.0052	0.27	22.0	16	---	---	160	37	230	324	4.5
1/14/2011	0.016	0.20	22.0	68	---	---	340	34	89	183	<10
2/8/2011	0.026	0.24	21.0	210	---	---	3,000	1,700	11,000	7,400	110
3/29/2011	0.013	0.13	20.0	5	---	---	170	15	18	41.5	<2.5
4/26/2011	0.0011	0.079	20.0	1.9	---	---	16	2.4	8.8	7.7	<1.2
5/17/2011	0.021	0.65	22.0	90	---	---	2,600	140	2,200	1,100	220
6/17/2011	0.001	0.20	22.0	3	---	---	59	8.1	31	56	<0.25
7/19/2011	0.0056	0.49	22.0	80	---	---	1,800	130	2,200	1,000	<31
8/16/2011	0.0026	0.31	22.0	140	---	---	3,000	600	4,000	2,330	490
9/20/2011	--	--	--	100	---	---	2,100	740.0	2,700	2,040	660
11/22/2011	0.070	0.70	20.0	11	---	---	150	12.0	67	35	<5.0
12/20/2011	0.020	0.34	22.0	0	---	---	110	<25	260	216	<25
1/10/2012	0.010	0.66	20.0	11	---	---	150	14	86	160	<12
2/28/2012	0.0067	0.90	20.0	27	---	---	140	42	140	224	<25
3/13/2012	0.0044	0.71	20.0	27	---	---	440	38	450	241	<25
4/27/2012	0.0290	0.22	21.0	39	---	---	540	42	630	299	<25
5/22/2012	0.0100	0.31	20.0	65	---	---	590	350	770	2,070	<12
6/19/2012	0.0028	0.41	21.0	17	---	---	130	26	150	162	<12
7/27/2012	0.0059	0.40	21.0	13	---	---	46	<5	33	78	<5
8/30/2012	0.0049	0.56	21.0	69	---	---	150	<25	66	194	<25
9/25/2012	0.0073	0.80	21.0	57	---	---	190	19	120	283	<2.5
10/30/2012	0.0099	0.96	21.0	50	---	---	380	<50	230	130	<50
12/11/2012	0.0074	0.84	21.0	53	---	---	130	17	110	173	<5.0

Table 4. Extracted Vapor Analytical Results[a]

SFPP Norwalk Pump Station, Norwalk, California

	ASTM D-1946			EPA TO-3		SCAQMD 25.1	EPA TO-15 (VOCs)[b]				
Date Sampled	Methane (%v)	Carbon Dioxide (%v)	Oxygen and Argon (%v)	TPH-g (ppmv)	TVOC (ppmv)	TGNMOC (ppmv)	Benzene (ppbv)	Ethylbenzene (ppbv)	Toluene (ppbv)	Xylenes (ppbv)	MTBE (ppbv)
1/29/2013	0.0028	0.29	22.0	1.4	---	---	8.7	<1.2	9.4	9.6	<1.2
2/12/2013	0.0057	0.88	21.0	60	---	---	500	<50	440	400	<50
3/19/2013	0.0058	0.80	21.0	77	---	---	560	66	490	520	<40
4/16/2013	0.0079	0.74	21.0	53	---	---	430	29	240	193	<25
5/14/2013	0.017	1.6	19	280	---	---	1,700	190	1,800	840	<12
6/28/2013	0.0068	<0.010	21	22	---	---	190	<25	130	131	<25
SVE system down for repair from July 16, 2013, to September 17, 2013.											
9/20/2013	0.014	1	21	590	---	---	4,200	520	3,600	2,830	<40
10/15/2013	0.011	0.68	21	410	---	---	3,500	360	2,800	1,970	<20
11/12/2013	0.012	0.66	21	430	---	---	2,900	440	2,600	1,930	<15
12/10/2013	0.013	0.92	21	910	---	---	8,400	920	7,200	5,500	<50
1/17/2014	0.0077	0.57	21	350	---	---	6,600	6,800	8,200	23,300	3,000
2/11/2014	0.011	0.60	21	640	---	---	6,600	570	6,000	3,800	<100
3/21/2014	0.0050	0.40	21	390	---	---	4,500	290	4,000	1,930	<50
4/21/2014	0.011	0.65	21	700	---	---	6,900	370	6,900	3,400	<40
SVE system down for repair from April 29, 2014, to May 13, 2014.											
5/27/2014	0.011	0.56	21	530	---	---	6,600	570	8,900	3,820	<50
6/13/2014	0.0076	0.49	21	780	---	---	10,000	1,200	15,000	7,100	<80
SVE system down for repair and permit modification from July 1, 2014, to March 27, 2015.											
3/31/2015	0.090	1.3	20	1,400	---	1,300	12,000	1,000	11,000	7,400	<200
4/7/2015	0.014	0.56	21	---	---	710	8,200	8,200	610	3,260	<160
5/5/2015	---	---	---	---	---	760	6,100	1,100	9,600	7,200	<140
6/30/2015	0.0065	0.37	21	---	---	270	3,100	380	3,800	2,820	<160
7/14/2015	0.0094	0.62	21	---	---	650	7,000	950	7,900	6,100	<200
8/4/2015	0.0053	0.49	21	---	---	560	6,200	710	7,700	4,800	<0.097
8/17/2015[c]	---	---	---	---	---	470	4,800	500	5,400	3,600	<0.099
8/17/2015[c]	---	---	---	---	---	470	5,000	520	5,800	3,870	<0.100
8/17/2015[c]	---	---	---	---	---	480	5,100	580	6,100	4,000	<0.097
8/17/2015[c]	---	---	---	---	---	480	5,200	580	6,300	4,100	<0.099
9/1/2015[c]	---	---	---	---	---	670	7,000	850	8,700	6,900	<0.097
9/1/2015[c]	---	---	---	---	---	930	12,000	1,500	14,000	11,400	<0.140
9/1/2015[c]	---	---	---	---	---	890	12,000	2,300	20,000	14,300	<0.140
10/6/2015	0.0067	0.43	21	---	---	960	14,000	3,100	25,000	15,900	<200
11/10/2015	0.0028	0.30	21	---	860	---	9,100	1,800	15,000	9,400	<97
12/10/2016	0.004	0.41	21	---	580	---	6,400	1,200	10,000	7,600	<120
1/4/2016[c]	0.0059	0.27	22	---	750	---	9,600	2,400	20,000	13,500	<220
2/4/2016[c]	0.0038	0.58	21	---	2,000	---	16,000	2,600	29,000	19,300	<610
3/3/2016[c]	0.004	0.64	21	---	1,200	---	11,000	3,000	27,000	27,500	<130
4/5/2016	0.033	0.49	21	---	400	---	3,900	5,500	7,300	4,600	<63
5/13/2016	0.0034	0.50	21	---	290	---	2,200	300	4,300	810	<23
6/7/2016	0.0065	0.32	21	---	150	---	1,000	25 J	1,100	117 J	<36
7/7/2016	0.014	0.48	21	---	170	---	1,000	220	2,500	1,630	<51
8/2/2016	0.0047	0.54	21	---	260	---	1,900	720	5,000	7,400	<22
9/7/2016	0.0066	0.53	21	---	250	---	1,600	680	3,800	5,000	<21
10/13/2016	0.0096	0.67	21	---	250	---	2,700	680	3,800	5,200	<36
11/1/2016	0.0025	0.62	21	---	260	---	1,600	540	3,800	4,600	<40
SVE system was offline for installation of new RTO from November 1, 2016, to June 6, 2017.											
6/7/2017	0.029	1.1	21	--	190	--	960	220	1,200	1,170	<42
7/13/2017	0.055	1.3	20	---	550	---	6,800	1,100	6,600	9,900	<44
8/3/2017	0.013	0.85	21	---	340	--	4,200	750	5,600	7,500	<110
9/12/2017	0.0079	0.89	21	--	290	---	3,000	530	4,600	5,500	510
10/13/2017	0.0091	0.85	21	---	280	--	3,400	540	4,100	5,500	830
11/10/2017	0.0064	0.87	21	---	230	---	3,200	320	2,400	3,050	<84
12/8/2017	0.0040	0.77	21	---	250	---	3,600	350	3,000	3,700	<81

Table 4. Extracted Vapor Analytical Results[a]

SFPP Norwalk Pump Station, Norwalk, California

Date Sampled	ASTM D-1946			EPA TO-3		SCAQMD 25.1	EPA TO-15 (VOCs)[b]				
	Methane (%v)	Carbon Dioxide (%v)	Oxygen and Argon (%v)	TPH-g (ppmv)	TVOC (ppmv)	TGNMOC (ppmv)	Benzene (ppbv)	Ethylbenzene (ppbv)	Toluene (ppbv)	Xylenes (ppbv)	MTBE (ppbv)
1/4/2018	0.0047	0.72	21	--	230	--	3,900	440	3,100	4,000	970
2/6/2018	0.0042	0.42	22	--	27	--	140	23	150	310	<5.1
3/13/2018	0.0038	0.74	21	--	79	--	680	110	460	1,150	<11
4/15/2018	0.0034	0.49	22	--	33	--	460	53	280	400	<2.0
5/11/2018	0.0046	0.72	21	--	64	--	660	74	410	850	<11
6/7/2018	0.0031	0.65	21	--	58	--	570	83	320	504	<9.7
7/3/2018	0.0063	0.78	21	--	210	--	4,700	570	2,700	3,940	1,100
8/2/2018	0.0048	0.69	22	--	160	--	3,000	320	2,300	2,380	<40
9/6/2018	0.0044	0.81	21	--	190	--	3,900	550	4,000	5,000	<42
10/5/2018	0.0034	0.85	22	--	180	--	1,200	180	1,400	1,850	<42
11/20/2018	0.0088	0.80	21	--	150	--	1,200	270	1,100	1,290	<11
12/7/2018	0.0038	0.75	22	--	190	--	1,700	360	2,100	2,140	<20

Notes:

[a] Influent vapor samples were collected from the manifold conveying soil vapors extracted from the south-central and southeastern areas

[b] Other detected VOCs are included in the laboratory analytical reports in Appendix A.

[c] Influent vapor samples were collected after dilution before entrance into the SVE combustion chamber.

%v = percent by volume

<0.5 = not detected at or above the laboratory reporting limit shown

ASTM = ASTM International

EPA = U.S. Environmental Protection Agency

J = Resulting analyte concentration is between the reporting limit and the method detection limit

MTBE = methyl tertiary butyl ether

ppbv = parts per billion by volume

ppmv = parts per million by volume

SCAQMD = South Coast Air Quality Management District

TGNMOC = total gaseous nonmethane organic carbon

TPH-g = total petroleum hydrocarbons quantified as gasoline (C4-C12)

TVOC = total volatile organic compound

VOC = volatile organic compound

Table 5. Groundwater Remediation System Operation Summary

SFPP Norwalk Pump Station, Norwalk, California

System Inspection Date	Groundwater Removed from the South-Central and Southeastern Areas (gallons)	Groundwater Removed from the West Side Barrier Area (gallons)	Total Groundwater Removed (gallons)	Influent TPH-total (TPH-g, TPH-d, TPH-o) Concentration (µg/L)	Estimated Hydrocarbon Mass Removed from the South-Central, Southeastern, and West Side Barrier Areas (pounds)[a]	Product Recovery (gallons)
1996 Totals	1,802,103	0	1,802,103	--	273	4,995
1997 Totals	7,031,533	0	7,031,533	--		2,204
1998 Totals	4,064,700	0	4,064,700	--		856
1999 Totals	3,891,600	2,338,129	6,229,729	--	385	450
2000 Totals	2,290,580	2,454,971	4,745,551	--	295	230
2001 Totals	1,401,473	1,131,700	2,533,173	--	229	0
2002 Totals	1,452,229	2,931,167	4,383,396	--	110	0
2003 Totals	1,607,095	2,281,956	3,889,051	--	65	10
2004 Totals	1,695,361	3,854,470	5,549,831	--	229	0
2005 Totals	1,537,925	4,244,674	5,782,599	--	273	0
2006 Totals	1,699,567	5,089,615	6,789,182	--	684	83
2007 Totals	3,368,481	2,167,724	5,536,205	--		89
2008 Totals[b]	4,283,026	405,954	4,688,980	--	520	0
2009 Totals	2,309,627	0	2,309,627	--	105	0
2010 Totals[c]	3,342,227	2,292	3,344,519	--	363	0
2011 Totals	5,530,317	0	5,530,317	--	585	0
2012 Totals	7,368,318	0	7,368,318	--	699	0
2013 Totals	6,439,733	0	6,439,733	--	568	2
2014 Totals	3,410,427	0	3,410,427	--	2,236	2,335
2015 Totals	4,817,906	0	4,817,906	--	5,959	2,928
2016 Totals	2,428,279	0	2,428,279	--	4,506	242
2017 Totals	3,858,644	0	3,858,644	--	325	2

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1/1/2018	9,122	0	9,122	4,200	0.32	0
1/2/2018	9,938	0	9,938	4,200	0.35	0
1/3/2018	11,254	0	11,254	4,200	0.39	0
1/4/2018	11,090	0	11,090	4,200	0.39	0
1/5/2018	11,030	0	11,030	3,900	0.36	0
1/6/2018	11,184	0	11,184	3,900	0.36	0
1/7/2018	10,898	0	10,898	3,900	0.35	0
1/8/2018	11,314	0	11,314	3,900	0.37	0
1/9/2018	10,224	0	10,224	3,900	0.33	0
1/10/2018	1,812	0	1,812	3,900	0.06	0
1/11/2018	0	0	0	3,900	0.00	0
1/12/2018	62	0	62	3,900	0.00	0
1/13/2018	0	0	0	3,900	0.00	0
1/14/2018	0	0	0	3,900	0.00	0
1/15/2018	0	0	0	3,900	0.00	0
1/16/2018	0	0	0	3,900	0.00	0
1/17/2018	0	0	0	3,900	0.00	0
1/18/2018	0	0	0	3,900	0.00	0
1/19/2018	818	0	818	3,900	0.03	0
1/20/2018	0	0	0	3,900	0.00	0
1/21/2018	0	0	0	3,900	0.00	0
1/22/2018	0	0	0	3,900	0.00	0
1/23/2018	6,920	0	6,920	3,900	0.22	0
1/24/2018	8,208	0	8,208	3,900	0.27	0
1/25/2018	6,078	0	6,078	3,900	0.20	0
1/26/2018	5,782	0	5,782	3,900	0.19	0

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1/27/2018	5,920	0	5,920	3,900	0.19	0
1/28/2018	5,660	0	5,660	3,900	0.18	0
1/29/2018	5,060	0	5,060	3,900	0.16	0
1/30/2018	2,720	0	2,720	3,900	0.09	0
1/31/2018	0	0	0	3,900	0.00	0
2/1/2018	0	0	0	3,900	0.00	0
2/2/2018	666	0	666	3,900	0.02	0
2/3/2018	0	0	0	3,900	0.00	0
2/4/2018	0	0	0	3,900	0.00	0
2/5/2018	0	0	0	3,900	0.00	0
2/6/2018	7,110	0	7,110	3,900	0.23	0
2/7/2018	15,888	0	15,888	3,900	0.52	0
2/8/2018	18,060	0	18,060	3,900	0.59	0
2/9/2018	14,340	0	14,340	1,200	0.14	0
2/10/2018	12,860	0	12,860	1,200	0.13	0
2/11/2018	12,436	0	12,436	1,200	0.12	0
2/12/2018	12,434	0	12,434	1,200	0.12	0
2/13/2018	11,720	0	11,720	1,200	0.12	0
2/14/2018	11,142	0	11,142	1,200	0.11	0
2/15/2018	11,732	0	11,732	1,200	0.12	0
2/16/2018	11,110	0	11,110	1,200	0.11	0
2/17/2018	11,016	0	11,016	1,200	0.11	0
2/18/2018	11,034	0	11,034	1,200	0.11	0
2/19/2018	10,856	0	10,856	1,200	0.11	0
2/20/2018	11,016	0	11,016	1,200	0.11	0
2/21/2018	11,160	0	11,160	1,200	0.11	0

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2/22/2018	13,044	0	13,044	1,200	0.13	0
2/23/2018	11,404	0	11,404	1,200	0.11	0
2/24/2018	8,032	0	8,032	1,200	0.08	0
2/25/2018	11,108	0	11,108	1,200	0.11	0
2/26/2018	11,324	0	11,324	1,200	0.11	0
2/27/2018	11,820	0	11,820	1,200	0.12	0
2/28/2018	9,636	0	9,636	1,000	0.08	0
3/1/2018	9,010	0	9,010	1,000	0.08	0
3/2/2018	9,351	0	9,351	1,000	0.08	0
3/3/2018	9,351	0	9,351	1,000	0.08	0
3/4/2018	9,351	0	9,351	1,000	0.08	0
3/5/2018	9,351	0	9,351	1,000	0.08	0
3/6/2018	5,477	0	5,477	1,000	0.05	0
3/7/2018	4,635	0	4,635	1,000	0.04	0
3/8/2018	3,891	0	3,891	1,000	0.03	0
3/9/2018	1,520	0	1,520	1,000	0.01	0
3/10/2018	5,312	0	5,312	1,000	0.04	0
3/11/2018	6,076	0	6,076	1,000	0.05	0
3/12/2018	4,900	0	4,900	1,000	0.04	0
3/13/2018	8,768	0	8,768	1,000	0.07	0
3/14/2018	11,774	0	11,774	1,000	0.10	0
3/15/2018	9,454	0	9,454	1,000	0.08	0
3/16/2018	11,668	0	11,668	1,000	0.10	0
3/17/2018	12,380	0	12,380	1,000	0.10	0
3/18/2018	11,920	0	11,920	1,000	0.10	0
3/19/2018	12,050	0	12,050	1,000	0.10	0

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3/20/2018	11,090	0	11,090	1,000	0.09	0
3/21/2018	11,600	0	11,600	1,000	0.10	0
3/22/2018	12,016	0	12,016	1,000	0.10	0
3/23/2018	11,612	0	11,612	1,000	0.10	0
3/24/2018	11,560	0	11,560	1,000	0.10	0
3/25/2018	11,616	0	11,616	1,000	0.10	0
3/26/2018	11,472	0	11,472	1,000	0.10	0
3/27/2018	11,420	0	11,420	1,000	0.10	0
3/28/2018	11,150	0	11,150	1,100	0.10	0
3/29/2018	11,150	0	11,150	1,100	0.10	0
3/30/2018	11,094	0	11,094	1,100	0.10	0
3/31/2018	10,686	0	10,686	1,100	0.10	0
First Quarter 2018 Totals	708,746	0	708,746	--	11	0
4/1/2018	9,822	0	9,822	1,100	0.09	0
4/2/2018	9,862	0	9,862	1,100	0.09	0
4/3/2018	6,556	0	6,556	1,100	0.06	0
4/4/2018	9,316	0	9,316	1,100	0.09	0
4/5/2018	6,642	0	6,642	1,100	0.06	0
4/6/2018	12,966	0	12,966	1,100	0.12	0
4/7/2018	8,464	0	8,464	1,100	0.08	0
4/8/2018	8,896	0	8,896	1,100	0.08	0
4/9/2018	8,500	0	8,500	1,100	0.08	0
4/10/2018	6,856	0	6,856	1,100	0.06	0
4/11/2018	0	0	0	1,100	0.00	0
4/12/2018	0	0	0	1,100	0.00	0
4/13/2018	0	0	0	1,100	0.00	0

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4/14/2018	0	0	0	1,100	0.00	0
4/15/2018	0	0	0	1,100	0.00	0
4/16/2018	0	0	0	1,100	0.00	0
4/17/2018	0	0	0	1,100	0.00	0
4/18/2018	0	0	0	1,100	0.00	0
4/19/2018	0	0	0	1,100	0.00	0
4/20/2018	0	0	0	1,100	0.00	0
4/21/2018	5,194	0	5,194	1,100	0.05	0
4/22/2018	9,584	0	9,584	1,100	0.09	0
4/23/2018	9,520	0	9,520	1,100	0.09	0
4/24/2018	9,462	0	9,462	830	0.07	0
4/25/2018	11,820	0	11,820	830	0.08	0
4/26/2018	10,800	0	10,800	830	0.07	0
4/27/2018	10,760	0	10,760	830	0.07	0
4/28/2018	11,098	0	11,098	830	0.08	0
4/29/2018	10,798	0	10,798	830	0.07	0
4/30/2018	11,040	0	11,040	830	0.08	0
5/1/2018	10,096	0	10,096	830	0.07	0
5/2/2018	7,856	0	7,856	830	0.05	0
5/3/2018	7,952	0	7,952	830	0.05	0
5/4/2018	7,950	0	7,950	830	0.05	0
5/5/2018	7,954	0	7,954	830	0.06	0
5/6/2018	8,128	0	8,128	830	0.06	0
5/7/2018	10,420	0	10,420	830	0.07	0
5/8/2018	9,912	0	9,912	830	0.07	0
5/9/2018	10,036	0	10,036	830	0.07	0

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5/10/2018	10,288	0	10,288	830	0.07	0
5/11/2018	10,400	0	10,400	830	0.07	0
5/12/2018	8,128	0	8,128	830	0.06	0
5/13/2018	7,936	0	7,936	830	0.05	0
5/14/2018	7,868	0	7,868	830	0.05	0
5/15/2018	6,076	0	6,076	830	0.04	0
5/16/2018	6,458	0	6,458	830	0.04	0
5/17/2018	8,434	0	8,434	830	0.06	0
5/18/2018	6,838	0	6,838	830	0.05	0
5/19/2018	7,798	0	7,798	830	0.05	0
5/20/2018	7,584	0	7,584	830	0.05	0
5/21/2018	7,520	0	7,520	830	0.05	0
5/22/2018	6,580	0	6,580	340	0.02	0
5/23/2018	7,202	0	7,202	340	0.02	0
5/24/2018	7,932	0	7,932	340	0.02	0
5/25/2018	6,792	0	6,792	340	0.02	0
5/26/2018	7,488	0	7,488	340	0.02	0
5/27/2018	7,962	0	7,962	340	0.02	0
5/28/2018	7,608	0	7,608	340	0.02	0
5/29/2018	8,216	0	8,216	340	0.02	0
5/30/2018	8,392	0	8,392	340	0.02	0
5/31/2018	7,368	0	7,368	340	0.02	0
6/1/2018	8,280	0	8,280	340	0.02	0
6/2/2018	3,980	0	3,980	340	0.01	0
6/3/2018	12,352	0	12,352	340	0.03	0
6/4/2018	8,284	0	8,284	340	0.02	0

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6/5/2018	6,516	0	6,516	340	0.02	0
6/6/2018	7,672	0	7,672	340	0.02	0
6/7/2018	4,352	0	4,352	340	0.01	0
6/8/2018	6,228	0	6,228	340	0.02	0
6/9/2018	4,512	0	4,512	340	0.01	0
6/10/2018	0	0	0	340	0.00	0
6/11/2018	556	0	556	340	0.002	0
6/12/2018	4,474	0	4,474	340	0.01	0
6/13/2018	7,392	0	7,392	340	0.02	0
6/14/2018	7,462	0	7,462	340	0.02	0
6/15/2018	7,522	0	7,522	340	0.02	0
6/16/2018	7,586	0	7,586	340	0.02	0
6/17/2018	7,448	0	7,448	340	0.02	0
6/18/2018	7,414	0	7,414	340	0.02	0
6/19/2018	4,416	0	4,416	340	0.01	0
6/20/2018	3,610	0	3,610	340	0.01	0
6/21/2018	3,884	0	3,884	340	0.01	0
6/22/2018	3,888	0	3,888	340	0.01	0
6/23/2018	3,974	0	3,974	340	0.01	0
6/24/2018	3,862	0	3,862	340	0.01	0
6/25/2018	3,398	0	3,398	340	0.01	0
6/26/2018	690	0	690	340	0.002	0
6/27/2018	772	0	772	340	0.002	0
6/28/2018	0	0	0	340	0.000	0
6/29/2018	352	0	352	340	0.001	0
6/30/2018	340	0	340	340	0.001	0
Second Quarter 2018 Totals	580,344	0	580,344	--	3.4	0

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7/1/2018	692	0	692	340	0.002	0
7/2/2018	756	0	756	340	0.002	0
7/3/2018	4,856	0	4,856	8,300	0.336	0
7/4/2018	7,164	0	7,164	8,300	0.495	0
7/5/2018	7,284	0	7,284	8,300	0.504	0
7/6/2018	7,012	0	7,012	8,300	0.485	0
7/7/2018	6,442	0	6,442	8,300	0.445	0
7/8/2018	6,080	0	6,080	8,300	0.420	0
7/9/2018	5,738	0	5,738	8,300	0.397	0
7/10/2018	6,102	0	6,102	8,300	0.422	0
7/11/2018	8,438	0	8,438	8,300	0.583	0
7/12/2018	7,328	0	7,328	8,300	0.507	0
7/13/2018	9,518	0	9,518	8,300	0.658	0
7/14/2018	8,510	0	8,510	8,300	0.588	0
7/15/2018	8,504	0	8,504	8,300	0.588	0
7/16/2018	8,572	0	8,572	8,300	0.593	0
7/17/2018	9,988	0	9,988	8,300	0.691	0
7/18/2018	12,264	0	12,264	8,300	0.848	0
7/19/2018	8,598	0	8,598	8,300	0.595	0
7/20/2018	7,934	0	7,934	8,300	0.549	0
7/21/2018	7,780	0	7,780	8,300	0.538	0
7/22/2018	974	0	974	8,300	0.067	0
7/23/2018	3,598	0	3,598	8,300	0.249	0
7/24/2018	6,884	0	6,884	8,300	0.476	0
7/25/2018	3,732	0	3,732	8,300	0.258	0
7/26/2018	6,574	0	6,574	8,300	0.455	0

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7/27/2018	12,406	0	12,406	8,300	0.858	0
7/28/2018	18,156	0	18,156	8,300	1.255	0
7/29/2018	18,276	0	18,276	8,300	1.264	0
7/30/2018	18,094	0	18,094	8,300	1.251	0
7/31/2018	16,024	0	16,024	680	0.091	0
8/1/2018	17,466	0	17,466	680	0.099	0
8/2/2018	16,868	0	16,868	680	0.096	0
8/3/2018	15,586	0	15,586	680	0.088	0
8/4/2018	12,730	0	12,730	680	0.072	0
8/5/2018	14,368	0	14,368	680	0.081	0
8/6/2018	15,716	0	15,716	680	0.089	0
8/7/2018	15,068	0	15,068	680	0.085	0
8/8/2018	16,826	0	16,826	680	0.095	0
8/9/2018	17,034	0	17,034	680	0.097	0
8/10/2018	16,586	0	16,586	680	0.094	0
8/11/2018	16,568	0	16,568	680	0.094	0
8/12/2018	16,496	0	16,496	680	0.093	0
8/13/2018	16,442	0	16,442	680	0.093	0
8/14/2018	16,332	0	16,332	680	0.093	0
8/15/2018	16,292	0	16,292	680	0.092	0
8/16/2018	15,160	0	15,160	680	0.086	0
8/17/2018	16,662	0	16,662	680	0.094	0
8/18/2018	15,266	0	15,266	680	0.086	0
8/19/2018	2,804	0	2,804	680	0.016	0
8/20/2018	0	0	0	680	0.000	0
8/21/2018	4,820	0	4,820	680	0.027	0

Table 5. Groundwater Remediation System Operation Summary

SFPP Norwalk Pump Station, Norwalk, California

System Inspection Date	Groundwater Removed from the South-Central and Southeastern Areas (gallons)	Groundwater Removed from the West Side Barrier Area (gallons)	Total Groundwater Removed (gallons)	Influent TPH-total (TPH-g, TPH-d, TPH-o) Concentration (µg/L)	Estimated Hydrocarbon Mass Removed from the South-Central, Southeastern, and West Side Barrier Areas (pounds)[a]	Product Recovery (gallons)
8/22/2018	0	0	0	680	0.000	0
8/23/2018	326	0	326	680	0.002	0
8/24/2018	0	0	0	680	0.000	0
8/25/2018	0	0	0	680	0.000	0
8/26/2018	0	0	0	680	0.000	0
8/27/2018	0	0	0	680	0.000	0
8/28/2018	342	0	342	680	0.002	0
8/29/2018	0	0	0	680	0.000	0
8/30/2018	5,252	0	5,252	680	0.030	0
8/31/2018	18,900	0	18,900	790	0.124	0
9/1/2018	17,558	0	17,558	790	0.116	0
9/2/2018	16,302	0	16,302	790	0.107	0
9/3/2018	16,300	0	16,300	790	0.107	0
9/4/2018	13,892	0	13,892	790	0.091	0
9/5/2018	18,208	0	18,208	790	0.120	0
9/6/2018	14,756	0	14,756	790	0.097	0
9/7/2018	17,440	0	17,440	790	0.115	0
9/8/2018	12,184	0	12,184	790	0.080	0
9/9/2018	14,038	0	14,038	790	0.092	0
9/10/2018	15,930	0	15,930	790	0.105	0
9/11/2018	16,968	0	16,968	790	0.112	0
9/12/2018	18,020	0	18,020	790	0.119	0
9/13/2018	15,994	0	15,994	790	0.105	0
9/14/2018	15,726	0	15,726	790	0.104	0
9/15/2018	15,216	0	15,216	790	0.100	0
9/16/2018	14,920	0	14,920	790	0.098	0

Table 5. Groundwater Remediation System Operation Summary

SFPP Norwalk Pump Station, Norwalk, California

System Inspection Date	Groundwater Removed from the South-Central and Southeastern Areas (gallons)	Groundwater Removed from the West Side Barrier Area (gallons)	Total Groundwater Removed (gallons)	Influent TPH-total (TPH-g, TPH-d, TPH-o) Concentration (µg/L)	Estimated Hydrocarbon Mass Removed from the South-Central, Southeastern, and West Side Barrier Areas (pounds)[a]	Product Recovery (gallons)
9/17/2018	14,894	0	14,894	790	0.098	0
9/18/2018	14,216	0	14,216	790	0.094	0
9/19/2018	14,270	0	14,270	790	0.094	0
9/20/2018	14,538	0	14,538	790	0.096	0
9/21/2018	14,176	0	14,176	790	0.093	0
9/22/2018	13,698	0	13,698	790	0.090	0
9/23/2018	13,472	0	13,472	790	0.089	0
9/24/2018	13,192	0	13,192	790	0.087	0
9/25/2018	16,820	0	16,820	790	0.111	0
9/26/2018	13,464	0	13,464	630	0.071	0
9/27/2018	13,100	0	13,100	630	0.069	0
9/28/2018	12,680	0	12,680	630	0.067	0
9/29/2018	12,598	0	12,598	630	0.066	0
9/30/2018	12,434	0	12,434	630	0.065	0
Third Quarter 2018 Totals	1,021,192	0	1,021,192	--	21.2	0
10/1/2018	12,460	0	12,460	630	0.065	0
10/2/2018	8,756	0	8,756	630	0.046	0
10/3/2018	5,420	0	5,420	630	0.028	0
10/4/2018	0	0	0	630	0.000	0
10/5/2018	0	0	0	630	0.000	0
10/6/2018	0	0	0	630	0.000	0
10/7/2018	0	0	0	630	0.000	0
10/8/2018	6,194	0	6,194	630	0.033	0
10/9/2018	9,714	0	9,714	630	0.051	0
10/10/2018	8,012	0	8,012	630	0.042	0
10/11/2018	13,180	0	13,180	630	0.069	0

Table 5. Groundwater Remediation System Operation Summary

SFPP Norwalk Pump Station, Norwalk, California

System Inspection Date	Groundwater Removed from the South-Central and Southeastern Areas (gallons)	Groundwater Removed from the West Side Barrier Area (gallons)	Total Groundwater Removed (gallons)	Influent TPH-total (TPH-g, TPH-d, TPH-o) Concentration (µg/L)	Estimated Hydrocarbon Mass Removed from the South-Central, Southeastern, and West Side Barrier Areas (pounds)[a]	Product Recovery (gallons)
10/12/2018	12,450	0	12,450	630	0.065	0
10/13/2018	11,866	0	11,866	630	0.062	0
10/14/2018	11,928	0	11,928	630	0.063	0
10/15/2018	10,996	0	10,996	630	0.058	0
10/16/2018	13,072	0	13,072	630	0.069	0
10/17/2018	14,728	0	14,728	630	0.077	0
10/18/2018	15,264	0	15,264	630	0.080	0
10/19/2018	15,576	0	15,576	630	0.082	0
10/20/2018	14,240	0	14,240	630	0.075	0
10/21/2018	12,972	0	12,972	630	0.068	0
10/22/2018	11,164	0	11,164	630	0.059	0
10/23/2018	10,162	0	10,162	74	0.006	0
10/24/2018	11,456	0	11,456	74	0.007	0
10/25/2018	11,454	0	11,454	74	0.007	0
10/26/2018	7,488	0	7,488	74	0.005	0
10/27/2018	0	0	0	74	0.000	0
10/28/2018	0	0	0	74	0.000	0
10/29/2018	0	0	0	74	0.000	0
10/30/2018	0	0	0	74	0.000	0
10/31/2018	0	0	0	74	0.000	0
11/1/2018	0	0	0	74	0.000	0
11/2/2018	826	0	826	74	0.001	0
11/3/2018	0	0	0	74	0.000	0
11/4/2018	0	0	0	74	0.000	0
11/5/2018	0	0	0	74	0.000	0
11/6/2018	0	0	0	74	0.000	0

Table 5. Groundwater Remediation System Operation Summary

SFPP Norwalk Pump Station, Norwalk, California

System Inspection Date	Groundwater Removed from the South-Central and Southeastern Areas (gallons)	Groundwater Removed from the West Side Barrier Area (gallons)	Total Groundwater Removed (gallons)	Influent TPH-total (TPH-g, TPH-d, TPH-o) Concentration (µg/L)	Estimated Hydrocarbon Mass Removed from the South-Central, Southeastern, and West Side Barrier Areas (pounds)[a]	Product Recovery (gallons)
11/7/2018	0	0	0	74	0.000	0
11/8/2018	0	0	0	74	0.000	0
11/9/2018	3,326	0	3,326	74	0.002	0
11/10/2018	9,692	0	9,692	74	0.006	0
11/11/2018	9,148	0	9,148	74	0.006	0
11/12/2018	9,280	0	9,280	120	0.009	0
11/13/2018	8,676	0	8,676	120	0.009	0
11/14/2018	9,040	0	9,040	120	0.009	0
11/15/2018	9,456	0	9,456	120	0.009	0
11/16/2018	10,424	0	10,424	120	0.010	0
11/17/2018	12,180	0	12,180	120	0.012	0
11/18/2018	11,788	0	11,788	120	0.012	0
11/19/2018	9,200	0	9,200	120	0.009	0
11/20/2018	8,668	0	8,668	120	0.009	0
11/21/2018	10,580	0	10,580	120	0.011	0
11/22/2018	10,016	0	10,016	120	0.010	0
11/23/2018	6,764	0	6,764	120	0.007	0
11/24/2018	6,848	0	6,848	120	0.007	0
11/25/2018	6,836	0	6,836	120	0.007	0
11/26/2018	6,890	0	6,890	120	0.007	0
11/27/2018	7,774	0	7,774	120	0.008	0
11/28/2018	6,548	0	6,548	120	0.007	0
11/29/2018	7,220	0	7,220	120	0.007	0
11/30/2018	6,444	0	6,444	120	0.006	0
12/1/2018	6,736	0	6,736	120	0.007	0
12/2/2018	6,420	0	6,420	120	0.006	0

Table 5. Groundwater Remediation System Operation Summary

SFPP Norwalk Pump Station, Norwalk, California

System Inspection Date	Groundwater Removed from the South-Central and Southeastern Areas (gallons)	Groundwater Removed from the West Side Barrier Area (gallons)	Total Groundwater Removed (gallons)	Influent TPH-total (TPH-g, TPH-d, TPH-o) Concentration (µg/L)	Estimated Hydrocarbon Mass Removed from the South-Central, Southeastern, and West Side Barrier Areas (pounds)[a]	Product Recovery (gallons)
12/3/2018	6,600	0	6,600	120	0.007	0
12/4/2018	6,536	0	6,536	120	0.007	0
12/5/2018	5,726	0	5,726	120	0.006	0
12/6/2018	8,610	0	8,610	120	0.009	0
12/7/2018	5,414	0	5,414	120	0.005	0
12/8/2018	5,830	0	5,830	120	0.006	0
12/9/2018	1,104	0	1,104	120	0.001	0
12/10/2018	0	0	0	120	0.000	0
12/11/2018	3,406	0	3,406	120	0.003	0
12/12/2018	9,754	0	9,754	120	0.010	0
12/13/2018	3,144	0	3,144	120	0.003	0
12/14/2018	2,912	0	2,912	460	0.011	0
12/15/2018	7,668	0	7,668	460	0.029	0
12/16/2018	1,486	0	1,486	460	0.006	0
12/17/2018	5,130	0	5,130	460	0.020	0
12/18/2018	9,096	0	9,096	460	0.035	0
12/19/2018	7,210	0	7,210	460	0.028	0
12/20/2018	4,682	0	4,682	460	0.018	0
12/21/2018	354	0	354	460	0.001	0
12/22/2018	0	0	0	460	0.000	0
12/23/2018	0	0	0	460	0.000	0
12/24/2018	80	0	80	460	0.000	0
12/25/2018	0	0	0	460	0.000	0

Table 5. Groundwater Remediation System Operation Summary

SFPP Norwalk Pump Station, Norwalk, California

System Inspection Date	Groundwater Removed from the South-Central and Southeastern Areas (gallons)	Groundwater Removed from the West Side Barrier Area (gallons)	Total Groundwater Removed (gallons)	Influent TPH-total (TPH-g, TPH-d, TPH-o) Concentration (µg/L)	Estimated Hydrocarbon Mass Removed from the South-Central, Southeastern, and West Side Barrier Areas (pounds)[a]	Product Recovery (gallons)
12/26/2018	0	0	0	460	0.000	0
12/27/2018	0	0	0	460	0.000	0
12/28/2018	28	0	28	460	0.000	0
12/29/2018	0	0	0	460	0.000	0
12/30/2018	0	0	0	460	0.000	0
12/31/2018	0	0	0	460	0.000	0
Fourth Quarter 2018 Totals	544,102	0	544,102	--	2	0
Cumulative Total	**78,485,535**	**26,902,652**	**105,388,187**	**--**	**18,448**	**14,426**

Notes:

[a] Estimated hydrocarbon mass removed (pounds) between 1996 and 2005 is based on concentrations of dissolved BTEX and MTBE in the groundwater influent and volume of groundwater extracted. Estimated hydrocarbon mass removed (pounds) between 2006 and 2011 is based on concentrations of TPH-g and TPH-fp in the groundwater influent and volume of groundwater extracted. Estimated hydrocarbon mass removed (pounds) between 2012 and 2015 is based on concentrations of dissolved TPH-total in the groundwater influent and volume of extracted groundwater.

[b] Groundwater removal in the West Side Barrier area was discontinued in August 2008.

[c] Groundwater extraction from West Side Barrier area wells BW-3 and BW-6 was resumed on May 14, 2010, to evaluate the efficacy of blending water with lower selenium concentrations from these wells with groundwater extracted from the south-central and southeastern areas. Groundwater removal from the West Side Barrier area was discontinued again on June 22, 2010.

-- = not applicable
µg/L = micrograms per liter
BTEX = benzene, toluene, ethylbenzene, and xylenes
MTBE = methyl tertiary butyl ether
TPH-d = total petroleum hydrocarbons quantified as diesel (C13-C22)
TPH-fp = total petroleum hydrocarbons quantified as fuel product (C7-C28)
TPH-g = total petroleum hydrocarbons quantified as gasoline (C4-C12)
TPH-o = total petroleum hydrocarbons quantified as oil (C23-C36)
TPH-total = total petroleum hydrocarbons quantified as gasoline, diesel, and oil (C4-C36)

Table 6. Extracted Groundwater Analytical Results[a]

SFPP Norwalk Pump Station, Norwalk, California

Date Sampled	EPA 8015M					EPA 8260B Volatile Organic Compounds (VOCs)[b]								
	TPH-g (µg/L)	TPH-d (µg/L)	TPH-o (µg/L)	TPH-total (µg/L)	TPH-fp (µg/L)	Benzene (µg/L)	Ethylbenzene (µg/L)	Toluene (µg/L)	Xylenes (µg/L)	MTBE (µg/L)	TBA (µg/L)	DIPE (µg/L)	ETBE (µg/L)	TAME (µg/L)
3/6/1996	--	--	--	--	--	2,600	790	7,200	9,100	---	--	--	--	--
7/23/1998	--	--	--	--	--	750	<10	360	300	---	--	--	--	--
8/27/1998	--	--	--	--	--	1,000	71	530	800	---	--	--	--	--
10/1/1998	--	--	--	--	--	1,200	<10	1,400	1,680	---	--	--	--	--
11/19/1998	--	--	--	--	--	1,600	140	2,600	2,900	---	--	--	--	--
12/17/1998	--	--	--	--	--	4,500	380	4,500	3,900	---	--	--	--	--
1/28/1999	--	--	--	--	--	520	79	660	840	---	--	--	--	--
3/25/1999	--	--	--	--	--	540	160	1,800	4,100	---	--	--	--	--
4/2/1999	--	--	--	--	--	620	76	520	1,200	---	--	--	--	--
4/15/1999	--	--	--	--	--	1,400	99	800	1,480	---	--	--	--	--
5/6/1999	--	--	--	--	--	1,340	180	1,240	1,730	---	--	--	--	--
6/3/1999	--	--	--	--	--	3,410	343	2,240	2,770	---	--	--	--	--
8/5/1999	--	--	--	--	--	3,200	780	5,400	5,200	---	--	--	--	--
9/23/1999	--	--	--	--	--	2,700	130	1,200	720	---	--	--	--	--
9/30/1999	--	--	--	--	--	1,300	77	480	560	---	--	--	--	--
10/13/1999	--	--	--	--	--	1,400	100	660	720	---	--	--	--	--
11/4/1999	--	--	--	--	--	3,000	500	5,600	4,500	---	--	--	--	--
12/9/1999	--	--	--	--	--	4,500	280	1,400	1,480	---	--	--	--	--
1/13/2000	--	--	--	--	--	9,000	7,600	14,000	44,000	---	--	--	--	--
2/11/2000	--	--	--	--	--	2,300	<100	1,200	1,240	3,100	--	--	--	--
3/10/2000	--	--	--	--	--	380	20	110	430	740	--	--	--	--
4/13/2000	--	--	--	--	--	1,300	550	450	920	970	--	--	--	--
6/2/2000	--	--	--	--	--	840	56	240	980	920	--	--	--	--
6/15/2000	--	--	--	--	--	1,600	82	900	990	2,700	--	--	--	--
8/3/2000	--	--	--	--	--	1,900	410	3,500	4,400	2,700	--	--	--	--
8/28/2000	--	--	--	--	--	620	33	200	380	1,800	--	--	--	--
9/20/2000	--	--	--	--	--	460	<20	73	255	1,300	--	--	--	--
10/25/2000	--	--	--	--	--	20	<20	<20	216	6,700	--	--	--	--
11/15/2000	--	--	--	--	--	560	24	210	490	3,700	--	--	--	--
3/22/2001	--	--	--	--	--	3,800	360	3,900	3,160	5,500	--	--	--	--
4/30/2001	--	--	--	--	--	4,100	710	5,800	5,600	8,300	--	--	--	--
5/23/2001	--	--	--	--	--	3,400	160	1,100	1,070	3,900	--	--	--	--
6/22/2001	--	--	--	--	--	1,700	85	680	680	2,200	--	--	--	--
7/16/2001	--	--	--	--	--	2,300	130	1,100	1,350	2,100	--	--	--	--
9/5/2001	--	--	--	--	--	1,500	170	1,200	1,890	1,100	--	--	--	--

Table 6. Extracted Groundwater Analytical Results[a]

SFPP Norwalk Pump Station, Norwalk, California

Date Sampled	EPA 8015M					EPA 8260B Volatile Organic Compounds (VOCs)[b]								
	TPH-g (µg/L)	TPH-d (µg/L)	TPH-o (µg/L)	TPH-total (µg/L)	TPH-fp (µg/L)	Benzene (µg/L)	Ethylbenzene (µg/L)	Toluene (µg/L)	Xylenes (µg/L)	MTBE (µg/L)	TBA (µg/L)	DIPE (µg/L)	ETBE (µg/L)	TAME (µg/L)
1/23/2002	--	--	--	--	--	<0.5	<1	<1	<2	2	--	--	--	--
2/28/2002	--	--	--	--	--	<0.5	<1	<1	<2	96	--	--	--	--
3/25/2002	--	--	--	--	--	<0.5	<1	<1	<2	87	--	--	--	--
5/1/2002	--	--	--	--	--	1,900	31	190	480	1,100	--	--	--	--
5/17/2002	--	--	--	--	--	1,400	50	180	970	1,000	--	--	--	--
6/4/2002	--	--	--	--	--	2,700	57	280	530	1,300	--	--	--	--
7/18/2002	--	--	--	--	--	3,800	66	530	1,160	330	--	--	--	--
8/8/2002	--	--	--	--	--	4,800	49	610	1,290	460	--	--	--	--
9/3/2002	--	--	--	--	--	260	<5	5	71	600	--	--	--	--
10/18/2002	--	--	--	--	--	1,200	70	490	820	570	--	--	--	--
11/26/2002	--	--	--	--	--	1,300	68	130	590	860	--	--	--	--
12/27/2002	--	--	--	--	--	1	<1	<1	<2	58	--	--	--	--
1/30/2003	--	--	--	--	--	<0.5	<1	<1	<2	37	--	--	--	--
2/26/2003	--	--	--	--	--	4	<1	<1	4	140	--	--	--	--
3/17/2003	--	--	--	--	--	2,800	23	170	480	570	--	--	--	--
4/30/2003	--	--	--	--	--	3,700	350	2,200	4,600	490	--	--	--	--
6/13/2003	--	--	--	--	--	1,200	17	120	510	740	--	--	--	--
6/19/2003	--	--	--	--	--	680	<10	35	239	680	--	--	--	--
7/3/2003	--	--	--	--	--	2,600	160	610	2,290	450	--	--	--	--
7/25/2003	--	--	--	--	--	300	6	3	39	230	--	--	--	--
8/20/2003	--	--	--	--	--	830	19	130	350	290	--	--	--	--
9/11/2003	--	--	--	--	--	270	<10	<10	46	420	--	--	--	--
10/16/2003	--	--	--	--	--	380	<10	<10	121	490	--	--	--	--
11/17/2003	--	--	--	--	--	93	6	22	106	200	--	--	--	--
12/19/2003	--	--	--	--	--	300	27	110	1,010	62	--	--	--	--
1/30/2004	--	--	--	--	--	700	140	740	1,740	22	--	--	--	--
2/17/2004	--	--	--	--	--	300	47	440	1,150	19	--	--	--	--
3/8/2004	--	--	--	--	--	52	<5.0	10	149	23	--	--	--	--
3/21/2004	--	--	--	--	--	420	11	29	318	120	--	--	--	--
6/28/2004	--	--	--	--	--	740	26	46	337	81	--	--	--	--
7/30/2004	--	--	--	--	--	660	18	68	280	87	--	--	--	--
8/27/2004	--	--	--	--	--	1,500	47	140	530	77	--	--	--	--
9/28/2004	--	--	--	--	--	400	10	32	252	64	--	--	--	--
10/15/2004	--	--	--	--	--	950	31	130	316	64	--	--	--	--
11/12/2004	--	--	--	--	--	2,100	1,500	390	15,800	3,000	--	--	--	--
12/10/2004	--	--	--	--	--	700	320	1,100	3,900	110	--	--	--	--

Table 6. Extracted Groundwater Analytical Results[a]

SFPP Norwalk Pump Station, Norwalk, California

Date Sampled	EPA 8015M					EPA 8260B Volatile Organic Compounds (VOCs)[b]								
	TPH-g (µg/L)	TPH-d (µg/L)	TPH-o (µg/L)	TPH-total (µg/L)	TPH-fp (µg/L)	Benzene (µg/L)	Ethylbenzene (µg/L)	Toluene (µg/L)	Xylenes (µg/L)	MTBE (µg/L)	TBA (µg/L)	DIPE (µg/L)	ETBE (µg/L)	TAME (µg/L)
1/28/2005	--	--	--	--	--	460	140	520	2,260	610	--	--	--	--
2/25/2005	--	--	--	--	--	5,700	200	650	1,560	1,300	--	--	--	--
3/22/2005	--	--	--	--	--	<5	<10	<10	26	1,000	--	--	--	--
4/21/2005	--	--	--	--	--	680	8	21	108	420	--	--	--	--
5/20/2005	--	--	--	--	--	6	<5	9	50	<5	--	--	--	--
6/28/2005	--	--	--	--	--	450	80	690	1,030	1,600	--	--	--	--
7/27/2005	--	--	--	--	--	2,000	170	1,700	5,000	1,200	--	--	--	--
8/31/2005	--	--	--	--	--	660	34	320	670	220	--	--	--	--
9/28/2005	--	--	--	--	--	1,800	310	2,800	4,700	360	--	--	--	--
10/26/2005	--	--	--	--	--	940	330	1,800	3,600	530	--	--	--	--
11/30/2005	--	--	--	--	--	900	170	900	2,790	760	--	--	--	--
12/20/2005	--	--	--	--	--	2,500	350	2,600	4,100	2,300	--	--	--	--
7/11/2007	--	--	--	--	--	4,800	130	890	1,040	690	--	--	--	--
8/7/2007	14,000	--	--	--	11,000	5,400	140	1,100	770	540	--	--	--	--
9/25/2007	12,000	--	--	--	30,000	3,400	310	1,600	2,390	540	--	--	--	--
10/16/2007	8,900	--	--	--	8,400	3,400	94	520	660	390	--	--	--	--
11/2/2007	44,000	--	--	--	6,500	3,200	130	860	1,160	570	--	--	--	--
11/30/2007	6,000	--	--	--	5,200	1,800	48	170	490	450	--	--	--	--
12/21/2007	7,200	--	--	--	4,200	2,100	41	170	430	750	--	--	--	--
1/4/2008	4,300	--	--	--	7,200	3,300	49	300	540	620	--	--	--	--
1/18/2008	11,000	--	--	--	2,200	3,600	140	650	850	620	--	--	--	--
2/1/2008	8,700	--	--	--	5,700	3,600	100	440	930	560	--	--	--	--
3/4/2008	7,200	--	--	--	4,900	3,900	120	510	770	620	--	--	--	--
4/8/2008	8,100	--	--	--	10,000	2,800	96	280	580	640	--	--	--	--
5/6/2008	5,300	--	--	--	2,800	2,900	76	190	328	430	--	--	--	--
6/3/2008	8,400	--	--	--	6,800	3,700	110	450	480	320	--	--	--	--
7/2/2008	9,200	--	--	--	4,300[c]	4,500	75	620	650	400	--	--	--	--
8/19/2008	4,000	--	--	--	6,600	2,600	57	76	215	450	--	--	--	--
9/5/2008	160	--	--	--	<500	<12	<25	<25	<25	<25	--	--	--	--
10/7/2008	<100	--	--	--	<500	0.36 J	<1.0	<1.0	1.59	1.7	--	--	--	--
11/4/2008	12,000	--	--	--	660,000	2,500	140	220	760	160	--	--	--	--
12/4/2008	1,300	--	--	--	1,500	600	8.2	28	73	130	--	--	--	--

Table 6. Extracted Groundwater Analytical Results[a]

SFPP Norwalk Pump Station, Norwalk, California

Date Sampled	EPA 8015M					EPA 8260B Volatile Organic Compounds (VOCs)[b]								
	TPH-g (µg/L)	TPH-d (µg/L)	TPH-o (µg/L)	TPH-total (µg/L)	TPH-fp (µg/L)	Benzene (µg/L)	Ethylbenzene (µg/L)	Toluene (µg/L)	Xylenes (µg/L)	MTBE (µg/L)	TBA (µg/L)	DIPE (µg/L)	ETBE (µg/L)	TAME (µg/L)
1/6/2009	1,500	--	--	--	980	560	23	41	110	320	--	--	--	--
3/6/2009	2,500	--	--	--	1,500	1,100	33	51	114	65	--	--	--	--
4/7/2009	3,100	--	--	--	6,900	1,100	36	230	207	210	--	--	--	--
5/13/2009	690	--	--	--	1,500	120	3.2	14	60	24	--	--	--	--
6/12/2009	150	--	--	--	<500	<0.50	<1.0	<1.0	0.71 J	44	--	--	--	--
7/10/2009	4,500	--	--	--	560	1,500	41	68	175	150	--	--	--	--
8/4/2009	2,000	--	--	--	1,000	1,200	16	18	64	100	--	--	--	--
9/1/2009	4,800	--	--	--	3,500	380	45	25	328	5.4 J	--	--	--	--
10/6/2009	3,900	--	--	--	4,600	3,200	21	15	35	82	--	--	--	--
10/27/2009	1,000	--	--	--	<500	520	4	15	10	180	--	--	--	--
11/3/2009	120	--	--	--	<500	2	0.55 J	0.61 J	3	40	--	--	--	--
11/25/2009	5,700	--	--	--	4,000	3,100	26	13	48	88	--	--	--	--
2/16/2010	8,000	--	--	--	5,900	4,700	110	1,300	800	1,800	--	--	--	--
3/9/2010	7,000	--	--	--	5,900	6,600	110	460	550	410	--	--	--	--
4/20/2010	10,000	--	--	--	11,000	6,000	44	230	174	130	--	--	--	--
5/14/2010	8,500	--	--	--	2,100	3,600	67	380	400	210	--	--	--	--
6/25/2010	4,600	--	--	--	2,600	2,200	61	540	380	170	--	--	--	--
7/20/2010	21,000	--	--	--	21,000	3,400	370	3,000	2,550	2,300	--	--	--	--
8/3/2010	3,400	--	--	--	1,500	1,400	17	140	161	390	--	--	--	--
8/10/2010	5,800	--	--	--	3,400	2,600	40	190	169	140	--	--	--	--
9/14/2010	9,400	--	--	--	10,000	4,900	170	1,100	1,340	380	--	--	--	--
10/12/2010	5,700	--	--	--	1,000	2,200	43	140	138	120	--	--	--	--
11/16/2010	1,100	--	--	--	1,600	290	4	15	78	84	--	--	--	--
12/14/2010	7,100	--	--	--	3,200	2,600	76	200	315	340	--	--	--	--
1/14/2011	7,400	--	--	--	3,500	3,700	56	110	220	280	--	--	--	--
2/8/2011	5,600	--	--	--	3,500	2,400	43	110	190	420	--	--	--	--
3/25/2011	3,100	--	--	--	1,200	1,300	51	92	200	300	--	--	--	--
4/26/2011	1,400	--	--	--	1,200	610	5.8	5.7	20	130	--	--	--	--
5/17/2011	3,300	--	--	--	1,700	3,600	82	180	300	240	--	--	--	--
6/21/2011	1,200	--	--	--	720	860	9.6	31	82	190	2,200	6.6	<0.07	<0.1
7/27/2011	14,000	10,000	44J	--	--[d]	2,800	150	490	2,100	350	2,800	27	<0.07	<0.1
8/26/2011	7,400	--	--	--	57,000	1,400	120	480	1,300	270	1,600	16	<0.07	<0.1
9/23/2011	6,400	--	--	--	2,800	2,800	83.0	160	340	300	1,300	22	<0.07	<0.1
10/25/2011	6,000	--	--	--	2,300	3,000	52	93	200	200	970	20	<0.70	<1.0
11/22/2011	5,900	--	--	--	2,000	3,600	62	140	240	300	2,900	26	<0.07	<0.1
12/20/2011	780	--	--	--	2,000	330	8	14	43	160	1,000	18	<0.07	<0.1

Table 6. Extracted Groundwater Analytical Results[a]

SFPP Norwalk Pump Station, Norwalk, California

Date Sampled	EPA 8015M					EPA 8260B Volatile Organic Compounds (VOCs)[b]								
	TPH-g (µg/L)	TPH-d (µg/L)	TPH-o (µg/L)	TPH-total (µg/L)	TPH-fp (µg/L)	Benzene (µg/L)	Ethylbenzene (µg/L)	Toluene (µg/L)	Xylenes (µg/L)	MTBE (µg/L)	TBA (µg/L)	DIPE (µg/L)	ETBE (µg/L)	TAME (µg/L)
1/10/2012	5,300	--	--	--	1,900	3,400	36	70	170	200	960	26	<0.07	<0.1
2/21/2012	4,900	--	--	--	<13	3,400	19	16	48	120	2,200	21	<0.07	<0.1
3/13/2012	6,100	--	--	--	2,100	2,900	43	79	180	120	1,600	23	<0.07	<0.1
4/27/2012	5,100	--	--	--	2,200	3,800	49	61	150	150	500	38	<0.13	<0.12
5/22/2012	6,800	--	--	--	31,000	2,800	49	140	262	150	690	30	<0.13	<0.12
6/19/2012	5,300	--	--	--	36,000	3,200	45	230	200	220	2,800	33	<0.13	<0.12
7/20/2012	5,600	2,400	210	8,200	--	3,000	71	72	510	170	2,700	26	<0.13	<0.12
8/21/2012	3,600	1,100	140	4,900	--	2,400	26	41	80	110	1,500	22	<0.13	<0.12
9/25/2012	2,100	710	71	2,800	--	1,700	25	35	86	150	690	17	<1.0	<1.0
10/30/2012	2,600	700	74	3,374	--	1,400	15	13	52	54	1,200	14	<0.061	<0.054
11/30/2012	860	8,200	260	9,320	--	1,100	2.4	4.4	12	23	690	<0.038	<0.061	<0.054
12/27/2012	6,200	820	86	7,106	--	2,000	39	76	130	120	1,300	20	<0.061	<0.054
1/15/2013	3,400	14,000	400	17,800	--	800	12	25	130	43	1,200	8.7	<0.061	<0.054
2/12/2013	9,900	3,100	150	13,150	--	2,100	110	440	820	110	330	22	<0.061	<0.054
3/5/2013	3,954	970	80	5,004	--	1,400	21	23	87	63	1,200	15	<0.061	<0.054
3/15/2013	--	--	--	--	--	1,400	25	49	98	74	570	14	<0.061	<0.054
4/16/2013	1,100	1,300	270	2,670	--	370	6	19	56	73	530	17	<0.061	<0.054
5/14/2013	4,300	830	99	5,229	--	2,000	52	98	181	61	270	22	<0.061	<0.054
6/28/2013	2,900	870	150	3,920	--	1,100	18	58	76	92	500	11	<0.061	<0.054
7/16/2013	3,600	1,000	130	4,730	--	870	19	47	140	100	600	14	<0.061	<0.054
8/16/2013	3,800	5,900	530	10,230	--	1,400	13	32	85	77	550	27	<0.061	<0.054
9/24/2013	5,800	12,000	550	18,350	--	990	53	400	630	78	440	20	<0.061	<0.054
10/15/2013	3,300	650	120	4,070	--	1,400	11	37	150	43	250	15	<0.061	<0.054
11/12/2013	5,600	3,500	190	9,290	--	570	99	230	660	89	550	20	<0.061	<0.054
12/13/2013	12,500	14,000	400	26,900	--	560	170	690	1,500	52	220	17	<0.061	<0.054
1/17/2014	5,900	980	130	7,010	--	4,200	13	18	61	89	810	40	<0.061	<0.054
2/11/2014	12,000	63,000	2,500	77,500	--	640	130	560	1,990	45	290	12	<0.061	<0.054
3/21/2014	42,000	77,000	2,000	121,000	--	3,700	440	3,300	3,900	100	360	17	<0.061	<0.054
4/21/2014	100,000	30,000	880	130,000	--	6,000	1,300	9,800	9,000	<0.098	<1.0	12	<0.061	<0.054
5/20/2014	33,000	15,000	470	48,000	--	1,400	570	2,700	5,400	30	<0.40	16	<0.061	<0.054
6/13/2014	77,000	33,000	1,100	110,000	--	7,700	1,900	10,000	13,000	38	<0.40	12	<0.061	<0.054
7/12/2014	28,000	82	<52	28,082	--	2,800	820	3,700	6,800	34	<0.40	18J	<25	<25
The GWTS was down between July 29, 2014, and December 1, 2014, to facilitate processing of the modifications to SCAQMD Permit No. F14166 for the GWTS.														

Table 6. Extracted Groundwater Analytical Results[a]

SFPP Norwalk Pump Station, Norwalk, California

Date Sampled	EPA 8015M					EPA 8260B Volatile Organic Compounds (VOCs)[b]								
	TPH-g (µg/L)	TPH-d (µg/L)	TPH-o (µg/L)	TPH-total (µg/L)	TPH-fp (µg/L)	Benzene (µg/L)	Ethylbenzene (µg/L)	Toluene (µg/L)	Xylenes (µg/L)	MTBE (µg/L)	TBA (µg/L)	DIPE (µg/L)	ETBE (µg/L)	TAME (µg/L)
1/15/2015	8,000	5,600	270	13,870	--	2,200	22	140	430	21	390	11	<0.12	<0.11
2/20/2015	120,000	47,000	1,500	170,000	--	3,000	350	1,600	3,000	43	<0.80	17	<0.12	<0.11
3/3/2015	65,000	480,000	15,000	560,000	--	6,600	1,700	9,300	12,000	670	<0.80	11	<0.12	<0.11
4/7/2015	105,000	92,000	2,900	200,000	--	9,000	2,100	18,000	13,000	1,200	<0.80	8.7	<0.12	17
5/19/2015	73,000	90,000	2,400	165,400	--	8,200	1,600	17,000	12,000	380	<0.60	25	<0.078	<0.078
6/2/2015	78,000	89,000	3,100	170,100	--	3,200	530	3,700	7,100	1,100	<0.60	13	<0.078	8.3
7/30/2015	31,000	16,000	570	47,570	--	3,100	720	5,100	6,200	820	<0.60	27	<0.078	6.2
8/6/2015	30,000	17,000	570	37,570	--	2,600	500	3,100	6,200	700	<0.60	16	<0.078	6.4
9/15/2015	50,000	79,000	2,700	129,000	--	3,200	1,800	6,500	14,000	820	<0.60	15	<0.078	7.7
10/8/2015	51,000	55,000	1,800	107,800	--	5,700	1,400	11,000	11,000	680	<0.60	16	<0.078	6.2
11/24/2015	45,000	74,000	2,800	121,800	--	3,400	1,100	7,000	7,800	<0.31	<1.5	16	<0.20	<0.20
12/3/2015	40,000	120,000	4,000	164,000	--	4,800	1,100	7,700	8,300	580	<1.5	19	<0.20	5.9
1/21/2016	88,000	2,500,000	97,000	2,685,000	--	4,200	1,700	10,000	14,000	380	<0.60	12	<0.078	<0.078
2/2/2016	31,000	110,000	4,700	145,700	--	2,600	750	4,600	9,500	430	<0.60	8.6	<0.078	<0.078
4/5/2016	32,000	31,000	1,100	64,100	--	1,500	450	2,200	12,000	390	<3.0	<0.17	<0.39	<0.39
5/3/2016	2,600	20,000	680	23,280	--	990	18	83	260	6.0	100	7.1	<0.039	<0.039
6/14/2016	1,900	4,400	280	6,580	--	290	21	110	400	8.6	<5.0	6.00	<1.0	<1.0
The GWTS was down between June 24, 2016, and September 9, 2016, to facilitate installation of the new DAF/OWS.														
9/20/2016	32	230	130	390	--	<0.036	0.18 J	0.080 J	2.6	2.2	150	10	<0.039	<0.039
10/21/2016	10,000	9,300	360	20,000	--	320	320	1,100	2,700	5.1	<0.30	5.3	<0.039	<0.039
11/8/2016	1,100	1,500	130	2,800	--	2.5	<0.036	2.6	160	2.4	66	9.1	<0.039	<0.039
12/27/2016	140	390	130	660	--	1.2	<0.042	<0.042	2.0 J	1.4	2200	8.7	<0.039	<0.039
1/19/2017	190	340	120	640	--	6.9	0.24 J	0.15 J	<1.5	2.4	2300	8.1	<0.15	<0.12
2/3/2017	390	490	170	1,000	--	4.2	0.89 J	3.5	30	3.5	1700	5.1	<0.15	<0.12
3/3/2017	790	320	78	1,200	--	180	5	1.7 J	24	4.2	620	3.0	<0.15	<0.12
4/7/2017	1,200	780	140	2,100	--	740	21	23	87	7.5	120	4.8	<0.15	<0.12
5/4/2017	20	300	100	430	--	0.18 J	<0.036	0.12 J	<1.5	1.4	320	<0.017	<0.039	<0.039
6/20/2017	11,000	54,000	3,000	68,000	--	1,400	100	400	2,300	15	<18	8.1 J	<1.5	<1.2
7/20/2017	17 J	400	180	600	--	<1.0	<1.0	<2.0	<2.0	1.2	38	4.2	<1.0	<1.0
8/3/2017	39 J	410	310	760	--	<1.0	<1.0	<2.0	<2.0	1.3	25	4.2	<1.0	<1.0
9/20/2017	940	2,400	1,300	4,600	--	<1.0	0.15 J	0.17 J	4.4	0.59	5.4	0.70 J	<1.0	<1.0
10/10/2017	860	1,200	240	2,300	--	<1.0	5.2	13	120	3.7	26	6.5	<1.0	<1.0
11/8/2017	4,000	27,000	2,000	33,000	--	24	6.7	8.7	690	70	<5.0	8.8	<1.0	<1.0
12/15/2017	1,400	2,300	500	4,200	--	6.0	1.6	5.9	52	120	200	<1.0	<1.0	<1.0

Table 6. Extracted Groundwater Analytical Results[a]

SFPP Norwalk Pump Station, Norwalk, California

Date Sampled	EPA 8015M					EPA 8260B Volatile Organic Compounds (VOCs)[b]								
	TPH-g (µg/L)	TPH-d (µg/L)	TPH-o (µg/L)	TPH-total (µg/L)	TPH-fp (µg/L)	Benzene (µg/L)	Ethylbenzene (µg/L)	Toluene (µg/L)	Xylenes (µg/L)	MTBE (µg/L)	TBA (µg/L)	DIPE (µg/L)	ETBE (µg/L)	TAME (µg/L)
1/4/2018	1,800	1,500	560	3,900	--	190	4.9	30	410	160	240	5.4	<1.0	<1.0
2/8/2018	36	640	530	1,200	--	0.53 J	<1.0	0.62 J	2.4	2.4	<5.0	2.1	<1.0	<1.0
2/27/2018	220	560	240	100	--	3.9	0.55 J	1.6 J	9.3	2.3	26	5.5	<1.0	<1.0
3/27/2018	430	380	330	1,100	--	5.3	0.83 J	<2.0	11	43	410	2.1	<1.0	<1.0
4/24/2018	49 J	370	410	830 J	--	<1.0	<1.0	<2.0	<2.0	1.7	230	1.6	<1.0	<1.0
5/22/2018	45 J	120	180	340	--	<1.0	<1.0	<2.0	<2.0	0.94 J	330	0.45 J	<1.0	<1.0
7/3/2018	4,700	1,300	2,300	8,300	--	220	140	35	1,300	92	1,500	0.91 J	<1.0	<1.0
7/31/2018	200	260	220	680	--	14	1.0	<2.0	3.0	27	320	2.6	<1.0	<1.0
8/31/2018	130	200	460	790	--	5.1	0.35 J	1.0 J	4.8	39	610	<1.0	<1.0	<1.0
9/25/2018	<50	280	350	630	--	<1.0	<1.0	<2.0	<2.0	23	52	2.3	<1.0	<1.0
10/23/2018	74	<32	<80	74 J	--	1.2	<1.0	<2.0	<2.0	2.2	38	3.8	<1.0	<1.0
11/12/2018	<50	120	<100	120	--	<1.0	<1.0	<2.0	<2.0	1.4	120	4.1	<1.0	<1.0
12/14/2018	170	210	77	460	--	1.8	0.49 J	0.94 J	5.3	14	180	1.4	<1.0	<1.0

Notes:

[a] Influent samples were collected from the manifold conveying groundwater extracted from the south-central and southeastern areas.

[b] Other detected VOCs are included in the laboratory analytical reports in Appendix A.

[c] TPH-fp result from extracted groundwater sample collected on July 10, 2008.

[d] The July 27, 2011, sample, and samples collected after July 20, 2012, were analyzed for TPH-g, TPH-d, and TPH-o.

-- = not analyzed

<X = Not detected at or above the laboratory reporting limit "X"

µg/L = micrograms per liter

ppm = parts per million

DAF = dissolved air flotation

DIPE = di-isopropyl ether

ETBE = ethyl tertiary butyl ether

GWTS = groundwater treatment system

J = Analyte was detected above the laboratory method detection limit and below the laboratory reporting limit

B = Analyte detected in the associated method blank

MTBE = methyl tertiary butyl ether

OWS = oil-water separator

SCAQMD = South Coast Air Quality Management District

TAME = tertiary amyl methyl ether

TBA = tertiary butyl alcohol

TPH-d = total petroleum hydrocarbons quantified as diesel (C13-C22)

TPH-fp = total petroleum hydrocarbons quantified as fuel product (C7-C28)

TPH-g = total petroleum hydrocarbons quantified as gasoline (C4-C12)

TPH-o = total petroleum hydrocarbons quantified as oil (C23-C36)

TPH-total = total petroleum hydrocarbons quantified as gasoline, diesel, and oil (C4-C36)

Table 7. Biosparge System Operation Summary

SFPP Norwalk Pump Station, Norwalk, California

System Inspection Date	Cumulative Hours of Operation (hours)	Incremental Hours of Operation (hours)	Incremental Uptime (%)	System Flow[a] (scfm)	BS-01 Sparge Leg Pressure (psi)
1/6/2016	0			60	10
2/16/2016	899	899	91.9	500	13
2/23/2016	1,071	172	99.1	500	14
2/29/2016	1,192	121	85.1	500	13
3/1/2016	1,214	22	98.5	500	13
3/8/2016	1,381	167	99.9	500	14
3/10/2016	1,426	45	98.5	500	14
3/22/2016	1,432	6	2.0	240	7
3/31/2016	1,524	92	42.5	180	8
First Quarter 2016 Totals	1,524	1,524	74.7	--	--
4/5/2016	1,644	120	99.2	120	7
4/15/2016	1,645	1	0.4	120	8
4/19/2016	1,735	90	99.4	240	9
4/25/2016	1,856	121	84.6	120	8
4/26/2016	1,881	25	87.7	240	8
4/29/2016	1,955	74	100.0	240	7
5/10/2016	1,955	0	0.0	240	8
5/17/2016	2,123	168	99.8	240	6
5/19/2016	2,140	17	36.9	120	5
5/24/2016	2,254	114	94.4	360	6
5/31/2016	2,422	168	98.7	360	7
6/7/2016	2,591	169	100.0	420	7
6/14/2016	2,754	163	95.3	420	8
6/21/2016	2,906	152	92.7	420	8
6/24/2016	2,982	76	99.6	420	8
Second Quarter 2016 Totals	2,982	1,458	71.5	--	--

Table 7. Biosparge System Operation Summary

SFPP Norwalk Pump Station, Norwalk, California

System Inspection Date	Cumulative Hours of Operation (hours)	Incremental Hours of Operation (hours)	Incremental Uptime (%)	System Flow[a] (scfm)	BS-01 Sparge Leg Pressure (psi)
7/1/2016	2,982	0	0.0	120	5
7/7/2016	3,121	139	97.9	250	8
7/12/2016	3,242	121	100.0	420	5
7/19/2016	3,410	168	97.1	420	8
7/26/2016	3,575	165	99.8	420	8
8/2/2016	3,744	169	99.6	425	8
8/11/2016	3,931	187	88.0	240	7
8/16/2016	3,961	30	24.7	220	8
8/24/2016	4,033	72	36.5	120	4
8/25/2016	4,053	20	89.9	220	8
8/26/2016	4,067	14	66.7	78	5
8/30/2016	4,157	90	96.8	300	9
9/6/2016	4,303	146	84.5	85	5
9/13/2016	4,440	137	81.7	400	8
9/20/2016	4,611	171	100.0	586	14
9/27/2016	4,775	164	100.0	559	13
Third Quarter 2016 Totals	4,775	1,793	78.7	--	--
10/7/2016	4,776	1	0.4	110	4
10/8/2016	4,797	21	98.7	170	6
10/11/2016	4,866	69	99.9	420	11
10/13/2016	4,916	50	99.9	563	15
10/18/2016	4,965	49	42.1	120	8
10/25/2016	5,133	168	100.0	585	14
11/1/2016	5,302	169	99.8	598	14
Fourth Quarter 2016 Totals	5,302	527	62.7	--	--
2016 Totals	**5,302**	**5,302**	**--**	**--**	**--**
First Quarter 2017 Totals	5,302	0	--	--	--
6/27/2017	5,302	0	0.0	220	6
6/30/2017	5,368	66	22.0	207	7
Second Quarter 2017 Totals	5,368	66	--	--	--

Table 7. Biosparge System Operation Summary

SFPP Norwalk Pump Station, Norwalk, California

System Inspection Date	Cumulative Hours of Operation (hours)	Incremental Hours of Operation (hours)	Incremental Uptime (%)	System Flow[a] (scfm)	BS-01 Sparge Leg Pressure (psi)
7/5/2017	5,490	122	92.7	300	9
7/10/2017	5,610	120	100.0	290	8
7/13/2017	5,679	69	95.8	421	11
7/20/2017	5,850	171	100.0	526	14
7/25/2017	5,971	121	100.0	694	14
8/3/2017	6,183	212	94.4	544	13
8/8/2017	6,302	119	99.1	545	15
8/15/2017	6,417	115	68.8	550	14
8/22/2017	6,588	171	100.0	541	14
8/29/2017	6,753	165	99.1	544	14
9/7/2017	6,826	73	33.1	240	7
9/12/2017	6,941	115	100.0	747	14
9/18/2017	7,065	124	85.2	240	7
9/19/2017	7,089	24	100.0	218	7
9/26/2017	7,255	166	99.3	544	15
Third Quarter 2017 Totals	7,255	1,887	89.1	--	--
10/6/2017	7,260	5	2.1	260	7
10/10/2017	7,354	94	97.9	521	15
10/12/2017	7,397	43	89.6	556	15
10/16/2017	7,482	85	88.5	250	6
11/2/2017	7,485	3	0.7	260	8
11/7/2017	7,604	119	99.2	549	15
11/21/2017	7,652	48	14.3	280	10
11/28/2017	7,751	99	58.9	594	15
12/5/2017	7,914	163	97.0	705	15
12/8/2017	7,964	50	69.4	697	14
12/12/2017	8,081	117	100.0	774	13
12/19/2017	8,247	166	98.8	782	14
1/2/2018	8,580	333	99.1	755	14
Fourth Quarter 2017 Totals	8,580	1,325	56.5		

Table 7. Biosparge System Operation Summary

SFPP Norwalk Pump Station, Norwalk, California

System Inspection Date	Cumulative Hours of Operation (hours)	Incremental Hours of Operation (hours)	Incremental Uptime (%)	System Flow[a] (scfm)	BS-01 Sparge Leg Pressure (psi)
1/9/2018	8,751	171	100.0	589	13
1/23/2018	8,823	72	21.4	625	14
1/30/2018	8,932	109	64.9	294	8
2/6/2018	9,005	73	43.5	295	8
2/15/2018	9,219	214	95.4	624	14
2/20/2018	9,342	123	100.0	624	14
2/27/2018	9,490	148	90.2	629	14
3/13/2018	9,751	261	79.3	359	8
3/20/2018	9,911	160	95.2	412	8
3/27/2018	10,078	167	99.4	403	8
First Quarter 2018 Totals	10,078	1,498	74.3	--	--
4/3/2018	10,247	169	100.0	374	8
4/5/2018	10,295	48	100.0	368	8
4/24/2018	10,419	124	27.2	190	7
4/27/2018	10,493	74	100.0	269	8
5/1/2018	10,585	92	95.8	279	8
5/8/2018	10,752	167	99.4	389	8
5/11/2018	10,826	74	100.0	393	9
5/14/2018	10,899	73	100.0	98	5
5/15/2018	10,900	1	4.2	117	5
5/18/2018	10,974	74	100.0	113	5
5/22/2018	11,049	75	78.1	104	5
5/25/2018	11,118	69	95.8	101	5
5/29/2018	11,217	99	100.0	209	6
6/5/2018	11,381	164	97.6	385	8
6/7/2018	11,431	50	100.0	386	9
6/12/2018	11,504	73	60.8	252	7
6/19/2018	11,673	169	100.0	336	8
6/26/2018	11,841	168	100.0	356	8
6/29/2018	11,842	1.0	1.4	101	5
Second Quarter 2018 Totals	**11,842**	**1,764**	**78.2**	--	--

Table 7. Biosparge System Operation Summary

SFPP Norwalk Pump Station, Norwalk, California

System Inspection Date	Cumulative Hours of Operation (hours)	Incremental Hours of Operation (hours)	Incremental Uptime (%)	System Flow[a] (scfm)	BS-01 Sparge Leg Pressure (psi)
7/3/2018	11,932	90.0	93.8	203	6
7/12/2018	12,012	80.0	37.0	99	5
7/17/2018	12,127	115.0	95.8	270	8
7/24/2018	12,295	168.0	100.0	379	8
7/31/2018	12,449	154.0	91.7	411	10
8/7/2018	12,613	164.0	97.6	425	8
8/10/2018	12,689	76.0	100.0	406	8
8/14/2018	12,781	92.0	95.8	408	8
8/23/2018	12,869	88.0	40.7	109	5
8/28/2018	12,988	119.0	99.2	411	8
9/4/2018	13,085	97.0	57.7	123	5
9/6/2018	13,129	44.0	91.7	120	5
9/11/2018	13,235	106.0	88.3	340	7
9/18/2018	13,398	163.0	97.0	508	10
9/25/2018	13,567	169.0	100.0	422	9
Third Quarter 2018	**13,567**	**1,725**	**81.7**	--	--
10/5/2018	13,812	245.0	100.0	475	8
10/9/2018	13,905	93.0	96.9	391	8
10/16/2018	14,068	163.0	97.0	114	5
10/22/2018	14,216	148.0	100.0	387	8
10/30/2018	14,216	0.0	0.0	0	0
12/31/2018	14,216	0.0	0.0	0	0
Fourth Quarter 2018	**14,216**	**649**	**27.9**	--	--
Cumulative Totals	**14,216**	--	**54.4**	--	--

Notes:

[a] Estimated system flow based on header flowmeter.

-- = not applicable or not available

psi = pounds per square inch

scfm = standard cubic feet per minute

Table 8. Field Measurements and Mobile Laboratory Soil Vapor Analytical Results - November 2018

SFPP Norwalk Pump Station, Norwalk, California

Analyte Type	Analyte	Unit	Current Residential Soil Gas Screening Level [a, b]	Current Commercial Soil Gas Screening Level [a, b]	SVM-1-5 11/12/2018 SVM-1 5-5.5	SVM-1-15 11/12/2018 SVM-1 15-15.5	SVM-2-5 11/12/2018 SVM-2 5-5.5	SVM-3-5 11/13/2018 SVM-3 5-5.5	SVM-3-15 11/13/2018 SVM-3 15-15.5	SVM-5-5 11/13/2018 SVM-5 5-5.5	SVM-5-15 11/13/2018 SVM-5 15-15.5	SVM-6-7 11/12/2018 SVM-6 7-7.5	SVM-6-13 11/12/2018 SVM-6 13-13.5	SVM-7-7 11/12/2018 SVM-7 7-7.5	SVM-7-13 11/12/2018 SVM-7 13-13.5	SVM-7-13 DUP 11/12/2018 SVM-7 13-13.5
Field Measurements	Pressure	inches H_2O	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	PID	ppmv	---	---	---	---	---	---	---	---	---	---	---	---	---	---
COPCs[c]	1,2,4-Trimethylbenzene	µg/L	63	262	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
	1,2-Dichloroethane	µg/L	0.11	0.47	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
	1,3,5-Trimethylbenzene	µg/L	63	262	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
	2-Propanol (leak test compound)	µg/L	---	---	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
	Benzene	µg/L	0.097	0.42	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
	Ethylbenzene	µg/L	1.1	4.9	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
	Isopropylbenzene	µg/L	---	---	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
	m,p-Xylenes	µg/L	100	440	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
	Methyl tert-butyl ether (MTBE)	µg/L	11	47	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
	Naphthalene	µg/L	0.083	0.36	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
	n-Butylbenzene	µg/L	---	---	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
	n-Propylbenzene	µg/L	1000	4400	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
	o-Xylene	µg/L	100	440	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
	sec-Butylbenzene	µg/L	---	---	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
	tert-Butanol (TBA)	µg/L	---	---	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
	Toluene	µg/L	5200	22400	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Other Detected Compounds	Acetone	µg/L	32000	140000	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
	Ethanol	µg/L	---	---	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	**0.027**	**0.075**	<0.02	<0.02
	Tetrachloroethylene (PCE)	µg/L	0.46	2.0	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
	TPH-g (C4-C12)	µg/L	630	2600	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
Fixed Gases	Methane	% v/v	---	---	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Oxygen	% v/v	---	---	**20**	**19**	**19**	**19**	**18**	**18**	**19**	**19**	**17**	**19**	**19**	**19**
	Carbon Dioxide	% v/v	---	---	<0.1	<0.1	<0.1	**0.13**	**0.28**	<0.1	**0.13**	<0.1	**0.27**	**0.45**	**0.73**	**0.69**

Table 8. Field Measurements and Mobile Laboratory Soil Vapor Analytical Results - November 201

SFPP Norwalk Pump Station, Norwalk, California

Analyte Type	Analyte	Unit	Current Residential Soil Gas Screening Level [a, b]	Current Commercial Soil Gas Screening Level [a, b]	SVM-8-5 11/13/2018 SVM-8 5-5.5	SVM-8-15 11/13/2018 SVM-8 15-15.5	SVM-10-15 11/12/2018 SVM-10 15-15.5	SVM-11-7 11/14/2018 SVM-11 7-7.5	SVM-11-15 11/14/2018 SVM-11 15-15.5	SVM-11-22 11/14/2018 SVM-11 22-22.5	SVM-12-7 11/13/2018 SVM-12 7-7.5	SVM-12-15 11/13/2018 SVM-12 15-15.5	SVM-12-22 11/13/2018 SVM-12 22-22.5	SVM-12-22 DUP 11/13/2018 SVM-12 22-22.5	SVM-13-7 11/14/2018 SVM-13 7-7.5	SVM-13-15 11/14/2018 SVM-13 15-15.5
Field Measurements	Pressure	inches H_2O	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	PID	ppmv	---	---	---	---	---	---	---	---	---	---	---	---	---	---
COPCs[c]	1,2,4-Trimethylbenzene	µg/L	63	262	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
	1,2-Dichloroethane	µg/L	0.11	0.47	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
	1,3,5-Trimethylbenzene	µg/L	63	262	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
	2-Propanol (leak test compound)	µg/L	---	---	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
	Benzene	µg/L	0.097	0.42	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
	Ethylbenzene	µg/L	1.1	4.9	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
	Isopropylbenzene	µg/L	---	---	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
	m,p-Xylenes	µg/L	100	440	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
	Methyl tert-butyl ether (MTBE)	µg/L	11	47	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
	Naphthalene	µg/L	0.083	0.36	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
	n-Butylbenzene	µg/L	---	---	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
	n-Propylbenzene	µg/L	1000	4400	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
	o-Xylene	µg/L	100	440	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
	sec-Butylbenzene	µg/L	---	---	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
	tert-Butanol (TBA)	µg/L	---	---	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
	Toluene	µg/L	5200	22400	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Other Detected Compounds	Acetone	µg/L	32000	140000	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
	Ethanol	µg/L	---	---	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
	Tetrachloroethylene (PCE)	µg/L	0.46	2.0	<0.02	<0.02	<0.02	<0.02	<0.02	**0.061**	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
	TPH-g (C4-C12)	µg/L	630	2600	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
Fixed Gases	Methane	% v/v	---	---	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Oxygen	% v/v	---	---	**19**	**19**	**15**	**19**	**18**	**7.7**	**19**	**16**	**8.2**	**8.4**	**19**	**19**
	Carbon Dioxide	% v/v	---	---	**0.13**	**0.18**	**4**	**0.47**	**1.2**	**8.2**	**1.1**	**3**	**8**	**7.4**	<0.1	<0.1

Table 8. Field Measurements and Mobile Laboratory Soil Vapor Analytical Results - November 201

SFPP Norwalk Pump Station, Norwalk, California

Analyte Type	Analyte	Unit	Current Residential Soil Gas Screening Level [a, b]	Current Commercial Soil Gas Screening Level [a, b]	SVM-13-22 11/14/2018 SVM-13 22-22.5	SVM-14R-8 11/14/2018 SVM-14R 8-8.5	SVM-14R-16 11/14/2018 SVM-14R 16-16.5	SVM-14R-22 11/14/2018 SVM-14R 22-22.5	SVM-14R-22 DUP 11/14/2018 SVM-14R 22-22.5	SVM-15-7 11/12/2018 SVM-15 7-7.5	SVM-15-15 11/12/2018 SVM-15 15-15.5	SVM-15-22 11/12/2018 SVM-15 22-22.5	SVM-16-7 11/13/2018 SVM-16 7-7.5	SVM-16-16 11/13/2018 SVM-16 16-16.5	SVM-16-22 11/13/2018 SVM-16 22-22.5
Field Measurements	Pressure	inches H_2O	---	---	---	---	---	---	---	---	---	---	---	---	---
	PID	ppmv	---	---	---	---	---	---	---	---	---	---	---	---	---
COPCs[c]	1,2,4-Trimethylbenzene	µg/L	63	262	<0.02	<0.02	<0.02	<0.4	<0.4	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
	1,2-Dichloroethane	µg/L	0.11	0.47	<0.02	<0.02	<0.02	<0.4	<0.4	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
	1,3,5-Trimethylbenzene	µg/L	63	262	<0.02	<0.02	<0.02	<0.4	<0.4	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
	2-Propanol (leak test compound)	µg/L	---	---	<0.2	<0.2	<0.2	<4	<4	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
	Benzene	µg/L	0.097	0.42	<0.02	<0.02	<0.02	<0.4	<0.4	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
	Ethylbenzene	µg/L	1.1	4.9	<0.02	<0.02	<0.02	<0.4	<0.4	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
	Isopropylbenzene	µg/L	---	---	<0.02	<0.02	<0.02	<0.4	<0.4	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
	m,p-Xylenes	µg/L	100	440	<0.02	<0.02	<0.02	<0.4	<0.4	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
	Methyl tert-butyl ether (MTBE)	µg/L	11	47	<0.02	<0.02	<0.02	<0.4	<0.4	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
	Naphthalene	µg/L	0.083	0.36	<0.02	<0.02	<0.02	<0.4	<0.4	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
	n-Butylbenzene	µg/L	---	---	<0.02	<0.02	<0.02	<0.4	<0.4	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
	n-Propylbenzene	µg/L	1000	4400	<0.02	<0.02	<0.02	<0.4	<0.4	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
	o-Xylene	µg/L	100	440	<0.02	<0.02	<0.02	<0.4	<0.4	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
	sec-Butylbenzene	µg/L	---	---	<0.02	<0.02	<0.02	<0.4	<0.4	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
	tert-Butanol (TBA)	µg/L	---	---	<20	<20	<20	<400	<400	<20	<20	<20	<20	<20	<20
	Toluene	µg/L	5200	22400	<0.02	<0.02	<0.02	<0.4	<0.4	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Other Detected Compounds	Acetone	µg/L	32000	140000	<0.02	<0.02	<0.02	**0.53**	**0.48**	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
	Ethanol	µg/L	---	---	<0.02	<0.02	<0.02	<0.4	<0.4	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
	Tetrachloroethylene (PCE)	µg/L	0.46	2.0	**0.023**	<0.02	<0.02	<0.4	<0.4	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
	TPH-g (C4-C12)	µg/L	630	2600	<20	<20	<20	**47**	**51**	<20	<20	<20	<20	<20	<20
Fixed Gases	Methane	% v/v	---	---	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Oxygen	% v/v	---	---	**16**	**15**	**14**	**1.9**	**2.2**	**19**	**19**	**18**	**19**	**17**	**6.1**
	Carbon Dioxide	% v/v	---	---	**1.2**	**1.7**	**1.8**	**5.9**	**5.7**	**0.17**	**0.24**	**0.3**	**0.39**	**0.75**	**8.8**

Table 8. Field Measurements and Mobile Laboratory Soil Vapor Analytical Results - November 201

SFPP Norwalk Pump Station, Norwalk, California

Analyte Type	Analyte	Unit	Current Residential Soil Gas Screening Level [a, b]	Current Commercial Soil Gas Screening Level [a, b]	Ambient Air 11/12/2018	Ambient Air 11/13/2018	Ambient Air 11/14/2018
Field Measurements	Pressure	inches H_2O	---	---	---	---	---
	PID	ppmv	---	---	---	---	---
COPCs[c]	1,2,4-Trimethylbenzene	µg/L	63	262	<0.02	<0.02	<0.02
	1,2-Dichloroethane	µg/L	0.11	0.47	<0.02	<0.02	<0.02
	1,3,5-Trimethylbenzene	µg/L	63	262	<0.02	<0.02	<0.02
	2-Propanol (leak test compound)	µg/L	---	---	<0.2	<0.2	<0.2
	Benzene	µg/L	0.097	0.42	<0.02	<0.02	<0.02
	Ethylbenzene	µg/L	1.1	4.9	<0.02	<0.02	<0.02
	Isopropylbenzene	µg/L	---	---	<0.02	<0.02	<0.02
	m,p-Xylenes	µg/L	100	440	<0.02	<0.02	<0.02
	Methyl tert-butyl ether (MTBE)	µg/L	11	47	<0.02	<0.02	<0.02
	Naphthalene	µg/L	0.083	0.36	<0.02	<0.02	<0.02
	n-Butylbenzene	µg/L	---	---	<0.02	<0.02	<0.02
	n-Propylbenzene	µg/L	1000	4400	<0.02	<0.02	<0.02
	o-Xylene	µg/L	100	440	<0.02	<0.02	<0.02
	sec-Butylbenzene	µg/L	---	---	<0.02	<0.02	<0.02
	tert-Butanol (TBA)	µg/L	---	---	<20	<20	<20
	Toluene	µg/L	5200	22400	<0.02	<0.02	<0.02
Other Detected Compounds	Acetone	µg/L	32000	140000	<0.02	<0.02	<0.02
	Ethanol	µg/L	---	---	<0.02	<0.02	<0.02
	Tetrachloroethylene (PCE)	µg/L	0.46	2.0	<0.02	<0.02	<0.02
	TPH-g (C4-C12)	µg/L	630	2600	<20	<20	<20
Fixed Gases	Methane	% v/v	---	---	--	--	--
	Oxygen	% v/v	---	---	--	--	--
	Carbon Dioxide	% v/v	---	---	--	--	--

Notes:

[a] Source for the Indoor Air Screening Levels: DTSC, 2016. Human Health Risk Assessment (HHRA) Note Number 3: DTSC Recommended Methodology for use of U.S. EPA Regional Screening Levels (RSLs) in the HHRA Process at Hazardous Waste Sites and Permitted Facilities.
https://www.dtsc.ca.gov/AssessingRisk/upload/HHRA-Note-3-June-2018.pdf

[b] Attenuation factor for current land use = 0.001. Source for the attenuation factors: DTSC, 2011. Guidance for the Evaluation and Mitigation of Subsurface Vapor Intrusion to Indoor Air (Vapor Intrusion Guidance). October. http://www.dtsc.ca.gov/AssessingRisk/upload/Final_VIG_Oct_2011.pdf

[c] Chemicals of potential concern identified from the 2006 soil gas investigation and HHRA (Geomatrix, 2006)

SVM-11-7	Blue highlighting indicates onsite soil vapor probe locations
10	Yellow highlighting indicates concentration exceeds human health screening level under residential scenario.

TPH-g = total petroleum hydrocarbons quantified as gasoline
11/12/2018 - 11/14/2018 = sample date
SVM-1 = sample location
SVM-1-5 = sample ID
5-5.5 = sample depth in feet below ground surface
--- = not available
% v/v = percent volume by volume
<0.02 = not detected at the laboratory minimum reporting limit
µg/L = micrograms per liter
COPCs = chemicals of potential concern

Table 9. Groundwater and Product Measurements and Elevations for Total Fluids, Groundwater, and Soil Vapor Extraction Wells

SFPP Norwalk Pump Station, Norwalk, California

Well ID	Date Gauged	Top of Well Casing Elevation (feet msl)	Measured Depth to Groundwater (feet btoc)	Measured Depth to Product (feet btoc)	Apparent Product Thickness (feet)	Corrected Groundwater Elevation (feet msl)	Gauged By
GMW-9	4/30/2007	74.44	26.71	---	---	47.73	Secor
	11/12/2007	74.44	27.32	27.04	0.28	47.34	Secor
	8/8/2008	74.44	28.01	27.96	0.05	46.47	Envent
	10/16/2008	74.44	28.36	28.35	0.01	46.09	Envent
	12/17/2008	74.44	27.61	---	---	46.83	Envent
	1/15/2009	74.44	28.91	---	---	45.53	Envent
	3/27/2009	74.44	29.04	---	---	45.40	Envent
	4/21/2009	74.44	28.16	---	---	46.28	Envent
	7/21/2009	74.44	28.31	---	---	46.13	Envent
	10/19/2009	74.44	NM	---	---	NC	Blaine Tech
	5/24/2010	74.44	30.47	---	---	43.97	Blaine Tech
	5/28/2010	74.44	30.35	---	---	44.09	Blaine Tech
	10/4/2010	74.44	30.30	---	---	44.14	Blaine Tech
	1/10/2011	74.44	32.02	---	---	42.42	Blaine Tech
	4/11/2011	74.44	25.41	---	---	49.03	Blaine Tech
	7/11/2011	74.44	NM	---	---	NC	
	10/10/2011	74.44	28.91	---	---	45.53	Blaine Tech
	4/16/2012	74.44	31.15	---	---	43.29	Blaine Tech
	7/9/2012	---	31.64	---	---	NC	Blaine Tech
	10/15/2012	77.16	31.82	---	---	45.34	Blaine Tech
	1/14/2013	77.16	31.88	---	---	45.28	Blaine Tech
	4/8/2013	77.16	31.83	---	---	45.33	Blaine Tech
	10/7/2013	77.16	35.30	31.25	4.05	45.02	Blaine Tech
	4/14/2014	77.16	37.66	31.65	6.01	44.19	Blaine Tech
	5/5/2014	77.16	37.81	31.76	6.05	44.07	Nieto & Sons
	5/12/2014	77.16	37.39	31.83	5.56	44.11	Nieto & Sons
	5/20/2014	77.16	37.70	33.85	3.85	42.46	Nieto & Sons
	5/27/2014	77.16	32.41	28.84	3.57	47.53	Nieto & Sons
	6/4/2014	77.16	33.20	---	---	43.96	Nieto & Sons
	6/10/2014	77.16	37.51	32.77	4.74	43.35	Nieto & Sons
	7/3/2014	77.16	39.26	32.59	6.67	43.10	Nieto & Sons
	7/8/2014	77.16	38.59	32.45	6.14	43.36	Blaine Tech
	7/18/2014	77.16	37.15	32.73	4.42	43.46	Blaine Tech
	7/24/2014	77.16	37.78	32.48	5.30	43.51	Blaine Tech
	8/1/2014	77.16	36.72	32.30	4.42	43.89	Blaine Tech
	8/8/2014	77.16	36.55	32.26	4.29	43.96	Blaine Tech
	8/13/2014	77.16	36.25	32.33	3.92	43.97	Blaine Tech
	8/19/2014	77.16	36.04	32.38	3.66	43.97	Blaine Tech
	8/29/2014	77.16	36.23	32.33	3.90	43.97	Blaine Tech
	9/5/2014	77.16	36.26	32.35	3.91	43.95	Blaine Tech
	9/11/2014	77.16	36.27	32.33	3.94	43.96	Blaine Tech
	9/18/2014	77.16	36.42	32.37	4.05	43.90	Blaine Tech
	9/26/2014	77.16	36.39	32.35	4.04	43.92	Blaine Tech
	10/1/2014	77.16	36.11	32.42	3.69	43.93	Blaine Tech
	10/6/2014	77.16	35.99	32.42	3.57	43.95	Blaine Tech
	10/14/2014	77.16	36.24	32.34	3.90	43.96	Blaine Tech
	10/23/2014	77.16	36.32	32.35	3.97	43.94	Blaine Tech
	10/27/2014	77.16	36.04	32.42	3.62	43.94	Blaine Tech
	11/3/2014	77.16	36.40	32.35	4.05	43.92	Blaine Tech
	11/10/2014	77.16	36.32	32.41	3.91	43.89	Blaine Tech
	11/18/2014	77.16	36.28	32.43	3.85	43.88	Blaine Tech
	11/25/2014	77.16	36.21	32.49	3.72	43.85	Blaine Tech
	12/3/2014	77.16	36.18	32.43	3.75	43.90	Blaine Tech
	12/12/2014	77.16	36.58	32.74	3.84	43.58	Blaine Tech
	12/19/2014	77.16	37.05	32.76	4.29	43.46	Blaine Tech
	3/6/2015	77.16	39.40	33.13	6.27	42.65	Kinder Morgan
	4/20/2015	77.16	36.98	32.99	3.99	43.29	Blaine Tech
	10/20/2015	77.16	34.61	34.37	0.24	42.74	Kinder Morgan

Table 9. Groundwater and Product Measurements and Elevations for Total Fluids, Groundwater, and Soil Vapor Extraction Wells

SFPP Norwalk Pump Station, Norwalk, California

Well ID	Date Gauged	Top of Well Casing Elevation (feet msl)	Measured Depth to Groundwater (feet btoc)	Measured Depth to Product (feet btoc)	Apparent Product Thickness (feet)	Corrected Groundwater Elevation (feet msl)	Gauged By
	3/14/2016	77.16	36.10	---	---	41.06	Blaine Tech
	4/11/2016	77.16	36.20	---	---	40.96	Blaine Tech
	6/30/2016	77.16	31.02	---	---	46.14	Kinder Morgan
	8/22/2016	77.16	37.27	---	---	39.89	Kinder Morgan
	10/3/2016	77.16	38.02	---	---	39.14	Blaine Tech
	3/7/2017	77.16	35.13	---	---	42.03	CH2M
	4/17/2017	77.16	33.32	---	---	43.84	Blaine Tech
	10/2/2017	77.16	38.43	---	---	38.73	Blaine Tech
	4/16/2018	77.16	37.98	---	---	39.18	Blaine Tech
	11/5/2018	77.16	33.95	---	---	43.21	Blaine Tech
GMW-10	4/30/2007	74.67	25.90	---	---	48.77	Secor
	11/12/2007	74.67	25.02	25.82	0.83	50.33	Secor
	4/14/2008	74.67	25.38	25.44	0.06	49.34	Secor
	10/13/2008	74.67	24.16	---	---	50.51	Stantec
	4/20/2009	74.67	24.46	---	---	50.21	Blaine Tech
	10/19/2009	74.67	27.20	---	---	47.47	Blaine Tech
	5/24/2010	74.67	26.72	---	---	47.95	Blaine Tech
	5/28/2010	74.67	26.70	---	---	47.97	Blaine Tech
	10/4/2010	74.67	27.15	---	---	47.52	Blaine Tech
	4/11/2011	74.67	25.21	---	---	49.46	Blaine Tech
	10/10/2011	74.67	27.75	---	---	46.92	Blaine Tech
	4/27/2012	74.67	28.47	---	---	46.20	Blaine Tech
	7/9/2012	74.67	NM	---	---	NC	Blaine Tech
	10/15/2012	74.67	29.15	29.02	0.13	45.63	Blaine Tech
	4/8/2013	74.67	33.64	28.12	5.52	45.53	Blaine Tech
	9/26/2013	73.35	36.15	29.25	6.90	42.82	Blaine Tech
	10/7/2013	73.35	31.85	29.32	2.53	43.56	Blaine Tech
	4/14/2014	73.35	29.43	29.01	0.42	44.26	Blaine Tech
	8/19/2014	73.35	29.80	29.53	0.27	43.77	Blaine Tech
	8/29/2014	73.35	29.68	29.25	0.43	44.02	Blaine Tech
	9/26/2014	73.35	29.98	29.23	0.75	43.98	Blaine Tech
	10/1/2014	73.35	29.98	29.19	0.79	44.01	Blaine Tech
	10/6/2014	73.35	30.01	29.16	0.85	44.03	Blaine Tech
	10/14/2014	73.35	30.01	29.18	0.83	44.02	Blaine Tech
	10/23/2014	73.35	30.17	29.15	1.02	44.01	Blaine Tech
	10/27/2014	73.35	30.19	29.12	1.07	44.03	Blaine Tech
	11/3/2014	73.35	30.25	29.13	1.12	44.01	Blaine Tech
	11/10/2014	73.35	29.85	29.28	0.57	43.96	Blaine Tech
	11/18/2014	73.35	29.95	29.28	0.67	43.95	Blaine Tech
	11/25/2014	73.35	30.00	29.27	0.73	43.94	Blaine Tech
	12/3/2014	73.35	30.18	29.27	0.91	43.91	Blaine Tech
	12/12/2014	73.35	30.81	29.45	1.36	43.65	Blaine Tech
	12/19/2014	73.35	30.51	30.35	0.16	42.97	Blaine Tech
	4/20/2015	73.35	34.99	28.42	6.57	43.71	Blaine Tech
	7/17/2015	73.35	36.10	29.41	6.69	42.70	Blaine Tech
	10/20/2015	73.35	32.96	31.02	1.94	41.97	Kinder Morgan
	3/16/2016	73.35	34.47	33.42	1.05	39.74	Kinder Morgan
	4/11/2016	73.35	33.70	32.10	1.60	40.95	Blaine Tech
	6/29/2016	73.35	33.02	---	---	40.33	Blaine Tech
	8/22/2016	73.35	33.82	32.93	0.89	40.26	Blaine Tech
	10/3/2016	73.35	35.10	33.65	1.45	39.43	Blaine Tech
	3/8/2017	73.35	32.75	---	---	40.60	CH2M
	04/17/17	73.35	31.15	---	---	42.20	Blaine Tech
	10/2/2017	73.35	33.48	---	---	39.87	Blaine Tech
	4/16/2018	73.35	33.87	33.74	0.13	39.58	Blaine Tech
	11/5/2018	73.35	34.16	34.14	0.02	39.21	Blaine Tech

Table 9. Groundwater and Product Measurements and Elevations for Total Fluids, Groundwater, and Soil Vapor Extraction Wells

SFPP Norwalk Pump Station, Norwalk, California

Well ID	Date Gauged	Top of Well Casing Elevation (feet msl)	Measured Depth to Groundwater (feet btoc)	Measured Depth to Product (feet btoc)	Apparent Product Thickness (feet)	Corrected Groundwater Elevation (feet msl)	Gauged By
GMW-22	4/30/2007	74.17	25.79	---	---	48.38	Secor
	11/12/2007	74.17	26.45	25.91	0.54	48.16	Stantec
	8/12/2008	74.17	26.70	---	---	47.47	Envent
	10/31/2008	74.17	28.25	27.04	1.21	46.91	Envent
	11/4/2008	74.17	26.97	---	---	47.20	Envent
	12/17/2008	74.17	26.65	---	---	47.52	Envent
	1/15/2009	74.17	27.18	---	---	46.99	Envent
	3/27/2009	74.17	27.86	---	---	46.31	Envent
	4/21/2009	74.17	27.30	27.20	0.10	46.95	Envent
	7/21/2009	74.17	27.70	---	---	46.47	Envent
	10/19/2009	74.17	NM	---	---	NC	Blaine Tech
	11/6/2009	74.17	28.12	---	---	46.05	Kinder Morgan
	9/3/2010	74.17	28.36	25.10	3.26	48.47	Kinder Morgan
	10/4/2010	74.17	27.65	---	---	46.52	Blaine Tech
	4/11/2011	74.17	26.45	---	---	47.72	Blaine Tech
	10/10/2011	74.17	29.68	---	---	44.49	Blaine Tech
	4/16/2012	74.17	31.15	---	---	43.02	Blaine Tech
	7/9/2012	---	NM	---	---	NC	Blaine Tech
	10/15/2012	77.24	31.05	---	---	46.19	Blaine Tech
	4/8/2013	77.24	31.92	---	---	45.32	Blaine Tech
	10/7/2013	77.24	34.28	31.65	2.63	45.10	Blaine Tech
	4/14/2014	77.24	35.59	32.30	3.29	44.33	Blaine Tech
	5/6/2014	77.24	35.87	32.35	3.52	44.24	Nieto & Sons
	5/12/2014	77.24	35.76	32.28	3.48	44.32	Nieto & Sons
	5/20/2014	77.24	37.90	32.70	5.20	43.58	Nieto & Sons
	5/27/2014	77.24	36.34	32.71	3.63	43.86	Nieto & Sons
	6/4/2014	77.24	33.36	---	---	43.88	Nieto & Sons
	6/10/2014	77.24	36.74	32.82	3.92	43.69	Nieto & Sons
	7/3/2014	77.24	37.66	32.91	4.75	43.45	Nieto & Sons
	7/8/2014	77.24	36.70	32.79	3.91	43.73	Blaine Tech
	7/18/2014	77.24	36.68	32.77	3.91	43.75	Blaine Tech
	7/24/2014	77.24	36.79	32.62	4.17	43.85	Blaine Tech
	8/1/2014	77.24	35.82	32.44	3.38	44.17	Blaine Tech
	8/8/2014	77.24	35.72	32.44	3.28	44.19	Blaine Tech
	8/13/2014	77.24	35.68	32.45	3.23	44.19	Blaine Tech
	8/19/2014	77.24	35.64	32.45	3.19	44.20	Blaine Tech
	8/29/2014	77.24	35.65	32.44	3.21	44.21	Blaine Tech
	9/5/2014	77.24	35.73	32.46	3.27	44.18	Blaine Tech
	9/11/2014	77.24	35.78	32.47	3.31	44.16	Blaine Tech
	9/18/2014	77.24	35.85	32.49	3.36	44.13	Blaine Tech
	9/26/2014	77.24	35.85	32.46	3.39	44.15	Blaine Tech
	10/1/2014	77.24	35.76	32.45	3.31	44.18	Blaine Tech
	10/6/2014	77.24	35.72	32.44	3.28	44.19	Blaine Tech
	10/14/2014	77.24	35.75	32.42	3.33	44.20	Blaine Tech
	10/23/2014	77.24	35.84	32.43	3.41	44.18	Blaine Tech
	10/27/2014	77.24	35.74	32.41	3.33	44.21	Blaine Tech
	11/3/2014	77.24	35.89	32.45	3.44	44.15	Blaine Tech
	11/10/2014	77.24	35.94	32.45	3.49	44.14	Blaine Tech
	11/18/2014	77.24	35.97	32.48	3.49	44.11	Blaine Tech
	11/25/2014	77.24	35.97	32.51	3.46	44.09	Blaine Tech
	12/3/2014	77.24	35.84	32.45	3.39	44.16	Blaine Tech
	12/12/2014	77.24	36.44	32.65	3.79	43.89	Blaine Tech
	12/19/2014	77.24	36.80	34.71	2.09	42.14	Blaine Tech
	4/20/2015	77.24	36.64	32.84	3.80	43.70	Blaine Tech
	7/24/2015	77.24	39.80	33.70	6.10	42.41	Northstar
	10/20/2015	77.24	36.10	34.92	1.18	42.10	Kinder Morgan
	3/16/2016	77.24	39.73	37.61	2.12	39.24	Kinder Morgan
	4/11/2016	77.24	38.59	35.50	3.09	41.17	Blaine Tech

Table 9. Groundwater and Product Measurements and Elevations for Total Fluids, Groundwater, and Soil Vapor Extraction Wells

SFPP Norwalk Pump Station, Norwalk, California

Well ID	Date Gauged	Top of Well Casing Elevation (feet msl)	Measured Depth to Groundwater (feet btoc)	Measured Depth to Product (feet btoc)	Apparent Product Thickness (feet)	Corrected Groundwater Elevation (feet msl)	Gauged By
	6/30/2016	77.24	36.55	---	---	40.69	Blaine Tech
	10/3/2016	77.24	37.70	---	---	39.54	Blaine Tech
	4/17/2017	77.24	34.47	---	---	42.77	Blaine Tech
	10/2/2017	77.24	38.45	---	---	38.79	Blaine Tech
	4/16/2018	77.24	38.23	---	---	39.01	Blaine Tech
	11/5/2018	77.24	38.02	---	---	39.22	Blaine Tech
GMW-24	4/30/2007	74.04	27.07	---	---	46.97	Secor
	11/12/2007	74.04	27.50	27.46	0.04	46.57	Stantec
	8/12/2008	74.04	NM	---	---	NC	Envent
	8/19/2008	74.04	29.34	28.24	1.10	45.58	Envent
	10/17/2008	74.04	30.88	29.90	0.98	43.94	Envent
	10/21/2008	74.04	29.64	28.30	1.34	45.47	Envent
	12/18/2008	74.04	29.04	---	---	45.00	Envent
	1/15/2009	74.04	30.56	29.80	0.76	44.09	Envent
	3/20/2009	74.04	31.28	---	---	42.76	Envent
	3/27/2009	74.04	30.45	---	---	43.59	Envent
	4/21/2009	74.04	29.91	---	---	44.13	Envent
	7/21/2009	74.04	32.78	---	---	41.26	Envent
	10/19/2009	74.04	NM	---	---	NC	Blaine Tech
	2/4/2010	74.04	29.67	29.40	0.27	44.59	Kinder Morgan
	6/22/2010	74.04	29.47	---	---	44.57	Blaine Tech
	9/3/2010	74.04	29.90	---	---	44.14	Kinder Morgan
	10/4/2010	74.04	29.50	---	---	44.54	Blaine Tech
	4/11/2011	74.04	28.21	---	---	45.83	Blaine Tech
	10/10/2011	74.04	28.78	---	---	45.26	Blaine Tech
	4/16/2012	74.04	30.49	30.31	0.18	43.69	Blaine Tech
	7/9/2012	---	NM	---	---	NC	Blaine Tech
	10/15/2012	77.48	31.34	---	---	46.14	Blaine Tech
	4/8/2013	77.48	NM	---	---	NC	Blaine Tech
	6/14/2013	77.48	33.35	32.40	0.95	44.89	Blaine Tech
	10/7/2013	77.48	35.42	31.61	3.81	45.11	Blaine Tech
	4/14/2014	77.48	37.74	32.01	5.73	44.32	Blaine Tech
	5/5/2014	77.48	37.81	32.09	5.72	44.25	Nieto & Sons
	5/12/2014	77.48	37.52	32.14	5.38	44.26	Nieto & Sons
	5/20/2014	77.48	37.39	32.21	5.18	44.23	Nieto & Sons
	5/27/2014	77.48	37.95	32.90	5.05	43.57	Nieto & Sons
	6/4/2014	77.48	37.00	32.70	4.30	43.92	Nieto & Sons
	6/10/2014	77.48	37.85	32.98	4.87	43.53	Nieto & Sons
	7/3/2014	77.48	39.60	33.04	6.56	43.13	Nieto & Sons
	7/8/2014	77.48	38.67	32.89	5.78	43.43	Blaine Tech
	7/18/2014	77.48	38.64	32.86	5.78	43.46	Blaine Tech
	7/24/2014	77.48	38.27	32.82	5.45	43.57	Blaine Tech
	8/1/2014	77.48	37.00	32.55	4.45	44.04	Blaine Tech
	8/8/2014	77.48	36.97	32.51	4.46	44.08	Blaine Tech
	8/13/2014	77.48	36.82	32.54	4.28	44.08	Blaine Tech
	8/19/2014	77.48	36.92	32.55	4.37	44.06	Blaine Tech
	8/29/2014	77.48	36.92	32.51	4.41	44.09	Blaine Tech
	9/5/2014	77.48	36.97	32.55	4.42	44.05	Blaine Tech
	9/11/2014	77.48	37.99	32.57	5.42	43.83	Blaine Tech
	9/18/2014	77.48	36.89	32.60	4.29	44.02	Blaine Tech
	9/26/2014	77.48	36.86	32.58	4.28	44.04	Blaine Tech
	10/1/2014	77.48	36.64	32.61	4.03	44.06	Blaine Tech
	10/6/2014	77.48	36.93	32.92	4.01	43.76	Blaine Tech
	10/14/2014	77.48	36.92	32.88	4.04	43.79	Blaine Tech
	10/23/2014	77.48	37.00	32.90	4.10	43.76	Blaine Tech
	10/27/2014	77.48	36.82	32.91	3.91	43.79	Blaine Tech

Table 9. Groundwater and Product Measurements and Elevations for Total Fluids, Groundwater, and Soil Vapor Extraction Wells

SFPP Norwalk Pump Station, Norwalk, California

Well ID	Date Gauged	Top of Well Casing Elevation (feet msl)	Measured Depth to Groundwater (feet btoc)	Measured Depth to Product (feet btoc)	Apparent Product Thickness (feet)	Corrected Groundwater Elevation (feet msl)	Gauged By
	11/3/2014	77.48	37.01	32.99	4.02	43.69	Blaine Tech
	11/10/2014	77.48	37.33	33.95	3.38	42.85	Blaine Tech
	11/18/2014	77.48	36.96	33.01	3.95	43.68	Blaine Tech
	11/25/2014	77.48	36.91	33.55	3.36	43.26	Blaine Tech
	12/3/2014	77.48	36.87	32.99	3.88	43.71	Blaine Tech
	12/12/2014	77.48	37.36	33.25	4.11	43.41	Blaine Tech
	12/19/2014	77.48	37.75	33.31	4.44	43.28	Blaine Tech
	3/10/2015	77.48	36.25	---	---	41.23	Kinder Morgan
	4/20/2015	77.48	36.29	33.82	2.47	43.17	Blaine Tech
	7/24/2015	77.48	39.80	33.70	6.10	42.56	Blaine Tech
	10/20/2015	77.48	35.44	---	---	42.04	Kinder Morgan
	3/16/2016	77.48	38.83	---	---	38.65	Kinder Morgan
	4/11/2016	77.48	37.10	---	---	40.38	Blaine Tech
	6/29/2016	77.48	38.20	---	---	39.28	Blaine Tech
	8/22/2016	77.48	38.40	---	---	39.08	Blaine Tech
	10/3/2016	77.48	38.70	---	---	39.44	Blaine Tech
	4/17/2017	77.48	35.64	35.09	0.55	42.28	Blaine Tech
	10/2/2017	77.48	39.33	---	---	38.15	Blaine Tech
	4/16/2018	77.48	38.98	---	---	38.50	Blaine Tech
	11/5/2018	77.48	38.63	38.19	0.44	39.20	Blaine Tech
GMW-25	4/30/2007	74.29	26.60	---	---	47.69	Secor
	11/12/2007	74.29	27.30	27.25	0.05	47.03	Stantec
	8/12/2008	74.29	27.81	---	---	46.48	Envent
	10/17/2008	74.29	28.26	---	---	46.03	Envent
	12/18/2008	74.29	29.01	---	---	45.28	Envent
	1/15/2009	74.29	28.62	---	---	45.67	Envent
	3/24/2009	74.29	28.79	---	---	45.50	Envent
	4/21/2009	74.29	28.35	---	---	45.94	Envent
	7/21/2009	74.29	29.80	---	---	44.49	Envent
	10/19/2009	74.29	30.28	---	---	44.01	Blaine Tech
	6/22/2010	74.29	31.64	---	---	42.65	Blaine Tech
	10/4/2010	74.29	29.25	---	---	45.04	Blaine Tech
	4/11/2011	74.29	26.21	---	---	48.08	Blaine Tech
	10/10/2011	74.29	30.02	---	---	44.27	Blaine Tech
	4/16/2012	74.29	31.30	---	---	42.99	Blaine Tech
	7/9/2012	---	NM	---	---	NC	Blaine Tech
	10/15/2012	78.14	31.88	---	---	46.26	Blaine Tech
	4/8/2013	78.14	32.11	---	---	46.03	Blaine Tech
	10/7/2013	78.14	33.23	33.10	0.13	45.01	Blaine Tech
	4/14/2014	78.14	37.40	33.00	4.40	44.13	Blaine Tech
	5/5/2014	78.14	37.51	33.06	4.45	44.06	Nieto & Sons
	5/12/2014	78.14	34.97	33.73	1.24	44.12	Nieto & Sons
	5/20/2014	78.14	36.75	34.30	2.45	43.28	Nieto & Sons
	5/27/2014	78.14	34.64	34.44	0.20	43.65	Nieto & Sons
	6/4/2014	78.14	35.00	---	---	43.14	Nieto & Sons
	6/10/2014	78.14	36.67	34.18	2.49	43.39	Nieto & Sons
	7/3/2014	78.14	34.21	---	---	43.93	Nieto & Sons
	7/24/2014	78.14	34.29	---	---	43.85	Blaine Tech
	8/1/2014	78.14	35.02	33.99	1.03	43.91	Blaine Tech
	8/8/2014	78.14	34.54	34.06	0.48	43.97	Blaine Tech
	8/14/2014	78.14	34.48	34.06	0.42	43.98	Blaine Tech
	8/19/2014	78.14	34.51	34.07	0.44	43.97	Blaine Tech
	8/29/2014	78.14	34.65	33.96	0.69	44.02	Blaine Tech
	9/18/2014	78.14	35.21	34.01	1.20	43.85	Blaine Tech
	9/26/2014	78.14	34.87	34.06	0.81	43.89	Blaine Tech
	10/1/2014	78.14	34.92	33.98	0.94	43.94	Blaine Tech
	10/6/2014	78.14	34.93	33.99	0.94	43.93	Blaine Tech
	10/14/2014	78.14	35.10	33.91	1.19	43.96	Blaine Tech

Table 9. Groundwater and Product Measurements and Elevations for Total Fluids, Groundwater, and Soil Vapor Extraction Wells

SFPP Norwalk Pump Station, Norwalk, California

Well ID	Date Gauged	Top of Well Casing Elevation (feet msl)	Measured Depth to Groundwater (feet btoc)	Measured Depth to Product (feet btoc)	Apparent Product Thickness (feet)	Corrected Groundwater Elevation (feet msl)	Gauged By
	10/23/2014	78.14	35.34	33.91	1.43	43.90	Blaine Tech
	10/27/2014	78.14	34.78	33.95	0.83	44.00	Blaine Tech
	11/3/2014	78.14	34.92	33.98	0.94	43.94	Blaine Tech
	11/10/2014	78.14	35.12	34.02	1.10	43.87	Blaine Tech
	11/18/2014	78.14	34.90	34.11	0.79	43.85	Blaine Tech
	11/25/2014	78.14	35.07	34.07	1.00	43.84	Blaine Tech
	12/3/2014	78.14	35.10	33.98	1.12	43.90	Blaine Tech
	12/12/2014	78.14	35.22	34.30	0.92	43.63	Blaine Tech
	12/19/2014	78.14	35.05	34.50	0.55	43.51	Blaine Tech
	4/20/2015	78.14	35.19	34.47	0.72	43.50	Blaine Tech
	6/25/2015	78.14	36.35	35.40	0.95	42.52	Blaine Tech
	10/20/2015	78.14	35.40	35.38	0.02	42.76	Kinder Morgan
	3/16/2016	78.14	38.99	---	---	39.15	Kinder Morgan
	4/12/2016	78.14	37.15	---	---	40.99	Kinder Morgan
	6/29/2016	78.14	38.40	---	---	39.74	Blaine Tech
	8/22/2016	78.14	38.44	---	---	39.70	Blaine Tech
	10/3/2016	78.14	38.70	---	---	39.44	Blaine Tech
	4/17/2017	78.14	35.23	---	---	42.91	Blaine Tech
	10/2/2017	78.14	39.22	---	---	38.92	Blaine Tech
	4/16/2018	78.14	38.85	---	---	39.29	Blaine Tech
	11/5/2018	78.14	38.70	---	---	39.44	Blaine Tech
GMW-36	3/12/2007	74.53	24.29	---	---	50.24	Secor
	4/30/2007	74.53	24.40	---	---	50.13	Secor
	8/28/2007	74.53	24.31	---	---	50.22	Stantec
	11/12/2007	74.53	24.86	24.85	0.01	49.68	Stantec
	2/19/2008	74.53	25.50	---	---	49.03	Stantec
	4/14/2008	74.53	24.61	---	---	49.92	Stantec
	8/8/2008	74.53	26.20	26.14	0.06	48.38	Envent
	10/16/2008	74.77	26.11	26.09	0.02	48.68	Envent
	12/18/2008	74.53	28.70	28.65	0.05	45.87	Envent
	1/15/2009	74.53	27.73	27.45	0.28	47.02	Envent
	2/20/2009	74.53	26.39	26.35	0.04	48.17	Envent
	2/23/2009	74.53	26.13	25.80	0.33	48.66	Blaine Tech
	3/24/2009	74.53	29.83	---	---	44.70	Envent
	4/20/2009	74.53	25.63	25.59	0.04	48.93	Blaine Tech
	7/17/2009	74.53	27.40	---	---	47.13	Envent
	7/20/2009	74.53	25.90	---	---	48.63	Blaine Tech
	7/21/2009	74.53	26.03	---	---	48.50	Envent
	7/22/2009	74.53	25.90	---	---	48.63	Blaine Tech
	10/19/2009	74.53	26.56	26.45	0.11	48.06	Blaine Tech
	2/4/2010	74.53	26.93	26.80	0.13	47.70	Kinder Morgan
	3/15/2010	74.53	26.80	---	---	47.73	Blaine Tech
	4/16/2010	74.53	26.90	---	---	47.63	Blaine Tech
	5/24/2010	74.53	25.96	25.90	0.06	48.62	Blaine Tech
	5/28/2010	74.53	25.94	25.88	0.06	48.64	Blaine Tech
	6/22/2010	74.53	25.94	25.91	0.03	48.61	Blaine Tech
	7/12/2010	74.53	NM	---	---	NC	
	8/12/2010	74.53	NM	---	---	NC	
	9/20/2010	74.53	NM	---	---	NC	
	10/4/2010	74.53	26.90	---	---	47.63	
	10/24/2010	74.53	26.90	---	---	47.63	Blaine Tech
	11/23/2010	74.53	27.35	27.10	0.25	47.38	Blaine Tech
	12/22/2010	74.53	28.35	26.84	1.51	47.39	Blaine Tech
	1/10/2011	74.53	29.10	27.70	1.40	46.55	Blaine Tech
	2/24/2011	74.53	NM	---	---	NC	Blaine Tech
	3/23/2011	74.53	NM	---	---	NC	Blaine Tech
	4/12/2011	74.53	26.98	25.05	1.93	49.09	Blaine Tech
	5/13/2011	74.53	NM	---	---	NC	Blaine Tech

Table 9. Groundwater and Product Measurements and Elevations for Total Fluids, Groundwater, and Soil Vapor Extraction Wells

SFPP Norwalk Pump Station, Norwalk, California

Well ID	Date Gauged	Top of Well Casing Elevation (feet msl)	Measured Depth to Groundwater (feet btoc)	Measured Depth to Product (feet btoc)	Apparent Product Thickness (feet)	Corrected Groundwater Elevation (feet msl)	Gauged By
	6/22/2011	74.53	NM	---	---	NC	
	7/11/2011	74.53	NM	---	---	NC	
	8/19/2011	74.53	NM	---	---	NC	
	9/22/2011	74.53	NM	---	---	NC	
	10/10/2011	74.53	25.96	---	---	48.57	Blaine Tech
	11/28/2011	74.53	NM	---	---	NC	
	12/2/2011	74.53	26.71	---	---	47.82	Kinder Morgan
	12/21/2011	74.53	28.17	---	---	46.36	Blaine Tech
	1/9/2012	74.53	27.26	---	---	47.27	Blaine Tech
	2/23/2012	74.53	27.85	---	---	46.68	Blaine Tech
	3/28/2012	74.53	NM	---	---	NC	Blaine Tech
	4/16/2012	74.53	27.34	---	---	47.19	Blaine Tech
	5/25/2012	74.53	NM	---	---	NC	Blaine Tech
	6/15/2012	---	33.27	---	---	NC	Blaine Tech
	7/9/2012	---	33.71	---	---	NC	Blaine Tech
	8/29/2012	---	NM	---	---	NC	Blaine Tech
	9/26/2012	---	NM	---	---	NC	Blaine Tech
	10/15/2012	76.66	32.11	---	---	44.55	Blaine Tech
	11/29/2012	76.66	33.93	31.68	2.25	44.53	Blaine Tech
	12/26/2012	76.66	34.86	30.36	4.50	45.40	Blaine Tech
	1/14/2013	76.66	34.12	30.42	3.70	45.50	Blaine Tech
	2/20/2013	76.66	NM	---	---	NC	Blaine Tech
	4/10/2013	76.66	32.42	29.75	2.67	46.38	Blaine Tech
	10/7/2013	76.66	34.65	30.72	3.93	45.15	Blaine Tech
	4/25/2014	76.66	34.71	31.12	3.59	44.82	Blaine Tech
	5/20/2014	76.66	34.95	31.50	3.45	44.47	Nieto & Sons
	5/27/2014	76.66	34.53	31.29	3.24	44.72	Nieto & Sons
	6/4/2014	76.66	34.93	31.50	3.43	44.47	Nieto & Sons
	8/13/2014	76.66	34.86	31.27	3.59	44.67	Blaine Tech
	8/19/2014	76.66	34.20	31.39	2.81	44.71	Blaine Tech
	8/29/2014	76.66	34.31	31.32	2.99	44.74	Blaine Tech
	9/5/2014	76.66	34.35	31.37	2.98	44.69	Blaine Tech
	9/11/2014	76.66	35.00	31.23	3.77	44.68	Blaine Tech
	9/18/2014	76.66	34.42	31.50	2.92	44.58	Blaine Tech
	9/26/2014	76.66	34.15	31.48	2.67	44.65	Blaine Tech
	10/1/2014	76.66	33.51	31.61	1.90	44.67	Blaine Tech
	10/6/2014	76.66	33.29	31.63	1.66	44.70	Blaine Tech
	10/14/2014	76.66	33.48	31.55	1.93	44.72	Blaine Tech
	10/23/2014	76.66	33.64	31.57	2.07	44.68	Blaine Tech
	10/27/2014	76.66	33.02	31.79	1.23	44.62	Blaine Tech
	11/3/2014	76.66	33.75	31.57	2.18	44.65	Blaine Tech
	11/18/2014	76.66	33.17	31.75	1.42	44.63	Blaine Tech
	11/25/2014	76.66	33.13	31.86	1.27	44.55	Blaine Tech
	12/3/2014	76.66	32.93	31.75	1.18	44.67	Blaine Tech
	4/20/2015	76.66	33.64	32.20	1.44	44.17	Blaine Tech
	10/21/2015	76.66	33.55	33.16	0.39	43.42	Blaine Tech
	4/12/2016	76.66	34.30	34.03	0.27	42.58	Kinder Morgan
	10/3/2016	76.66	35.05	34.65	0.40	41.93	Blaine Tech
	3/9/2017	76.66	33.45	---	---	43.21	CH2M
	4/17/2017	76.66	32.96	---	---	43.70	Blaine Tech
	10/2/2017	76.66	34.10	---	---	42.56	Blaine Tech
	4/16/2018	76.66	35.18	---	---	41.48	Blaine Tech
	11/5/2018	76.66	35.91	---	---	40.75	Blaine Tech
GMW-O-11	4/30/2007	74.17	23.91	23.90	0.01	50.27	Secor
	11/12/2007	74.17	24.40	---	---	49.77	Stantec
	8/15/2008	74.17	29.30	---	---	44.87	Envent
	10/17/2008	74.17	24.45	---	---	49.72	Envent
	12/19/2008	74.17	24.85	---	---	49.32	Envent

Table 9. Groundwater and Product Measurements and Elevations for Total Fluids, Groundwater, and Soil Vapor Extraction Wells

SFPP Norwalk Pump Station, Norwalk, California

Well ID	Date Gauged	Top of Well Casing Elevation (feet msl)	Measured Depth to Groundwater (feet btoc)	Measured Depth to Product (feet btoc)	Apparent Product Thickness (feet)	Corrected Groundwater Elevation (feet msl)	Gauged By
	1/15/2009	74.17	26.87	24.38	2.49	49.29	Envent
	2/24/2009	74.17	24.31	24.21	0.10	49.94	Envent
	3/27/2009	74.17	31.08	---	---	43.09	Envent
	4/21/2009	74.17	25.36	25.34	0.02	48.83	Envent
	7/21/2009	74.17	26.18	---	---	47.99	Envent
	10/19/2009	74.17	NM	---	---	NC	Blaine Tech
	11/6/2009	74.17	26.33	26.18	0.15	47.96	Kinder Morgan
	10/4/2010	74.17	30.00	---	---	44.17	Blaine Tech
	4/13/2011	74.17	24.19	---	---	49.98	Blaine Tech
	10/10/2011	74.17	24.38	---	---	49.79	Blaine Tech
	4/16/2012	74.17	NM	---	---	NC	Blaine Tech
	7/9/2012	74.17	NM	---	---	NC	Blaine Tech
	10/15/2012	74.17	28.12	---	---	46.05	Blaine Tech
	4/8/2013	74.17	NM	---	---	NC	Blaine Tech
	9/24/2013	74.17	31.25	28.15	3.10	45.40	Blaine Tech
	10/7/2013	74.17	31.19	27.69	3.50	45.78	Blaine Tech
	4/25/2014	74.17	28.96	28.62	0.34	45.48	Blaine Tech
	9/5/2014	74.17	31.13	27.89	3.24	45.63	Blaine Tech
	9/11/2014	74.17	31.12	27.85	3.27	45.67	Blaine Tech
	9/18/2014	74.17	31.22	27.85	3.37	45.65	Blaine Tech
	9/26/2014	74.17	31.34	27.91	3.43	45.57	Blaine Tech
	10/1/2014	74.17	31.19	27.84	3.35	45.66	Blaine Tech
	10/6/2014	74.17	32.19	27.84	4.35	45.46	Blaine Tech
	10/14/2014	74.17	31.18	28.85	2.33	44.85	Blaine Tech
	10/23/2014	74.17	31.34	27.85	3.49	45.62	Blaine Tech
	10/27/2014	74.17	31.28	28.89	2.39	44.80	Blaine Tech
	11/3/2014	74.17	32.34	27.83	4.51	45.44	Blaine Tech
	11/10/2014	74.17	31.46	27.97	3.49	45.50	Blaine Tech
	11/18/2014	74.17	31.41	27.88	3.53	45.58	Blaine Tech
	11/25/2014	74.17	31.48	27.87	3.61	45.58	Blaine Tech
	12/3/2014	74.17	33.34	29.95	3.39	43.54	Blaine Tech
	12/12/2014	74.17	33.25	29.08	4.17	44.26	Blaine Tech
	12/19/2014	74.17	32.52	28.09	4.43	45.19	Blaine Tech
	4/22/2015	74.17	31.54	28.10	3.44	45.38	Blaine Tech
	10/22/2015	74.17	33.08	29.23	3.85	44.17	Kinder Morgan
	3/16/2016	74.17	33.39	33.16	0.23	40.96	Kinder Morgan
	4/12/2016	74.17	33.33	33.12	0.21	41.01	Kinder Morgan
	6/30/2016	74.17	31.50	---	---	42.67	Kinder Morgan
	8/22/2016	74.17	32.75	32.74	0.01	41.43	Kinder Morgan
	10/3/2016	74.17	32.72	32.71	0.01	41.46	Kinder Morgan
	3/24/2017	74.17	31.50	30.45	1.05	43.51	CH2M
	4/17/2017	74.17	30.12	29.96	0.16	44.18	Blaine Tech
	10/2/2017	74.17	33.54	---	---	40.63	Blaine Tech
	4/16/2018	74.17	NM	---	---	NC	Blaine Tech
	11/5/2018	74.17	33.22	33.11	0.11	41.04	Blaine Tech
GMW-O-12	4/30/2007	73.49	22.81	---	---	50.68	Secor
	11/12/2007	73.49	23.13	---	---	50.36	Stantec
	4/14/2008	73.49	23.36	---	---	50.13	Stantec
	10/13/2008	73.49	24.20	---	---	49.29	Stantec
	4/20/2009	73.49	24.21	---	---	49.28	Blaine Tech
	10/19/2009	73.49	25.08	---	---	48.41	Blaine Tech
	5/24/2010	73.49	24.80	---	---	48.69	Blaine Tech
	5/28/2010	73.49	24.74	---	---	48.75	Blaine Tech
	10/4/2010	73.49	25.31	25.20	0.11	48.27	Blaine Tech
	1/10/2011	73.49	26.42	26.32	0.10	47.15	Blaine Tech
	4/11/2011	73.49	24.04	---	---	49.45	Blaine Tech
	7/11/2011	73.49	NM	---	---	NC	
	10/10/2011	73.49	24.68	---	---	48.81	Blaine Tech
	1/9/2012	73.49	25.12	---	---	48.37	Blaine Tech

Table 9. Groundwater and Product Measurements and Elevations for Total Fluids, Groundwater, and Soil Vapor Extraction Wells

SFPP Norwalk Pump Station, Norwalk, California

Well ID	Date Gauged	Top of Well Casing Elevation (feet msl)	Measured Depth to Groundwater (feet btoc)	Measured Depth to Product (feet btoc)	Apparent Product Thickness (feet)	Corrected Groundwater Elevation (feet msl)	Gauged By
	4/16/2012	73.49	25.40	---	---	48.09	Blaine Tech
	7/9/2012	73.49	26.96	---	---	46.53	Blaine Tech
	10/15/2012	73.49	25.48	25.44	0.04	48.04	Blaine Tech
	1/14/2013	73.49	25.62	25.58	0.04	47.90	Blaine Tech
	4/8/2013	73.49	26.60	26.51	0.09	46.96	Blaine Tech
	9/24/2013	73.49	27.90	27.74	0.16	45.72	Blaine Tech
	10/7/2013	73.49	27.34	27.28	0.06	46.20	Blaine Tech
	4/14/2014	73.49	30.34	26.80	3.54	45.96	Blaine Tech
	5/6/2014	73.49	30.93	26.74	4.19	45.89	Nieto & Sons
	5/12/2014	73.49	30.81	26.82	3.99	45.85	Nieto & Sons
	5/20/2014	73.49	31.78	27.32	4.46	45.26	Nieto & Sons
	5/27/2014	73.49	33.04	26.78	6.26	45.43	Nieto & Sons
	6/4/2014	73.49	33.00	27.75	5.25	44.66	Nieto & Sons
	6/10/2014	73.49	34.53	26.81	7.72	45.10	Nieto & Sons
	7/3/2014	73.49	34.27	26.94	7.33	45.05	Blaine Tech
	7/8/2014	73.49	33.87	26.87	7.00	45.19	Blaine Tech
	7/18/2014	73.49	33.36	27.07	6.29	45.13	Blaine Tech
	7/24/2014	73.49	33.00	26.98	6.02	45.28	Blaine Tech
	8/1/2014	73.49	31.80	26.83	4.97	45.64	Blaine Tech
	8/8/2014	73.49	31.26	26.91	4.35	45.69	Blaine Tech
	8/13/2014	73.49	31.18	26.88	4.30	45.73	Blaine Tech
	8/19/2014	73.49	31.01	26.86	4.15	45.78	Blaine Tech
	8/29/2014	73.49	31.03	26.89	4.14	45.75	Blaine Tech
	9/5/2014	73.49	31.19	26.88	4.31	45.73	Blaine Tech
	9/18/2014	73.49	31.30	26.82	4.48	45.75	Blaine Tech
	9/26/2014	73.49	31.33	26.89	4.44	45.69	Blaine Tech
	10/1/2014	73.49	31.21	26.85	4.36	45.75	Blaine Tech
	10/6/2014	73.49	31.20	29.84	1.36	43.37	Blaine Tech
	10/14/2014	73.49	31.14	26.86	4.28	45.75	Blaine Tech
	10/23/2014	73.49	31.30	26.85	4.45	45.73	Blaine Tech
	10/27/2014	73.49	31.28	26.90	4.38	45.69	Blaine Tech
	11/3/2014	73.49	32.30	26.84	5.46	45.53	Blaine Tech
	11/10/2014	73.49	31.45	26.91	4.54	45.65	Blaine Tech
	11/18/2014	73.49	32.34	26.90	5.44	45.47	Blaine Tech
	11/25/2014	73.49	31.57	27.87	3.70	44.86	Blaine Tech
	12/3/2014	73.49	33.87	28.81	5.06	43.64	Blaine Tech
	12/19/2014	73.49	32.78	26.97	5.81	45.33	Blaine Tech
	4/20/2015	73.49	33.35	26.91	6.44	45.26	Blaine Tech
	4/22/2015	73.49	33.35	26.91	6.44	45.26	Blaine Tech
	5/21/2015	73.49	34.31	27.35	6.96	44.71	Northstar
	5/29/2015	73.49	34.15	27.24	6.91	44.83	Northstar
	6/2/2015	73.49	34.00	27.27	6.73	44.84	Northstar
	6/5/2015	73.49	34.00	27.50	6.50	44.66	Northstar
	6/12/2015	73.49	33.96	27.35	6.61	44.78	Northstar
	6/19/2015	73.49	33.98	27.58	6.40	44.60	Northstar
	6/26/2015	73.49	33.97	28.15	5.82	44.15	Northstar
	7/2/2015	73.49	33.83	28.20	5.63	44.14	Northstar
	7/7/2015	73.49	33.60	27.93	5.67	44.40	Northstar
	7/17/2015	73.49	33.57	27.85	5.72	44.47	Northstar
	7/24/2015	73.49	33.15	28.25	4.90	44.24	Northstar
	7/29/2015	73.49	33.02	28.10	4.92	44.38	Northstar
	8/11/2015	73.49	33.00	28.90	4.10	43.75	Northstar
	8/18/2015	73.49	32.65	28.23	4.42	44.35	Northstar
	8/28/2015	73.49	32.41	28.17	4.24	44.45	Kinder Morgan
	9/1/2015	73.49	33.18	28.65	4.53	43.91	Kinder Morgan
	9/25/2015	73.49	34.69	28.03	6.66	44.09	Kinder Morgan
	10/16/2015	73.49	34.63	27.83	6.80	44.27	Kinder Morgan
	10/19/2015	73.49	34.65	27.82	6.83	44.27	Blaine Tech
	10/30/2015	73.49	39.38	28.11	11.27	43.07	Kinder Morgan

Table 9. Groundwater and Product Measurements and Elevations for Total Fluids, Groundwater, and Soil Vapor Extraction Wells

SFPP Norwalk Pump Station, Norwalk, California

Well ID	Date Gauged	Top of Well Casing Elevation (feet msl)	Measured Depth to Groundwater (feet btoc)	Measured Depth to Product (feet btoc)	Apparent Product Thickness (feet)	Corrected Groundwater Elevation (feet msl)	Gauged By
	3/14/2016	73.49	32.40	31.60	0.80	41.73	Blaine Tech
	4/11/2016	73.49	33.35	26.86	6.49	45.30	Blaine Tech
	6/29/2016	73.49	33.90	33.10	0.80	40.23	Blaine Tech
	8/22/2016	73.49	33.56	31.07	2.49	41.91	Blaine Tech
	10/3/2016	73.49	34.20	31.90	2.30	41.12	Blaine Tech
	4/17/2017	73.49	32.90	28.70	4.20	43.95	Blaine Tech
	10/2/2017	73.49	33.20	32.00	1.20	41.25	Blaine Tech
	4/16/2018	73.49	33.04	31.89	1.15	41.37	Blaine Tech
	11/5/2018	73.49	32.65	32.31	0.34	41.11	Blaine Tech
GMW-O-15	4/30/2007	74.23	23.41	23.30	0.11	50.91	Secor
	11/12/2007	74.23	23.95	23.85	0.10	50.36	Stantec
	4/14/2008	74.23	23.64	---	---	50.59	Stantec
	8/8/2008	74.23	24.60	---	---	49.63	Envent
	8/11/2008	74.23	24.40	24.34	0.06	49.88	Stantec
	10/16/2008	74.23	24.53	---	---	49.70	Envent
	12/18/2008	74.23	24.86	---	---	49.37	Envent
	1/2/2009	74.23	24.82	---	---	49.41	Envent
	1/15/2009	74.23	26.01	---	---	48.22	Envent
	2/20/2009	74.23	24.80	---	---	49.43	Envent
	2/23/2009	74.23	24.76	24.74	0.02	49.49	Blaine Tech
	3/24/2009	74.23	25.55	---	---	48.68	Envent
	4/20/2009	74.23	24.66	24.61	0.05	49.61	Blaine Tech
	7/17/2009	74.23	25.01	---	---	49.22	Envent
	7/20/2009	74.23	24.99	24.94	0.05	49.28	Blaine Tech
	7/22/2009	74.23	24.99	24.94	0.05	49.28	Blaine Tech
	10/19/2009	74.23	25.55	25.43	0.12	48.78	Blaine Tech
	2/4/2010	74.23	25.50	25.48	0.02	48.75	Kinder Morgan
	3/15/2010	74.23	NM	---	---	NC	
	4/16/2010	74.23	23.10	---	---	51.13	Blaine Tech
	5/24/2010	74.23	25.67	---	---	48.56	Blaine Tech
	5/28/2010	74.23	25.35	---	---	48.88	Blaine Tech
	6/22/2010	74.23	25.81	---	---	48.42	Blaine Tech
	7/12/2010	74.23	NM	---	---	NC	
	8/12/2010	74.23	NM	---	---	NC	
	9/20/2010	74.23	NM	---	---	NC	
	10/4/2010	74.23	25.85	25.80	0.05	48.42	Blaine Tech
	11/23/2010	74.23	NM	---	---	NC	Blaine Tech
	12/22/2010	74.23	26.31	---	---	47.92	Blaine Tech
	1/10/2011	74.23	25.97	---	---	48.26	Blaine Tech
	2/24/2011	74.23	NM	---	---	NC	Blaine Tech
	3/23/2011	74.23	NM	---	---	NC	Blaine Tech
	4/12/2011	74.23	22.55	22.53	0.02	51.70	Blaine Tech
	5/13/2011	74.23	NM	---	---	NC	Blaine Tech
	6/22/2011	74.23	NM	---	---	NC	
	7/11/2011	74.23	NM	---	---	NC	
	8/19/2011	74.23	NM	---	---	NC	
	9/22/2011	74.23	NM	---	---	NC	
	10/10/2011	74.23	23.79	23.22	0.57	50.90	Blaine Tech
	11/28/2011	74.23	NM	---	---	NC	
	12/2/2011	74.23	23.92	23.86	0.06	50.36	Kinder Morgan
	12/21/2011	74.23	31.13	---	---	43.10	Blaine Tech
	1/9/2012	74.23	27.67	---	---	46.56	Blaine Tech
	2/23/2012	74.23	31.82	---	---	42.41	Blaine Tech
	3/28/2012	74.23	30.30	---	---	43.93	Blaine Tech
	4/16/2012	74.23	26.56	26.51	0.05	47.71	Blaine Tech
	5/25/2012	74.23	26.64	---	---	47.59	Blaine Tech
	6/15/2012	74.23	26.93	---	---	47.30	Blaine Tech
	7/9/2012	74.23	25.47	---	---	48.76	Blaine Tech
	8/29/2012	74.23	NM	---	---	NC	Blaine Tech

Table 9. Groundwater and Product Measurements and Elevations for Total Fluids, Groundwater, and Soil Vapor Extraction Wells

SFPP Norwalk Pump Station, Norwalk, California

Well ID	Date Gauged	Top of Well Casing Elevation (feet msl)	Measured Depth to Groundwater (feet btoc)	Measured Depth to Product (feet btoc)	Apparent Product Thickness (feet)	Corrected Groundwater Elevation (feet msl)	Gauged By
	9/26/2012	74.23	30.64	---	---	43.59	Blaine Tech
	10/15/2012	74.23	31.82	---	---	42.41	Blaine Tech
	11/29/2012	74.23	NM	---	---	NC	Blaine Tech
	12/26/2012	74.23	27.41	---	---	46.82	Blaine Tech
	1/14/2013	74.23	27.62	---	---	46.61	Blaine Tech
	2/20/2013	74.23	NM	---	---	NC	Blaine Tech
	4/10/2013	74.23	NM	---	---	NC	Blaine Tech
	4/26/2013	74.23	27.90	---	---	46.33	Kinder Morgan
	10/7/2013	74.23	29.03	28.26	0.77	45.82	Blaine Tech
	4/18/2014	74.23	28.40	28.08	0.32	46.09	Blaine Tech
	8/14/2014	74.23	32.59	28.26	4.33	45.10	Blaine Tech
	8/19/2014	74.23	32.34	28.23	4.11	45.18	Blaine Tech
	8/29/2014	74.23	31.84	28.25	3.59	45.26	Blaine Tech
	9/5/2014	74.23	31.91	28.29	3.62	45.22	Blaine Tech
	9/11/2014	74.23	32.16	28.79	3.37	44.77	Blaine Tech
	9/18/2014	74.23	32.50	28.23	4.27	45.15	Blaine Tech
	9/26/2014	74.23	32.20	28.27	3.93	45.17	Blaine Tech
	10/1/2014	74.23	31.93	28.28	3.65	45.22	Blaine Tech
	10/6/2014	74.23	31.91	28.27	3.64	45.23	Blaine Tech
	10/14/2014	74.23	31.85	28.29	3.56	45.23	Blaine Tech
	10/23/2014	74.23	32.10	28.30	3.80	45.17	Blaine Tech
	10/27/2014	74.23	31.89	28.30	3.59	45.21	Blaine Tech
	11/18/2014	74.23	31.86	28.39	3.47	45.15	Blaine Tech
	11/25/2014	74.23	32.36	28.35	4.01	45.08	Blaine Tech
	12/3/2014	74.23	31.73	28.36	3.37	45.20	Blaine Tech
	12/12/2014	74.23	32.61	28.54	4.07	44.88	Blaine Tech
	12/19/2014	74.23	32.62	28.37	4.25	45.01	Blaine Tech
	4/20/2015	74.23	31.93	28.82	3.11	44.79	Blaine Tech
	10/19/2015	74.23	31.91	28.89	3.02	44.74	Blaine Tech
	4/12/2016	74.23	29.78	---	---	44.45	Kinder Morgan
	10/3/2016	74.86	31.00	30.92	0.08	43.92	Kinder Morgan
	3/9/2017	74.86	29.94	---	---	44.92	CH2M
	4/17/2017	74.86	29.65	29.52	0.13	45.31	Blaine Tech
	10/2/2017	74.86	31.92	30.33	1.59	44.21	Blaine Tech
	4/16/2018	74.86	31.79	31.67	0.12	43.17	Blaine Tech
	11/5/2018	74.86	32.38	--	--	42.48	Blaine Tech
GMW-O-18	4/30/2007	74.36	24.21	---	---	50.15	Secor
	11/12/2007	74.36	22.46	---	---	51.90	Secor
	4/14/2008	74.36	24.50	---	---	49.86	Secor
	10/13/2008	74.36	25.46	---	---	48.90	Stantec
	4/20/2009	74.36	25.59	---	---	48.77	Blaine Tech
	10/19/2009	74.36	26.31	---	---	48.05	Blaine Tech
	3/15/2010	74.36	26.54	---	---	47.82	Blaine Tech
	4/16/2010	74.36	24.25	---	---	50.11	Blaine Tech
	5/24/2010	74.36	26.26	---	---	48.10	Blaine Tech
	5/28/2010	74.36	26.03	---	---	48.33	Blaine Tech
	6/22/2010	74.36	26.41	---	---	47.95	
	7/12/2010	74.36	NM	---	---	NC	
	8/12/2010	74.36	NM	---	---	NC	
	9/20/2010	74.36	NM	---	---	NC	
	10/4/2010	74.36	29.95	---	---	44.41	Blaine Tech
	11/16/2010	74.36	NM	---	---	NC	
	12/22/2010	74.36	NM	---	---	NC	
	1/10/2011	74.36	NM	---	---	NC	
	2/24/2011	74.36	NM	---	---	NC	Blaine Tech
	3/23/2011	74.36	NM	---	---	NC	Blaine Tech
	4/12/2011	74.36	NM	---	---	NC	Blaine Tech
	5/13/2011	74.36	NM	---	---	NC	Blaine Tech
	6/22/2011	74.36	NM	---	---	NC	

Table 9. Groundwater and Product Measurements and Elevations for Total Fluids, Groundwater, and Soil Vapor Extraction Wells

SFPP Norwalk Pump Station, Norwalk, California

Well ID	Date Gauged	Top of Well Casing Elevation (feet msl)	Measured Depth to Groundwater (feet btoc)	Measured Depth to Product (feet btoc)	Apparent Product Thickness (feet)	Corrected Groundwater Elevation (feet msl)	Gauged By
	7/11/2011	74.36	NM	---	---	NC	
	8/19/2011	74.36	NM	---	---	NC	
	9/22/2011	74.36	NM	---	---	NC	
	10/10/2011	74.36	23.68	---	---	50.68	Blaine Tech
	11/28/2011	74.36	NM	---	---	NC	
	12/2/2011	74.36	24.22	---	---	50.14	Blaine Tech
	12/21/2011	74.36	27.14	---	---	47.22	Blaine Tech
	2/23/2012	74.36	31.18	---	---	43.18	Blaine Tech
	3/28/2012	74.36	NM	---	---	NC	Blaine Tech
	4/16/2012	74.36	27.10	---	---	47.26	Blaine Tech
	5/25/2012	74.36	27.31	---	---	47.05	Blaine Tech
	6/15/2012	74.36	35.13	---	---	39.23	Blaine Tech
	7/9/2012	74.36	29.51	---	---	44.85	Blaine Tech
	8/29/2012	74.36	NM	---	---	NC	Blaine Tech
	9/26/2012	74.36	30.83	---	---	43.53	Blaine Tech
	10/15/2012	74.36	29.73	---	---	44.63	Blaine Tech
	11/29/2012	74.36	NM	---	---	NC	Blaine Tech
	12/26/2012	74.36	28.87	---	---	45.49	Blaine Tech
	1/14/2013	74.36	28.92	---	---	45.44	Blaine Tech
	2/20/2013	74.36	NM	---	---	NC	Blaine Tech
	4/10/2013	74.36	28.10	---	---	46.26	Blaine Tech
	10/7/2013	74.36	26.67	---	---	47.69	Blaine Tech
	4/18/2014	74.36	29.43	29.37	0.06	44.98	Blaine Tech
	8/14/2014	74.36	29.87	29.45	0.42	44.83	Blaine Tech
	8/19/2014	74.36	29.97	29.58	0.39	44.70	Blaine Tech
	8/29/2014	74.36	29.77	29.34	0.43	44.93	Blaine Tech
	9/11/2014	74.36	29.96	29.61	0.35	44.68	Blaine Tech
	9/18/2014	74.36	29.95	29.56	0.39	44.72	Blaine Tech
	9/26/2014	74.36	29.97	29.55	0.42	44.73	Blaine Tech
	10/1/2014	74.36	29.90	29.52	0.38	44.76	Blaine Tech
	10/6/2014	74.36	29.94	29.56	0.38	44.72	Blaine Tech
	10/14/2014	74.36	29.94	29.58	0.36	44.71	Blaine Tech
	10/23/2014	74.36	30.00	29.62	0.38	44.66	Blaine Tech
	10/27/2014	74.36	29.95	29.52	0.43	44.75	Blaine Tech
	4/20/2015	74.36	28.53	---	---	45.83	Blaine Tech
	10/19/2015	74.36	30.90	---	---	43.46	Blaine Tech
	4/12/2016	74.36	31.63	---	---	42.73	Blaine Tech
	12/13/2016	74.32	35.95	31.01	4.94	42.32	Blaine Tech
	12/14/2016	74.32	32.60	---	---	41.72	Blaine Tech
	3/6/2017	74.32	33.40	32.60	0.80	41.56	CH2M
	4/17/2017	74.32	31.83	31.80	0.03	42.51	Blaine Tech
	10/2/2017	74.32	31.32	31.30	0.02	43.02	Blaine Tech
	4/16/2018	74.32	NM	--	--	NC	Blaine Tech
	11/5/2018	74.32	33.03	32.90	0.13	41.39	Blaine Tech
GMW-O-20	8/15/2008	73.32	25.90	---	---	47.42	Envent
	10/17/2008	73.32	25.82	---	---	47.50	Envent
	12/19/2008	73.32	27.15	---	---	46.17	Envent
	1/15/2009	73.32	26.53	26.09	0.44	47.15	Envent
	2/24/2009	73.32	27.85	---	---	45.47	Envent
	3/20/2009	73.32	28.81	---	---	44.51	Envent
	3/27/2009	73.32	27.84	---	---	45.48	Envent
	4/21/2009	73.32	28.70	---	---	44.62	Envent
	7/21/2009	73.32	24.10	---	---	49.22	Envent
	10/19/2009	73.32	NM	---	---	NC	Blaine Tech
	11/9/2009	73.32	25.60	25.40	0.20	47.88	Kinder Morgan
	6/22/2010	73.32	24.76	24.66	0.10	48.64	Blaine Tech
	10/4/2010	73.32	31.20	31.10	0.10	42.20	Blaine Tech
	1/10/2011	73.32	26.62	26.48	0.14	46.81	Blaine Tech
	4/11/2011	73.32	23.82	---	---	49.50	Blaine Tech

Table 9. Groundwater and Product Measurements and Elevations for Total Fluids, Groundwater, and Soil Vapor Extraction Wells

SFPP Norwalk Pump Station, Norwalk, California

Well ID	Date Gauged	Top of Well Casing Elevation (feet msl)	Measured Depth to Groundwater (feet btoc)	Measured Depth to Product (feet btoc)	Apparent Product Thickness (feet)	Corrected Groundwater Elevation (feet msl)	Gauged By
	7/11/2011	73.32	NM	---	---	NC	
	10/10/2011	73.32	24.05	---	---	49.27	Blaine Tech
	1/9/2012	73.32	24.68	---	---	48.64	Blaine Tech
	4/16/2012	73.32	26.18	---	---	47.14	Blaine Tech
	7/9/2012	73.32	32.92	---	---	40.40	Blaine Tech
	10/15/2012	73.32	32.97	32.95	0.02	40.37	Blaine Tech
	1/14/2013	73.32	32.98	32.93	0.05	40.38	Blaine Tech
	4/8/2013	73.32	29.63	26.46	3.17	46.27	Blaine Tech
	9/24/2013	73.32	31.10	27.20	3.90	45.40	Blaine Tech
	10/7/2013	73.32	32.09	27.06	5.03	45.33	Blaine Tech
	4/25/2014	73.32	28.48	28.40	0.08	44.91	Blaine Tech
	9/18/2014	73.32	30.71	27.72	2.99	45.05	Blaine Tech
	9/26/2014	73.32	30.87	27.75	3.12	44.99	Blaine Tech
	10/1/2014	73.32	30.52	27.65	2.87	45.14	Blaine Tech
	10/6/2014	73.32	30.50	27.66	2.84	45.13	Blaine Tech
	10/14/2014	73.32	30.63	27.62	3.01	45.14	Blaine Tech
	10/23/2014	73.32	30.80	27.70	3.10	45.05	Blaine Tech
	10/27/2014	73.32	30.70	27.76	2.94	45.02	Blaine Tech
	11/3/2014	73.32	30.81	27.62	3.19	45.11	Blaine Tech
	11/10/2014	73.32	30.94	27.75	3.19	44.98	Blaine Tech
	11/18/2014	73.32	30.91	27.65	3.26	45.07	Blaine Tech
	11/25/2014	73.32	30.95	27.65	3.30	45.06	Blaine Tech
	12/3/2014	73.32	32.56	27.83	4.73	44.61	Blaine Tech
	12/19/2014	73.32	31.72	27.93	3.79	44.69	Blaine Tech
	4/22/2015	73.32	32.25	27.98	4.27	44.55	Blaine Tech
	10/22/2015	73.32	31.36	29.38	1.98	43.57	Kinder Morgan
	3/16/2016	73.32	32.54	---	---	40.78	Kinder Morgan
	4/12/2016	73.32	32.48	---	---	40.84	Kinder Morgan
	6/29/2016	73.32	32.50	---	---	40.82	Blaine Tech
	8/22/2016	73.32	32.18	---	---	41.14	Blaine Tech
	10/3/2016	73.32	33.12	---	---	40.20	Blaine Tech
	3/23/2017	73.32	30.35	---	---	42.97	CH2M
	4/17/2017	73.32	29.70	---	---	43.62	Blaine Tech
	10/2/2017	73.32	33.03	---	---	40.29	Blaine Tech
	4/16/2018	73.32	32.67	---	---	40.65	Blaine Tech
	11/5/2018	73.32	32.92	---	---	40.40	Blaine Tech
GMW-O-21	12/28/2007	71.43	27.67	---	---	43.76	Geomatrix
	8/15/2008	73.94	NM	---	---	NC	Envent
	10/17/2008	71.43	26.00	---	---	45.43	Envent
	12/19/2008	71.43	24.82	---	---	46.61	Envent
	3/27/2009	71.43	26.41	---	---	45.02	Envent
	7/21/2009	71.43	24.88	---	---	46.55	Envent
	10/19/2009	71.43	NM	---	---	NC	Blaine Tech
	11/9/2009	71.43	25.02	---	---	46.41	Kinder Morgan
	10/4/2010	71.43	25.40	---	---	46.03	Blaine Tech
	4/13/2011	71.43	23.72	---	---	47.71	Blaine Tech
	10/10/2011	71.43	24.65	---	---	46.78	Blaine Tech
	4/16/2012	71.43	NM	---	---	NC	Blaine Tech
	7/9/2012	71.43	NM	---	---	NC	Blaine Tech
	10/15/2012	71.43	32.50	---	---	38.93	Blaine Tech
	4/8/2013	71.43	NM	---	---	NC	Blaine Tech
	9/25/2013	71.43	29.25	---	---	42.18	Blaine Tech
	10/7/2013	71.43	NM	---	---	NC	Blaine Tech
	4/14/2014	71.43	28.65	28.61	0.04	42.81	Blaine Tech
	9/5/2014	71.43	29.61	28.78	0.83	42.48	Blaine Tech
	9/26/2014	71.43	29.85	28.77	1.08	42.44	Blaine Tech
	10/1/2014	71.43	29.79	28.64	1.15	42.56	Blaine Tech
	10/6/2014	71.43	29.40	28.72	0.68	42.57	Blaine Tech
	10/27/2014	71.43	29.75	28.93	0.82	42.34	Blaine Tech

Table 9. Groundwater and Product Measurements and Elevations for Total Fluids, Groundwater, and Soil Vapor Extraction Wells

SFPP Norwalk Pump Station, Norwalk, California

Well ID	Date Gauged	Top of Well Casing Elevation (feet msl)	Measured Depth to Groundwater (feet btoc)	Measured Depth to Product (feet btoc)	Apparent Product Thickness (feet)	Corrected Groundwater Elevation (feet msl)	Gauged By
	11/10/2014	71.43	29.98	28.95	1.03	42.27	Blaine Tech
	11/18/2014	71.43	30.05	28.92	1.13	42.28	Blaine Tech
	11/25/2014	71.43	29.73	28.85	0.88	42.40	Blaine Tech
	12/12/2014	71.43	30.61	29.02	1.59	42.09	Blaine Tech
	12/19/2014	71.43	30.62	29.04	1.58	42.07	Blaine Tech
	4/20/2015	71.43	30.15	28.99	1.16	42.21	Blaine Tech
	6/10/2015	71.43	31.00	30.70	0.30	40.67	Blaine Tech
	7/2/2015	71.43	32.30	29.88	2.42	41.07	Northstar
	7/7/2015	71.43	30.65	30.06	0.59	41.25	Northstar
	7/17/2015	71.43	30.40	30.10	0.30	41.27	Northstar
	7/29/2015	71.43	30.40	30.10	0.30	41.27	Northstar
	8/11/2015	71.43	31.00	30.70	0.30	40.67	Northstar
	10/19/2015	71.43	31.43	31.20	0.23	40.18	Blaine Tech
	3/14/2016	71.43	33.20	33.17	0.03	38.25	Blaine Tech
	4/11/2016	71.43	32.17	31.84	0.33	39.52	Blaine Tech
	6/29/2016	71.43	33.03	32.83	0.20	38.56	Blaine Tech
	8/22/2016	71.43	33.72	---	---	37.71	Blaine Tech
	10/3/2016	71.43	33.45	---	---	37.98	Blaine Tech
	4/17/2017	71.43	30.48	---	---	40.95	Blaine Tech
	10/2/2017	71.43	33.45	---	---	37.98	Blaine Tech
	4/16/2018	71.43	33.13	---	---	38.30	Blaine Tech
	11/5/2018	71.43	33.68	---	---	37.75	Blaine Tech
GMW-O-23	8/14/2007	73.63	23.33	---	---	50.30	Geomatrix
	8/21/2007	73.63	23.31	---	---	50.32	Geomatrix
	8/28/2007	73.63	23.00	---	---	50.63	Stantec
	9/11/2007	73.63	23.42	---	---	50.21	Geomatrix
	10/5/2007	73.63	27.79	---	---	45.84	Geomatrix
	11/2/2007	73.63	25.15	---	---	48.48	Geomatrix
	11/13/2007	73.63	23.90	---	---	49.73	Stantec
	12/28/2007	73.63	24.91	---	---	48.72	Geomatrix
	8/15/2008	73.63	26.28	---	---	47.35	Envent
	10/17/2008	73.63	27.16	---	---	46.47	Envent
	12/19/2008	73.63	27.60	---	---	46.03	Envent
	1/15/2009	73.63	27.54	---	---	46.09	Envent
	2/24/2009	73.63	26.19	---	---	47.44	Envent
	3/27/2009	73.63	23.74	---	---	49.89	Envent
	4/21/2009	73.63	27.30	---	---	46.33	Envent
	10/19/2009	73.63	NM	---	---	NC	Blaine Tech
	11/9/2009	73.63	27.50	---	---	46.13	Kinder Morgan
	6/22/2010	73.63	32.10	---	---	41.53	Blaine Tech
	10/4/2010	73.63	25.92	---	---	47.71	Blaine Tech
	1/10/2011	73.63	27.45	---	---	46.18	Blaine Tech
	4/11/2011	73.63	25.03	---	---	48.60	Blaine Tech
	7/11/2011	73.63	NM	---	---	NC	
	10/10/2011	73.63	25.25	---	---	48.38	Blaine Tech
	1/9/2012	73.63	25.91	---	---	47.72	Blaine Tech
	4/16/2012	73.63	27.38	---	---	46.25	Blaine Tech
	7/9/2012	73.63	27.41	---	---	46.22	Blaine Tech
	10/15/2012	73.63	26.48	---	---	47.15	Blaine Tech
	1/14/2013	73.63	29.35	---	---	44.28	Blaine Tech
	4/8/2013	73.63	29.81	27.74	2.07	45.48	Blaine Tech
	9/23/2013	73.63	29.90	---	---	43.73	Blaine Tech
	10/7/2013	73.63	32.86	28.30	4.56	44.42	Blaine Tech
	4/25/2014	73.63	29.81	29.66	0.15	43.94	Blaine Tech
	9/5/2014	73.63	32.57	28.76	3.81	44.11	Blaine Tech
	9/11/2014	73.63	32.94	28.63	4.31	44.14	Blaine Tech
	9/18/2014	73.63	32.80	28.65	4.15	44.15	Blaine Tech
	9/26/2014	73.63	32.87	28.70	4.17	44.10	Blaine Tech
	10/1/2014	73.63	32.56	28.75	3.81	44.12	Blaine Tech

Table 9. Groundwater and Product Measurements and Elevations for Total Fluids, Groundwater, and Soil Vapor Extraction Wells

SFPP Norwalk Pump Station, Norwalk, California

Well ID	Date Gauged	Top of Well Casing Elevation (feet msl)	Measured Depth to Groundwater (feet btoc)	Measured Depth to Product (feet btoc)	Apparent Product Thickness (feet)	Corrected Groundwater Elevation (feet msl)	Gauged By
	10/6/2014	73.63	32.50	28.73	3.77	44.15	Blaine Tech
	10/14/2014	73.63	32.75	28.20	4.55	44.52	Blaine Tech
	10/23/2014	73.63	32.80	28.69	4.11	44.12	Blaine Tech
	10/27/2014	73.63	32.51	28.80	3.71	44.09	Blaine Tech
	11/3/2014	73.63	32.82	29.68	3.14	43.32	Blaine Tech
	11/10/2014	73.63	32.80	28.78	4.02	44.05	Blaine Tech
	11/18/2014	73.63	32.78	29.78	3.00	43.25	Blaine Tech
	11/25/2014	73.63	32.64	28.78	3.86	44.08	Blaine Tech
	12/3/2014	73.63	33.25	28.94	4.31	43.83	Blaine Tech
	12/12/2014	73.63	32.58	29.33	3.25	43.65	Blaine Tech
	12/19/2014	73.63	32.71	29.37	3.34	43.59	Blaine Tech
	3/17/2015	73.63	30.40	30.00	0.40	43.55	Kinder Morgan
	4/22/2015	73.63	33.08	30.36	2.72	42.73	Blaine Tech
	10/22/2015	73.63	32.82	30.46	2.36	42.70	Kinder Morgan
	3/16/2016	73.63	34.43	---	---	39.20	Kinder Morgan
	4/12/2016	73.63	32.59	---	---	41.04	Kinder Morgan
	6/29/2016	73.63	33.90	---	---	39.73	Blaine Tech
	8/22/2016	73.63	33.89	---	---	39.74	Blaine Tech
	10/3/2016	73.63	34.90	---	---	38.73	Blaine Tech
	3/23/2017	73.63	31.65	---	---	41.98	CH2M
	4/17/2017	73.63	30.88	---	---	42.75	Blaine Tech
	10/2/2017	73.63	34.70	---	---	38.93	Blaine Tech
	4/16/2018	73.63	34.05	---	---	39.58	Blaine Tech
	11/5/2018	73.63	34.31	---	---	39.32	Blaine Tech
GMW-SF-9	4/21/2009	73.00	24.19	---	---	48.81	Envent
	5/24/2010	73.00	28.31	---	---	44.69	Blaine Tech
	5/28/2010	73.00	28.37	---	---	44.63	Blaine Tech
	10/4/2010	73.00	25.28	---	---	47.72	Blaine Tech
	4/11/2011	73.00	23.90	---	---	49.10	Blaine Tech
	10/10/2011	73.00	24.70	---	---	48.30	Blaine Tech
	4/16/2012	73.00	26.99	---	---	46.01	Blaine Tech
	7/9/2012	73.00	NM	---	---	NC	Blaine Tech
	10/15/2012	73.05	34.21	---	---	38.84	Blaine Tech
	1/14/2013	73.05	34.32	---	---	38.73	Blaine Tech
	4/10/2013	73.05	27.37	---	---	45.68	Blaine Tech
	8/14/2014	73.05	29.35	28.37	0.98	44.48	Blaine Tech
	8/19/2014	73.05	28.46	28.44	0.02	44.61	Blaine Tech
	8/29/2014	73.05	29.32	28.31	1.01	44.54	Blaine Tech
	9/5/2014	73.05	29.33	28.29	1.04	44.55	Blaine Tech
	9/11/2014	73.05	29.49	28.47	1.02	44.38	Blaine Tech
	9/18/2014	73.05	28.95	28.91	0.04	44.13	Blaine Tech
	9/26/2014	73.05	28.93	28.59	0.34	44.39	Blaine Tech
	4/20/2015	73.05	29.01	---	---	44.04	Blaine Tech
	10/21/2015	73.05	29.69	---	---	43.36	Blaine Tech
	3/6/2017	73.05	28.88	---	---	44.17	CH2M
GMW-SF-10	4/21/2009	75.77	27.10	---	---	48.67	Envent
	10/4/2010	75.77	28.03	---	---	47.74	Blaine Tech
	4/11/2011	75.77	26.80	---	---	48.97	Blaine Tech
	10/10/2011	75.77	27.60	---	---	48.17	Blaine Tech
	4/16/2012	75.77	28.81	---	---	46.96	Blaine Tech
	7/9/2012	75.77	NM	---	---	NC	Blaine Tech
	10/15/2012	75.77	29.88	---	---	45.89	Blaine Tech
	4/8/2013	75.77	DRY	---	---	NC	Blaine Tech
GWR-3	4/30/2007	74.93	27.97	---	---	46.96	Secor
	11/12/2007	74.93	27.90	---	---	47.03	Stantec
	10/17/2008	74.93	29.88	---	---	45.05	Envent
	12/17/2008	74.93	19.71	---	---	55.22	Envent
	1/15/2009	74.93	29.27	29.26	0.26	45.88	Envent
	3/27/2009	74.93	27.18	---	---	47.75	Envent

Table 9. Groundwater and Product Measurements and Elevations for Total Fluids, Groundwater, and Soil Vapor Extraction Wells

SFPP Norwalk Pump Station, Norwalk, California

Well ID	Date Gauged	Top of Well Casing Elevation (feet msl)	Measured Depth to Groundwater (feet btoc)	Measured Depth to Product (feet btoc)	Apparent Product Thickness (feet)	Corrected Groundwater Elevation (feet msl)	Gauged By
	4/21/2009	74.93	29.97	---	---	44.96	Envent
	7/21/2009	74.93	28.77	---	---	46.16	Envent
	10/19/2009	74.93	NM	---	---	NC	Blaine Tech
	10/4/2010	74.93	30.67	---	---	44.26	Blaine Tech
	4/11/2011	74.93	29.94	---	---	44.99	Blaine Tech
	10/10/2011	74.93	29.22	---	---	45.71	Blaine Tech
	4/16/2012	74.93	29.56	---	---	45.37	Blaine Tech
	7/9/2012	---	NM	---	---	NC	Blaine Tech
	10/15/2012	77.6	31.21	---	---	46.39	Blaine Tech
	4/8/2013	77.6	29.21	29.18	0.03	48.41	Blaine Tech
	10/7/2013	77.6	36.20	31.67	4.53	45.16	Blaine Tech
	4/14/2014	77.6	38.80	32.23	6.57	44.25	Blaine Tech
	5/5/2014	77.6	38.81	32.31	6.50	44.18	Nieto & Sons
	5/12/2014	77.6	36.34	32.77	3.57	44.22	Nieto & Sons
	5/27/2014	77.6	36.11	33.20	2.91	43.91	Nieto & Sons
	6/4/2014	77.6	34.57	31.61	2.96	45.49	Nieto & Sons
	8/8/2014	77.6	37.92	33.38	4.54	43.45	Blaine Tech
	8/13/2014	77.6	35.38	33.18	2.20	44.05	Blaine Tech
	8/19/2014	77.6	35.28	33.25	2.03	44.00	Blaine Tech
	8/29/2014	77.6	35.72	33.12	2.60	44.04	Blaine Tech
	9/5/2014	77.6	35.68	33.19	2.49	43.99	Blaine Tech
	9/11/2014	77.6	36.05	33.04	3.01	44.05	Blaine Tech
	9/18/2014	77.60	35.34	33.27	2.07	43.98	Blaine Tech
	9/26/2014	77.60	35.25	33.24	2.01	44.02	Blaine Tech
	10/1/2014	77.60	36.44	34.01	2.43	43.18	Blaine Tech
	10/6/2014	77.60	34.71	33.33	1.38	44.04	Blaine Tech
	10/14/2014	77.60	35.15	33.20	1.95	44.07	Blaine Tech
	10/23/2014	77.60	35.36	33.20	2.16	44.03	Blaine Tech
	10/27/2014	77.60	34.68	33.49	1.19	43.91	Blaine Tech
	11/3/2014	77.60	35.43	33.18	2.25	44.04	Blaine Tech
	11/10/2014	77.60	35.02	33.32	1.70	43.99	Blaine Tech
	11/18/2014	77.60	35.05	33.34	1.71	43.97	Blaine Tech
	11/25/2014	77.60	35.04	33.36	1.68	43.95	Blaine Tech
	12/3/2014	77.60	34.95	33.34	1.61	43.99	Blaine Tech
	12/12/2014	77.60	35.11	33.64	1.47	43.71	Blaine Tech
	12/19/2014	77.60	35.55	33.67	1.88	43.61	Blaine Tech
	4/20/2015	77.60	37.25	33.34	3.91	43.60	Blaine Tech
	7/24/2015	77.60	41.30	33.95	7.35	42.40	Northstar
	8/12/2015	77.60	37.03	34.42	2.61	42.74	Northstar
	10/20/2015	77.60	35.98	34.65	1.33	42.72	Blaine Tech
	3/16/2016	77.60	38.60	---	---	39.00	Kinder Morgan
	4/11/2016	77.60	36.90	---	---	40.70	Blaine Tech
	6/29/2016	77.60	37.77	---	---	39.83	Blaine Tech
	8/22/2016	77.60	38.24	---	---	39.36	Blaine Tech
	10/3/2016	77.60	39.20	39.15	0.05	38.44	Blaine Tech
	3/7/2017	77.60	35.62	---	---	41.98	CH2M
	4/17/2017	77.60	34.88	--	--	42.72	Blaine Tech
	10/2/2017	77.60	38.92	---	---	38.68	Blaine Tech
	4/16/2018	77.60	38.73	---	---	38.87	Blaine Tech
	11/5/2018	77.60	38.42	---	---	39.18	Blaine Tech
MW-18 (MID)	4/30/2007	75.67	29.77	---	---	45.90	Secor
	11/12/2007	75.67	30.23	---	---	45.44	Secor
	4/14/2008	75.67	30.45	---	---	45.22	Secor
	10/13/2008	75.67	31.15	---	---	44.52	Stantec
	4/20/2009	75.67	31.49	---	---	44.18	Blaine Tech
	10/19/2009	75.67	32.62	---	---	43.05	Blaine Tech
	5/24/2010	75.67	32.26	---	---	43.41	Blaine Tech
	5/28/2010	75.67	32.17	---	---	43.50	Blaine Tech
	10/4/2010	75.67	32.30	---	---	43.37	Blaine Tech

Table 9. Groundwater and Product Measurements and Elevations for Total Fluids, Groundwater, and Soil Vapor Extraction Wells

SFPP Norwalk Pump Station, Norwalk, California

Well ID	Date Gauged	Top of Well Casing Elevation (feet msl)	Measured Depth to Groundwater (feet btoc)	Measured Depth to Product (feet btoc)	Apparent Product Thickness (feet)	Corrected Groundwater Elevation (feet msl)	Gauged By
	4/11/2011	75.67	31.28	---	---	44.39	Blaine Tech
	10/10/2011	75.67	31.51	---	---	44.16	Blaine Tech
	4/16/2012	75.67	31.75	---	---	43.92	Blaine Tech
	7/9/2012	75.67	NM	---	---	NC	Blaine Tech
	10/15/2012	75.67	33.41	---	---	42.26	Blaine Tech
	4/8/2013	75.67	30.68	---	---	44.99	Blaine Tech
	10/7/2013	75.67	35.33	---	---	40.34	Blaine Tech
	4/14/2014	75.67	35.40	---	---	40.27	Blaine Tech
	10/27/2014	75.67	35.81	---	---	39.86	Blaine Tech
	4/20/2015	75.67	36.29	---	---	39.38	Blaine Tech
	10/19/2015	75.67	36.99	---	---	38.68	Blaine Tech
	3/14/2016	75.67	40.70	---	---	34.97	Blaine Tech
	4/11/2016	75.67	38.89	---	---	36.78	Blaine Tech
	6/29/2016	75.67	39.94	---	---	35.73	Blaine Tech
	8/22/2016	75.67	40.14	---	---	35.53	Blaine Tech
	10/3/2016	75.67	40.93	---	---	34.74	Blaine Tech
	4/17/2017	75.67	37.50	---	---	38.17	Blaine Tech
	10/2/2017	75.67	40.26	---	---	35.41	Blaine Tech
	4/16/2018	75.67	40.46	---	---	35.21	Blaine Tech
	11/5/2018	75.67	40.50	---	---	35.17	Blaine Tech
MW-O-1	4/30/2007	75.48	24.10	23.98	0.12	51.48	Secor
	8/14/2007	75.48	25.31	23.78	1.53	51.39	Geomatrix
	8/21/2007	75.48	23.84	23.58	0.26	51.85	Geomatrix
	8/28/2007	75.48	23.07	23.06	0.01	52.42	Stantec
	9/11/2007	75.48	23.86	23.48	0.38	51.92	Geomatrix
	10/5/2007	75.48	24.67	---	---	50.81	Geomatrix
	11/2/2007	75.48	24.25	---	---	51.23	Geomatrix
	11/12/2007	75.48	24.27	24.25	0.02	51.23	Stantec
	12/28/2007	75.48	25.54	25.51	0.03	49.96	Geomatrix
	8/15/2008	75.48	NM	---	---	NC	Envent
	8/19/2008	75.48	25.18	25.13	0.05	50.34	Envent
	10/17/2008	75.48	25.30	---	---	50.18	Envent
	12/19/2008	75.48	26.31	---	---	49.17	Envent
	1/15/2009	75.48	25.84	---	---	49.64	Envent
	4/21/2009	75.48	25.41	---	---	50.07	Envent
	10/19/2009	75.48	26.30	---	---	49.18	Blaine Tech
	10/4/2010	75.48	26.90	---	---	48.58	Blaine Tech
	4/11/2011	75.48	25.59	---	---	49.89	Blaine Tech
	10/10/2011	75.48	26.52	---	---	48.96	Blaine Tech
	4/16/2012	75.48	27.25	---	---	48.23	Blaine Tech
	7/9/2012	75.48	NM	---	---	NC	Blaine Tech
	10/15/2012	75.48	28.94	---	---	46.54	Blaine Tech
	4/8/2013	75.48	28.81	---	---	46.67	Blaine Tech
	10/7/2013	75.48	29.21	---	---	46.27	Blaine Tech
	4/14/2014	75.48	29.82	---	---	45.66	Blaine Tech
	10/27/2014	75.48	29.92	---	---	45.56	Blaine Tech
	4/20/2015	75.48	30.39	---	---	45.09	Blaine Tech
	10/27/2015	75.48	27.67	---	---	47.81	Blaine Tech
	3/14/2016	75.48	DRY	---	---	NC	Blaine Tech
	4/11/2016	75.48	DRY	---	---	NC	Blaine Tech
	6/29/2016	75.48	DRY	---	---	NC	Blaine Tech
	8/22/2016	75.48	DRY	---	---	NC	Blaine Tech
	10/3/2016	75.48	DRY	---	---	NC	Blaine Tech
	4/17/2017	75.48	DRY	---	---	NC	Blaine Tech
	10/2/2017	75.48	DRY	---	---	NC	Blaine Tech
	4/16/2018	75.48	DRY	---	---	NC	Blaine Tech
	11/5/2018	75.48	DRY	---	---	NC	Blaine Tech

Table 9. Groundwater and Product Measurements and Elevations for Total Fluids, Groundwater, and Soil Vapor Extraction Wells

SFPP Norwalk Pump Station, Norwalk, California

Well ID	Date Gauged	Top of Well Casing Elevation (feet msl)	Measured Depth to Groundwater (feet btoc)	Measured Depth to Product (feet btoc)	Apparent Product Thickness (feet)	Corrected Groundwater Elevation (feet msl)	Gauged By
MW-O-2	4/30/2007	74.31	22.53	---	---	51.78	Secor
	11/12/2007	71.90	23.10	---	---	48.80	Stantec
	8/15/2008	71.90	NM	---	---	NC	Envent
	10/17/2008	71.90	24.85	---	---	47.05	Envent
	12/19/2008	71.90	25.51	---	---	46.39	Envent
	3/27/2009	71.90	25.22	---	---	46.68	Envent
	4/21/2009	71.90	NM	---	---	NC	Envent
	7/21/2009	71.90	23.63	---	---	48.27	Envent
	10/19/2009	71.90	NM	---	---	NC	Blaine Tech
	11/9/2009	71.90	25.39	---	---	46.51	Kinder Morgan
	10/4/2010	71.90	26.05	---	---	45.85	Blaine Tech
	4/13/2011	71.9	23.31	---	---	48.59	Blaine Tech
	10/10/2011	71.9	27.53	---	---	44.37	Blaine Tech
	1/9/2012	71.9	28.13	---	---	43.77	Blaine Tech
	4/16/2012	71.9	NM	---	---	NC	Blaine Tech
	7/9/2012	71.9	26.53	---	---	45.37	Blaine Tech
	10/15/2012	71.9	26.89	---	---	45.01	Blaine Tech
	1/14/2013	71.9	26.93	---	---	44.97	Blaine Tech
	4/8/2013	71.9	NM	---	---	NC	Blaine Tech
	6/6/2013	71.9	28.99	---	---	42.91	Blaine Tech
	10/7/2013	71.9	29.06	---	---	42.84	Blaine Tech
	4/14/2014	71.9	29.36	---	---	42.54	Blaine Tech
	10/27/2014	71.9	29.81	29.65	0.16	42.22	Blaine Tech
	4/20/2015	71.9	30.94	29.34	1.60	42.24	Blaine Tech
	5/21/2015	71.9	32.50	27.31	5.19	43.55	Northstar
	5/29/2015	71.9	31.52	30.20	1.32	41.44	Northstar
	6/5/2015	71.9	31.45	30.57	0.88	41.15	Northstar
	6/12/2015	71.9	31.05	30.60	0.45	41.21	Northstar
	6/19/2015	71.9	31.10	30.90	0.20	40.96	Northstar
	6/26/2015	71.9	31.66	31.37	0.29	40.47	Northstar
	10/19/2015	71.9	32.39	30.53	1.86	41.00	Blaine Tech
	3/14/2016	71.9	35.49	34.86	0.63	36.91	Blaine Tech
	4/11/2016	71.9	33.03	32.54	0.49	39.26	Blaine Tech
	6/30/2016	71.9	34.20	---	---	37.70	Kinder Morgan
	8/22/2016	71.9	33.93	---	---	37.97	Kinder Morgan
	10/3/2016	71.9	34.30	34.22	0.08	37.66	Blaine Tech
	4/17/2017	71.9	30.91	30.85	0.06	41.04	Blaine Tech
	10/2/2017	71.9	34.67	---	---	37.23	Blaine Tech
	4/16/2018	71.9	34.18	34.16	0.02	37.74	Blaine Tech
	11/5/2018	71.9	34.30	--	--	37.60	Blaine Tech
MW-SF-1	3/12/2007	78.93	28.71	---	---	50.22	Secor
	4/30/2007	78.93	28.44	---	---	50.49	Secor
	8/28/2007	78.93	27.94	---	---	50.99	Stantec
	11/12/2007	78.93	28.76	---	---	50.17	Stantec
	2/19/2008	78.93	29.50	---	---	49.43	Stantec
	4/14/2008	78.93	29.16	---	---	49.77	Stantec
	8/11/2008	78.93	29.75	---	---	49.18	Stantec
	10/13/2008	78.93	29.86	---	---	49.07	Stantec
	2/23/2009	78.93	30.00	---	---	48.93	Blaine Tech
	4/20/2009	78.93	29.97	---	---	48.96	Blaine Tech
	7/20/2009	78.93	30.98	---	---	47.95	Blaine Tech
	7/22/2009	78.93	30.98	---	---	47.95	Blaine Tech
	10/19/2009	78.93	31.11	---	---	47.82	Blaine Tech
	3/15/2010	78.93	31.74	---	---	47.19	Blaine Tech
	5/24/2010	78.93	30.79	---	---	48.14	Blaine Tech
	5/28/2010	78.93	30.57	---	---	48.36	Blaine Tech
	6/22/2010	78.93	30.84	---	---	48.09	Blaine Tech
	7/12/2010	78.93	30.51	---	---	48.42	Blaine Tech
	10/4/2010	78.93	30.88	---	---	48.05	Blaine Tech
	1/10/2011	78.93	32.51	---	---	46.42	Blaine Tech

Table 9. Groundwater and Product Measurements and Elevations for Total Fluids, Groundwater, and Soil Vapor Extraction Wells

SFPP Norwalk Pump Station, Norwalk, California

Well ID	Date Gauged	Top of Well Casing Elevation (feet msl)	Measured Depth to Groundwater (feet btoc)	Measured Depth to Product (feet btoc)	Apparent Product Thickness (feet)	Corrected Groundwater Elevation (feet msl)	Gauged By
	4/11/2011	78.93	29.87	---	---	49.06	Blaine Tech
	7/11/2011	78.93	29.84	---	---	49.09	Blaine Tech
	10/10/2011	78.93	29.60	---	---	49.33	Blaine Tech
	1/9/2012	78.93	31.25	---	---	47.68	Blaine Tech
	4/16/2012	78.93	32.59	---	---	46.34	Blaine Tech
	7/9/2012	78.93	31.24	---	---	47.69	Blaine Tech
	10/15/2012	78.93	32.23	---	---	46.70	Blaine Tech
	1/14/2013	78.93	33.88	---	---	45.05	Blaine Tech
	4/8/2013	78.93	33.38	---	---	45.55	Blaine Tech
	10/7/2013	78.93	37.14	31.72	5.42	46.13	Blaine Tech
	4/14/2014	78.93	37.40	32.69	4.71	45.30	Blaine Tech
	5/6/2014	78.93	39.99	32.82	7.17	44.68	Nieto & Sons
	5/12/2014	78.93	37.31	33.55	3.76	44.63	Nieto & Sons
	5/20/2014	78.93	37.10	34.60	2.50	43.83	Nieto & Sons
	5/27/2014	78.93	36.62	34.30	2.32	44.17	Nieto & Sons
	6/4/2014	78.93	35.98	35.27	0.71	43.52	Nieto & Sons
	6/10/2014	78.93	36.91	34.48	2.43	43.96	Nieto & Sons
	7/3/2014	78.93	36.72	34.71	2.01	43.82	Nieto & Sons
	7/8/2014	78.93	36.60	34.45	2.15	44.05	Blaine Tech
	7/18/2014	78.93	35.18	34.77	0.41	44.08	Blaine Tech
	7/24/2014	78.93	35.30	34.62	0.68	44.17	Blaine Tech
	8/1/2014	78.93	34.74	34.44	0.30	44.43	Blaine Tech
	8/14/2014	78.93	34.75	34.41	0.34	44.45	Blaine Tech
	8/19/2014	78.93	34.66	34.37	0.29	44.50	Blaine Tech
	8/29/2014	78.93	35.65	35.38	0.27	43.50	Blaine Tech
	9/18/2014	78.93	34.85	34.49	0.36	44.37	Blaine Tech
	9/26/2014	78.93	34.78	34.45	0.33	44.41	Blaine Tech
	10/1/2014	78.93	34.77	34.41	0.36	44.45	Blaine Tech
	10/6/2014	78.93	34.78	34.42	0.36	44.44	Blaine Tech
	10/14/2014	78.93	34.65	34.41	0.24	44.47	Blaine Tech
	10/23/2014	78.93	34.84	34.45	0.39	44.40	Blaine Tech
	10/27/2014	78.93	34.80	34.43	0.37	44.43	Blaine Tech
	11/10/2014	78.93	34.91	34.51	0.40	44.34	Blaine Tech
	11/18/2014	78.93	34.80	34.43	0.37	44.43	Blaine Tech
	11/25/2014	78.93	34.53	34.51	0.02	44.42	Blaine Tech
	12/12/2014	78.93	35.18	34.78	0.40	44.07	Blaine Tech
	12/19/2014	78.93	35.34	34.88	0.46	43.96	Blaine Tech
	4/20/2015	78.93	34.89	34.48	0.41	44.37	Blaine Tech
	5/19/2015	78.93	38.45	34.55	3.90	43.60	Northstar
	5/29/2015	78.93	36.36	35.22	1.14	43.48	Northstar
	6/5/2015	78.93	36.50	35.43	1.07	43.29	Northstar
	6/12/2015	78.93	35.80	35.41	0.39	43.44	Northstar
	6/19/2015	78.93	36.02	35.42	0.60	43.39	Northstar
	6/26/2015	78.93	36.60	36.45	0.15	42.45	Northstar
	10/19/2015	78.93	36.35	35.53	0.82	43.24	Blaine Tech
	11/17/2015	78.93	35.65	---	---	43.28	Kinder Morgan
	3/14/2016	78.93	40.40	---	---	38.53	Blaine Tech
	4/11/2016	78.93	37.96	---	---	40.97	Blaine Tech
	6/29/2016	78.93	39.05	---	---	39.88	Blaine Tech
	8/22/2016	78.93	39.04	---	---	39.87	Blaine Tech
	10/3/2016	78.93	39.20	---	---	39.73	Blaine Tech
	4/17/2017	78.93	35.75	---	---	43.18	Blaine Tech
	10/2/2017	78.93	39.98	---	---	38.95	Blaine Tech
	4/16/2018	78.93	39.43	---	---	39.50	Blaine Tech
	11/5/2018	78.93	39.20	---	---	39.73	Blaine Tech
MW-SF-2	4/30/2007	78.45	28.35	28.34	0.01	50.11	Secor
	11/12/2007	78.45	29.18	28.71	0.47	49.65	Stantec
	8/12/2008	78.45	31.11	---	---	47.34	Envent
	10/17/2008	78.45	31.55	31.50	0.05	46.94	Envent

Table 9. Groundwater and Product Measurements and Elevations for Total Fluids, Groundwater, and Soil Vapor Extraction Wells

SFPP Norwalk Pump Station, Norwalk, California

Well ID	Date Gauged	Top of Well Casing Elevation (feet msl)	Measured Depth to Groundwater (feet btoc)	Measured Depth to Product (feet btoc)	Apparent Product Thickness (feet)	Corrected Groundwater Elevation (feet msl)	Gauged By
	12/18/2008	78.53	32.75	32.55	0.20	45.94	Envent
	1/15/2009	78.53	30.84	30.57	0.27	47.91	Envent
	3/24/2009	78.53	28.85	---	---	49.68	Envent
	4/21/2009	78.53	29.98	---	---	48.55	Envent
	7/21/2009	78.53	29.85	---	---	48.68	Envent
	10/19/2009	78.53	NM	---	---	NC	Blaine Tech
	12/9/2009	78.53	31.45	---	---	47.08	Kinder Morgan
	10/4/2010	78.53	30.96	30.75	0.21	47.74	Blaine Tech
	1/10/2011	78.53	32.62	32.50	0.12	46.01	Blaine Tech
	4/11/2011	78.53	29.83	---	---	48.70	Blaine Tech
	7/11/2011	78.53	NM	---	---	NC	
	10/10/2011	78.53	29.82	---	---	48.71	Blaine Tech
	1/9/2012	78.53	30.52	---	---	48.01	Blaine Tech
	4/16/2012	78.53	31.28	---	---	47.25	Blaine Tech
	7/9/2012	78.53	33.18	---	---	45.35	Blaine Tech
	10/15/2012	78.53	32.11	---	---	46.42	Blaine Tech
	1/14/2013	78.53	33.59	---	---	44.94	Blaine Tech
	4/8/2013	78.53	33.32	---	---	45.21	Blaine Tech
	10/7/2013	78.53	34.58	33.08	1.50	45.15	Blaine Tech
	4/14/2014	78.53	37.50	33.27	4.23	44.41	Blaine Tech
	5/6/2014	78.53	37.71	33.24	4.47	44.40	Nieto & Sons
	5/12/2014	78.53	37.53	33.34	4.19	44.35	Nieto & Sons
	5/20/2014	78.53	37.62	33.51	4.11	44.20	Nieto & Sons
	5/27/2014	78.53	38.24	33.77	4.47	43.87	Nieto & Sons
	6/4/2014	78.53	34.63	---	---	43.90	Nieto & Sons
	6/10/2014	78.53	38.49	34.00	4.49	43.63	Nieto & Sons
	8/8/2014	78.53	36.23	33.82	2.41	44.23	Blaine Tech
	8/13/2014	78.53	36.75	33.59	3.16	44.31	Blaine Tech
	8/19/2014	78.53	36.90	33.60	3.30	44.27	Blaine Tech
	8/29/2014	78.53	37.11	33.53	3.58	44.28	Blaine Tech
	9/5/2014	78.53	37.09	33.51	3.58	44.30	Blaine Tech
	9/11/2014	78.53	37.12	33.51	3.61	44.30	Blaine Tech
	9/18/2014	78.53	36.89	33.60	3.29	44.27	Blaine Tech
	9/26/2014	78.53	37.28	33.54	3.74	44.24	Blaine Tech
	10/1/2014	78.53	37.18	33.56	3.62	44.25	Blaine Tech
	10/6/2014	78.53	37.16	33.59	3.57	44.23	Blaine Tech
	10/14/2014	78.53	37.15	33.64	3.51	44.19	Blaine Tech
	10/23/2014	78.53	37.24	33.61	3.63	44.19	Blaine Tech
	10/27/2014	78.53	37.04	33.54	3.50	44.29	Blaine Tech
	11/3/2014	78.53	37.14	33.55	3.59	44.26	Blaine Tech
	11/10/2014	78.53	37.33	33.56	3.77	44.22	Blaine Tech
	11/18/2014	78.53	37.21	33.64	3.57	44.18	Blaine Tech
	11/25/2014	78.53	37.40	33.69	3.71	44.10	Blaine Tech
	12/3/2014	78.53	37.16	33.60	3.56	44.22	Blaine Tech
	12/12/2014	78.53	38.05	33.91	4.14	43.79	Blaine Tech
	12/19/2014	78.53	38.40	33.95	4.45	43.69	Blaine Tech
	4/20/2015	78.53	36.15	34.73	1.42	43.52	Blaine Tech
	6/25/2015	78.53	38.95	35.57	3.38	42.28	Blaine Tech
	10/21/2015	78.53	36.32	36.13	0.19	42.36	Kinder Morgan
	3/16/2016	78.53	39.27	---	---	39.26	Kinder Morgan
	4/11/2016	78.53	37.47	---	---	41.06	Blaine Tech
	6/29/2016	78.53	38.08	---	---	40.45	Blaine Tech
	8/22/2016	78.53	38.83	---	---	39.70	Blaine Tech
	10/3/2016	78.53	39.60	---	---	38.93	Blaine Tech
	3/10/2017	78.53	36.47	---	---	42.06	CH2M
	4/17/2017	78.53	35.78	---	---	42.75	Blaine Tech
	10/2/2017	78.53	39.68	---	---	38.85	Blaine Tech
	4/16/2018	78.53	39.47	---	---	39.06	Blaine Tech
	11/5/2018	78.53	39.55	---	---	38.98	Blaine Tech

Table 9. Groundwater and Product Measurements and Elevations for Total Fluids, Groundwater, and Soil Vapor Extraction Wells

SFPP Norwalk Pump Station, Norwalk, California

Well ID	Date Gauged	Top of Well Casing Elevation (feet msl)	Measured Depth to Groundwater (feet btoc)	Measured Depth to Product (feet btoc)	Apparent Product Thickness (feet)	Corrected Groundwater Elevation (feet msl)	Gauged By
MW-SF-3	4/30/2007	77.62	27.72	27.45	0.27	50.12	Secor
	11/12/2007	77.62	29.34	28.28	1.06	49.13	Stantec
	8/12/2008	77.62	30.30	29.05	1.25	48.32	Envent
	10/17/2008	77.62	29.45	---	---	48.17	Envent
	12/18/2008	78.12	31.08	30.82	0.26	47.25	Envent
	1/15/2009	78.12	29.96	29.94	0.02	48.18	Envent
	3/20/2009	78.12	31.10	---	---	47.02	Envent
	3/24/2009	78.12	27.82	---	---	50.30	Envent
	4/21/2009	78.12	29.51	29.50	0.01	48.62	Envent
	7/21/2009	78.12	30.07	---	---	48.05	Envent
	10/19/2009	78.12	NM	---	---	NC	Blaine Tech
	11/6/2009	78.12	30.37	30.35	0.02	47.77	Kinder Morgan
	12/9/2009	78.12	30.53	---	---	47.59	Kinder Morgan
	9/3/2010	78.12	30.97	30.42	0.55	47.59	Kinder Morgan
	10/4/2010	78.12	30.88	30.30	0.58	47.70	Blaine Tech
	4/12/2011	78.12	29.44	---	---	48.68	Blaine Tech
	10/10/2011	78.12	30.75	---	---	47.37	Blaine Tech
	4/16/2012	78.12	NM	---	---	NC	Blaine Tech
	7/9/2012	78.12	NM	---	---	NC	Blaine Tech
	10/15/2012	78.12	32.47	---	---	45.65	Blaine Tech
	5/24/2013	78.12	33.35	32.51	0.84	45.44	Blaine Tech
	9/25/2013	78.12	34.40	---	---	43.72	Blaine Tech
	10/7/2013	78.12	NM	---	---	NC	Blaine Tech
	11/14/2013	78.12	33.26	---	---	44.86	Blaine Tech
	4/18/2014	78.12	33.72	33.62	0.10	44.48	Blaine Tech
	8/8/2014	78.12	34.07	33.71	0.36	44.34	Blaine Tech
	10/14/2014	78.12	34.55	33.92	0.63	44.07	Blaine Tech
	10/23/2014	78.12	34.57	33.94	0.63	44.05	Blaine Tech
	10/27/2014	78.12	34.49	33.85	0.64	44.14	Blaine Tech
	11/10/2014	78.12	34.65	33.94	0.71	44.04	Blaine Tech
	11/18/2014	78.12	34.62	33.88	0.74	44.09	Blaine Tech
	11/25/2014	78.12	34.22	33.94	0.28	44.12	Blaine Tech
	12/12/2014	78.12	34.89	34.38	0.51	43.64	Blaine Tech
	12/19/2014	78.12	35.04	34.43	0.61	43.57	Blaine Tech
	4/20/2015	78.12	34.52	---	---	43.60	Blaine Tech
	10/21/2015	78.12	35.18	---	---	42.94	Kinder Morgan
	3/14/2016	78.12	39.43	39.40	0.03	38.71	Blaine Tech
	4/11/2016	78.12	37.17	---	---	40.95	Blaine Tech
	6/30/2016	78.12	38.28	---	---	39.84	Kinder Morgan
	8/22/2016	78.12	38.33	---	---	39.79	Kinder Morgan
	10/3/2016	78.12	39.40	---	---	38.72	Kinder Morgan
	3/8/2017	78.12	35.75	---	---	42.37	CH2M
	4/17/2017	78.12	35.15	---	---	42.97	Blaine Tech
	10/2/2017	78.12	39.20	---	---	38.92	Blaine Tech
	4/16/2018	78.12	38.81	---	---	39.31	Blaine Tech
	11/5/2018	78.12	38.69	---	---	39.43	Blaine Tech
MW-SF-4	3/12/2007	79.38	30.01	29.41	0.60	49.85	Secor
	4/30/2007	79.38	29.96	29.11	0.85	50.10	Secor
	8/14/2007	79.38	30.34	28.38	1.96	50.60	Geomatrix
	8/28/2007	79.38	29.95	28.30	1.65	50.74	Stantec
	9/11/2007	79.38	29.98	28.43	1.55	50.63	Geomatrix
	10/5/2007	79.38	30.68	28.85	1.83	50.15	Geomatrix
	10/12/2007	79.38	30.27	29.96	0.31	49.36	Geomatrix
	10/19/2007	79.38	30.28	---	---	49.10	Geomatrix
	10/26/2007	79.38	30.52	---	---	48.86	Geomatrix
	11/2/2007	79.38	30.68	---	---	48.70	Geomatrix
	11/12/2007	79.38	29.70	29.69	0.01	49.69	Stantec
	12/21/2007	79.38	30.69	---	---	48.69	Geomatrix
	2/19/2008	79.38	30.22	---	---	49.16	Stantec

Table 9. Groundwater and Product Measurements and Elevations for Total Fluids, Groundwater, and Soil Vapor Extraction Wells

SFPP Norwalk Pump Station, Norwalk, California

Well ID	Date Gauged	Top of Well Casing Elevation (feet msl)	Measured Depth to Groundwater (feet btoc)	Measured Depth to Product (feet btoc)	Apparent Product Thickness (feet)	Corrected Groundwater Elevation (feet msl)	Gauged By
	3/21/2008	79.38	30.07	---	---	49.31	Envent
	4/14/2008	79.38	29.95	---	---	49.43	Stantec
	8/8/2008	79.38	30.51	---	---	48.87	Envent
	8/11/2008	79.38	30.57	---	---	48.81	Stantec
	10/16/2008	79.38	30.77	---	---	48.61	Envent
	1/15/2009	79.38	31.14	---	---	48.24	Envent
	2/20/2009	79.38	30.84	---	---	48.54	Envent
	2/23/2009	79.38	30.96	---	---	48.42	Blaine Tech
	4/20/2009	79.38	30.02	29.94	0.08	49.42	Blaine Tech
	4/28/2009	79.38	30.78	---	---	48.60	Envent
	7/17/2009	79.38	31.85	---	---	47.53	Envent
	7/20/2009	79.38	31.65	31.61	0.04	47.76	Blaine Tech
	7/22/2009	79.38	31.65	31.61	0.04	47.76	Blaine Tech
	10/19/2009	79.38	31.93	31.90	0.03	47.47	Blaine Tech
	3/15/2010	79.38	31.95	31.91	0.04	47.46	Blaine Tech
	5/24/2010	79.38	31.60	---	---	47.78	Blaine Tech
	5/28/2010	79.38	26.40	---	---	52.98	Blaine Tech
	6/22/2010	79.38	31.63	---	---	47.75	Blaine Tech
	7/12/2010	79.38	31.37	---	---	48.01	Blaine Tech
	10/4/2010	79.38	31.81	---	---	47.57	Blaine Tech
	1/10/2011	79.38	32.99	---	---	46.39	Blaine Tech
	4/11/2011	79.38	30.85	---	---	48.53	Blaine Tech
	7/11/2011	79.38	30.35	---	---	49.03	Blaine Tech
	10/10/2011	79.38	NM	---	---	NC	Blaine Tech
	1/9/2012	79.38	32.07	---	---	47.31	Blaine Tech
	4/16/2012	79.38	33.35	---	---	46.03	Blaine Tech
	7/9/2012	79.38	32.11	---	---	47.27	Blaine Tech
	10/15/2012	79.38	34.04	---	---	45.34	Blaine Tech
	1/14/2013	79.38	34.52	---	---	44.86	Blaine Tech
	4/8/2013	79.38	DRY	---	---	NC	Blaine Tech
	10/7/2013	79.38	DRY	---	---	NC	Blaine Tech
	4/25/2014	79.38	40.03	34.23	5.80	43.96	Blaine Tech
	5/6/2014	79.38	39.78	33.91	5.87	44.27	Nieto & Sons
	5/12/2014	79.38	37.02	34.64	2.38	44.25	Nieto & Sons
	5/20/2014	79.38	36.60	35.60	1.00	43.58	Nieto & Sons
	5/27/2014	79.38	36.12	35.45	0.67	43.79	Nieto & Sons
	6/4/2014	79.38	36.54	35.91	0.63	43.34	Nieto & Sons
	6/10/2014	79.38	37.02	35.38	1.64	43.66	Nieto & Sons
	7/3/2014	79.38	36.98	35.63	1.35	43.47	Nieto & Sons
	7/8/2014	79.38	36.78	35.34	1.44	43.74	Blaine Tech
	7/18/2014	79.38	35.88	35.55	0.33	43.76	Blaine Tech
	7/24/2014	79.38	35.98	35.42	0.56	43.85	Blaine Tech
	8/1/2014	79.38	35.57	35.30	0.27	44.02	Blaine Tech
	8/14/2014	79.38	35.42	35.23	0.19	44.11	Blaine Tech
	8/19/2014	79.38	35.36	35.21	0.15	44.14	Blaine Tech
	8/29/2014	79.38	35.32	35.20	0.12	44.16	Blaine Tech
	9/18/2014	79.38	35.55	35.30	0.25	44.03	Blaine Tech
	9/26/2014	79.38	35.56	35.30	0.26	44.03	Blaine Tech
	10/1/2014	79.38	35.56	35.24	0.32	44.07	Blaine Tech
	10/6/2014	79.38	35.48	35.22	0.26	44.11	Blaine Tech
	10/14/2014	79.38	35.33	35.20	0.13	44.15	Blaine Tech
	10/23/2014	79.38	35.51	35.22	0.29	44.10	Blaine Tech
	10/27/2014	79.38	35.54	35.25	0.29	44.07	Blaine Tech
	11/18/2014	79.38	35.56	35.25	0.31	44.07	Blaine Tech
	11/25/2014	79.38	35.66	35.32	0.34	43.99	Blaine Tech
	12/12/2014	79.38	35.81	35.58	0.23	43.75	Blaine Tech
	12/19/2014	79.38	35.75	35.62	0.13	43.73	Blaine Tech
	4/20/2015	79.38	37.78	35.29	2.49	43.58	Blaine Tech
	5/19/2015	79.38	39.22	35.28	3.94	43.29	Northstar

Table 9. Groundwater and Product Measurements and Elevations for Total Fluids, Groundwater, and Soil Vapor Extraction Wells

SFPP Norwalk Pump Station, Norwalk, California

Well ID	Date Gauged	Top of Well Casing Elevation (feet msl)	Measured Depth to Groundwater (feet btoc)	Measured Depth to Product (feet btoc)	Apparent Product Thickness (feet)	Corrected Groundwater Elevation (feet msl)	Gauged By
	5/29/2015	79.38	37.10	35.80	1.30	43.31	Northstar
	6/5/2015	79.38	36.85	36.15	0.70	43.09	Northstar
	6/12/2015	79.38	36.55	36.15	0.40	43.15	Northstar
	6/19/2015	79.38	36.68	36.42	0.26	42.91	Northstar
	6/26/2015	79.38	37.23	36.96	0.27	42.36	Northstar
	10/19/2015	79.38	38.12	36.25	1.87	42.75	Blaine Tech
	11/17/2015	79.38	37.83	35.98	1.85	43.02	Kinder Morgan
	3/14/2016	79.38	40.80	---	---	38.58	Kinder Morgan
	4/11/2016	79.38	37.76	---	---	41.62	Blaine Tech
	6/29/2016	79.38	39.54	---	---	39.84	Blaine Tech
	8/22/2016	79.38	39.76	---	---	39.62	Blaine Tech
	10/3/2016	79.38	41.05	---	---	38.33	Blaine Tech
	4/17/2017	79.38	36.67	---	---	42.71	Blaine Tech
	10/2/2017	79.38	40.07	---	---	39.31	Blaine Tech
	4/16/2018	79.38	39.90	---	---	39.48	Blaine Tech
	11/5/2018	79.38	39.78	---	---	39.60	Blaine Tech
MW-SF-5	4/30/2007	79.74	29.54	---	---	50.20	Secor
	8/21/2007	79.74	28.36	---	---	51.38	Geomatrix
	8/28/2007	79.74	28.84	---	---	50.90	Stantec
	10/5/2007	79.74	29.50	---	---	50.24	Geomatrix
	11/2/2007	79.74	31.50	---	---	48.24	Geomatrix
	11/12/2007	79.74	29.93	---	---	49.81	Stantec
	12/21/2007	79.74	31.00	---	---	48.74	Geomatrix
	4/14/2008	79.74	30.20	---	---	49.54	Stantec
	8/11/2008	79.74	30.85	---	---	48.89	Stantec
	10/13/2008	79.74	30.93	---	---	48.81	Stantec
	4/20/2009	79.74	30.99	---	---	48.75	Blaine Tech
	10/19/2009	79.74	NM	---	---	NC	Blaine Tech
	5/24/2010	79.74	31.55	---	---	48.19	Blaine Tech
	5/28/2010	79.74	31.44	---	---	48.30	Blaine Tech
	6/22/2010	79.74	31.57	---	---	48.17	Blaine Tech
	10/4/2010	79.74	31.39	---	---	48.35	Blaine Tech
	1/10/2011	79.74	33.80	---	---	45.94	Blaine Tech
	4/11/2011	79.74	31.03	---	---	48.71	Blaine Tech
	7/11/2011	79.74	NM	---	---	NC	
	10/10/2011	79.74	31.28	---	---	48.46	Blaine Tech
	1/9/2012	79.74	32.12	---	---	47.62	Blaine Tech
	4/16/2012	79.74	33.30	---	---	46.44	Blaine Tech
	7/9/2012	79.74	34.45	---	---	45.29	Blaine Tech
	10/15/2012	79.74	33.28	---	---	46.46	Blaine Tech
	1/14/2013	79.74	33.37	---	---	46.37	Blaine Tech
	4/8/2013	79.74	34.28	---	---	45.46	Blaine Tech
	10/7/2013	79.74	34.58	---	---	45.16	Blaine Tech
	4/14/2014	79.74	35.33	---	---	44.41	Blaine Tech
	10/27/2014	79.74	35.48	---	---	44.26	Blaine Tech
	4/20/2015	79.74	36.05	---	---	43.69	Blaine Tech
	10/19/2015	79.74	36.82	---	---	42.92	Blaine Tech
	3/14/2016	79.74	DRY	---	---	NC	Blaine Tech
	4/11/2016	79.74	DRY	---	---	NC	Blaine Tech
	6/29/2016	79.74	DRY	---	---	NC	Blaine Tech
	8/22/2016	79.74	DRY	---	---	NC	Blaine Tech
	10/3/2016	79.74	DRY	---	---	NC	Blaine Tech
	4/17/2017	79.74	36.88	---	---	42.86	Blaine Tech
	10/2/2017	79.74	DRY	---	---	NC	Blaine Tech
	4/16/2018	79.74	DRY	---	---	NC	Blaine Tech
	11/5/2018	79.74	DRY	---	---	NC	Blaine Tech
MW-SF-6	4/30/2007	79.96	27.44	27.20	0.24	52.71	Secor
	11/12/2007	79.96	27.14	---	---	52.82	Stantec
	8/12/2008	79.96	29.82	---	---	50.14	Envent
	10/17/2008	79.96	29.75	---	---	50.21	Envent

Table 9. Groundwater and Product Measurements and Elevations for Total Fluids, Groundwater, and Soil Vapor Extraction Wells

SFPP Norwalk Pump Station, Norwalk, California

Well ID	Date Gauged	Top of Well Casing Elevation (feet msl)	Measured Depth to Groundwater (feet btoc)	Measured Depth to Product (feet btoc)	Apparent Product Thickness (feet)	Corrected Groundwater Elevation (feet msl)	Gauged By
	12/18/2008	76.8	30.73	---	---	46.07	Envent
	1/15/2009	76.8	31.35	---	---	45.45	Envent
	3/24/2009	76.80	30.50	---	---	46.30	Envent
	4/21/2009	76.80	28.45	---	---	48.35	Envent
	7/21/2009	76.80	27.22	---	---	49.58	Envent
	10/19/2009	76.80	NM	---	---	NC	Blaine Tech
	11/6/2009	76.80	29.10	---	---	47.70	Kinder Morgan
	12/9/2009	76.80	31.35	---	---	45.45	Kinder Morgan
	10/4/2010	76.80	29.09	---	---	47.71	Blaine Tech
	1/10/2011	76.80	30.87	---	---	45.93	Blaine Tech
	4/11/2011	76.80	28.16	---	---	48.64	Blaine Tech
	7/11/2011	76.80	NM	---	---	NC	
	10/10/2011	76.80	28.21	---	---	48.59	Blaine Tech
	1/9/2012	76.80	29.03	---	---	47.77	Blaine Tech
	4/16/2012	76.80	29.66	---	---	47.14	Blaine Tech
	7/9/2012	76.80	31.46	---	---	45.34	Blaine Tech
	10/15/2012	76.80	31.44	---	---	45.36	Blaine Tech
	1/14/2013	76.80	31.53	---	---	45.27	Blaine Tech
	4/8/2013	76.80	30.21	28.81	1.40	47.71	Blaine Tech
	10/7/2013	76.80	NM	---	---	NC	Blaine Tech
	11/14/2013	76.80	31.90	---	---	44.90	Blaine Tech
	4/18/2014	76.80	33.30	32.15	1.15	44.42	Blaine Tech
	8/8/2014	76.8	34.50	33.31	1.19	43.25	Blaine Tech
	8/13/2014	76.8	32.95	32.54	0.41	44.18	Blaine Tech
	8/19/2014	76.8	32.87	32.62	0.25	44.13	Blaine Tech
	8/29/2014	76.8	32.79	32.56	0.23	44.19	Blaine Tech
	9/5/2014	76.8	32.81	32.59	0.22	44.17	Blaine Tech
	9/18/2014	76.8	32.95	32.65	0.30	44.09	Blaine Tech
	9/26/2014	76.8	32.94	32.61	0.33	44.12	Blaine Tech
	10/1/2014	76.8	32.91	32.60	0.31	44.14	Blaine Tech
	10/6/2014	76.8	32.90	32.61	0.29	44.13	Blaine Tech
	10/14/2014	76.8	33.72	33.60	0.12	43.18	Blaine Tech
	10/23/2014	76.8	34.57	33.94	0.63	42.73	Blaine Tech
	10/27/2014	76.8	32.92	32.58	0.34	44.15	Blaine Tech
	11/18/2014	76.8	32.99	32.62	0.37	44.11	Blaine Tech
	11/25/2014	76.8	32.66	32.58	0.08	44.20	Blaine Tech
	12/12/2014	76.8	33.45	33.07	0.38	43.65	Blaine Tech
	12/19/2014	76.8	33.60	33.15	0.45	43.56	Blaine Tech
	4/20/2015	76.8	33.23	33.11	0.12	43.67	Blaine Tech
	10/21/2015	76.8	34.28	---	---	42.52	Kinder Morgan
	3/14/2016	76.8	38.10	38.08	0.02	38.72	Blaine Tech
	4/11/2016	76.8	35.83	---	---	40.97	Blaine Tech
	6/29/2016	76.8	36.89	---	---	39.91	Blaine Tech
	8/22/2016	76.8	37.11	---	---	39.69	Blaine Tech
	10/3/2016	76.8	38.45	---	---	38.35	Blaine Tech
	4/17/2017	76.8	34.03	---	---	42.77	Blaine Tech
	10/2/2017	76.8	37.89	---	---	38.91	Blaine Tech
	4/16/2018	76.8	37.65	---	---	39.15	Blaine Tech
	11/5/2018	76.8	37.70	---	---	39.10	Blaine Tech
MW-SF-9	4/30/2007	74.1	22.66	---	---	51.44	Secor
	8/14/2007	74.1	28.73	28.61	0.12	45.47	Geomatrix
	8/21/2007	74.1	26.55	---	---	47.55	Geomatrix
	8/28/2007	74.1	20.55	---	---	53.55	Stantec
	9/11/2007	74.1	19.40	---	---	54.70	Geomatrix
	10/5/2007	74.1	26.84	---	---	47.26	Geomatrix
	11/2/2007	74.1	22.76	---	---	51.34	Geomatrix
	11/12/2007	74.1	22.96	---	---	51.14	Stantec
	12/21/2007	74.1	24.05	---	---	50.05	Geomatrix
	4/14/2008	74.1	24.23	---	---	49.87	Stantec

Table 9. Groundwater and Product Measurements and Elevations for Total Fluids, Groundwater, and Soil Vapor Extraction Wells

SFPP Norwalk Pump Station, Norwalk, California

Well ID	Date Gauged	Top of Well Casing Elevation (feet msl)	Measured Depth to Groundwater (feet btoc)	Measured Depth to Product (feet btoc)	Apparent Product Thickness (feet)	Corrected Groundwater Elevation (feet msl)	Gauged By
	10/13/2008	74.1	24.83	---	---	49.27	Stantec
	4/20/2009	74.10	25.27	---	---	48.83	Blaine Tech
	10/19/2009	74.10	26.45	---	---	47.65	Blaine Tech
	5/24/2010	74.10	25.80	---	---	48.30	Blaine Tech
	5/28/2010	74.10	25.66	---	---	48.44	Blaine Tech
	6/22/2010	74.10	25.84	---	---	48.26	Blaine Tech
	10/4/2010	74.10	26.10	---	---	48.00	Blaine Tech
	1/10/2011	74.10	27.41	---	---	46.69	Blaine Tech
	4/11/2011	74.10	24.16	---	---	49.94	Blaine Tech
	7/11/2011	74.10	NM	---	---	NC	
	10/10/2011	74.10	25.02	---	---	49.08	Blaine Tech
	1/9/2012	74.10	25.98	---	---	48.12	Blaine Tech
	4/16/2012	74.10	25.92	---	---	48.18	Blaine Tech
	7/9/2012	74.10	26.44	---	---	47.66	Blaine Tech
	10/15/2012	74.10	NM	---	---	NC	Blaine Tech
	4/8/2013	74.10	DRY	---	---	NC	Blaine Tech
	6/6/2013	74.10	28.53	---	---	45.57	Blaine Tech
	10/7/2013	74.10	28.95	---	---	45.15	Blaine Tech
	4/25/2014	74.10	34.75	27.95	6.80	44.89	Blaine Tech
	5/5/2014	74.10	37.81	31.76	6.05	41.22	Nieto & Sons
	5/12/2014	74.10	32.32	29.11	3.21	44.40	Nieto & Sons
	5/20/2014	74.10	30.75	29.95	0.80	44.00	Nieto & Sons
	5/27/2014	74.1	38.08	32.32	5.76	40.71	Nieto & Sons
	6/4/2014	74.1	32.19	28.61	3.58	44.83	Nieto & Sons
	6/10/2014	74.1	36.27	28.85	7.42	43.88	Nieto & Sons
	7/3/2014	74.1	39.26	32.59	6.67	40.28	Nieto & Sons
	7/8/2014	74.1	36.40	28.60	7.80	44.06	Blaine Tech
	7/18/2014	74.1	31.04	29.66	1.38	44.18	Blaine Tech
	7/24/2014	74.1	31.15	29.85	1.30	44.01	Blaine Tech
	8/1/2014	74.1	30.25	29.85	0.40	44.18	Blaine Tech
	8/14/2014	74.1	30.13	29.82	0.31	44.22	Blaine Tech
	8/19/2014	74.1	30.08	29.85	0.23	44.21	Blaine Tech
	8/29/2014	74.1	30.10	29.81	0.29	44.24	Blaine Tech
	9/5/2014	74.1	30.13	29.84	0.29	44.21	Blaine Tech
	9/11/2014	74.1	29.49	28.47	1.02	45.44	Blaine Tech
	9/18/2014	74.1	30.29	29.90	0.39	44.13	Blaine Tech
	9/26/2014	74.1	30.25	29.84	0.41	44.18	Blaine Tech
	10/1/2014	74.1	30.24	29.84	0.40	44.19	Blaine Tech
	10/6/2014	74.1	30.24	29.83	0.41	44.19	Blaine Tech
	10/14/2014	74.1	30.12	29.81	0.31	44.23	Blaine Tech
	10/23/2014	74.1	30.27	29.85	0.42	44.17	Blaine Tech
	10/27/2014	74.1	30.29	29.89	0.40	44.14	Blaine Tech
	11/18/2014	74.1	30.35	29.86	0.49	44.15	Blaine Tech
	11/25/2014	74.1	30.42	29.91	0.51	44.10	Blaine Tech
	12/12/2014	74.1	30.65	30.10	0.55	43.90	Blaine Tech
	12/19/2014	74.1	30.80	30.13	0.67	43.85	Blaine Tech
	4/20/2015	74.1	36.69	27.67	9.02	44.76	Blaine Tech
	5/19/2015	74.1	35.68	26.83	8.85	45.63	Blaine Tech
	5/21/2015	74.1	32.50	27.31	5.19	45.83	Northstar
	5/29/2015	74.1	32.95	30.10	2.85	43.47	Northstar
	6/2/2015	74.1	31.67	30.45	1.22	43.42	Northstar
	6/5/2015	74.10	31.85	30.60	1.25	43.27	Northstar
	6/12/2015	74.10	31.28	30.75	0.53	43.25	Northstar
	6/19/2015	74.10	31.30	31.00	0.30	43.04	Northstar
	6/26/2015	74.10	31.20	29.50	1.70	44.29	Northstar
	8/11/2015	74.10	36.90	29.90	7.00	42.90	Northstar
	8/18/2015	74.10	35.19	30.25	4.94	42.94	Northstar
	8/28/2015	74.10	31.60	30.75	0.85	43.19	Kinder Morgan
	9/1/2015	74.10	31.78	30.90	0.88	43.04	Kinder Morgan

Table 9. Groundwater and Product Measurements and Elevations for Total Fluids, Groundwater, and Soil Vapor Extraction Wells

SFPP Norwalk Pump Station, Norwalk, California

Well ID	Date Gauged	Top of Well Casing Elevation (feet msl)	Measured Depth to Groundwater (feet btoc)	Measured Depth to Product (feet btoc)	Apparent Product Thickness (feet)	Corrected Groundwater Elevation (feet msl)	Gauged By
	10/16/2015	74.10	31.60	31.09	0.51	42.92	Blaine Tech
	10/19/2015	74.10	31.44	31.04	0.40	42.99	Kinder Morgan
	10/30/2015	74.10	32.60	32.06	0.54	41.94	Kinder Morgan
	11/17/2015	74.10	31.71	31.68	0.03	42.41	Kinder Morgan
	3/14/2016	74.10	34.14	---	---	39.96	Blaine Tech
	4/11/2016	74.10	32.89	---	---	41.21	Blaine Tech
	6/29/2016	74.10	34.00	---	---	40.10	Blaine Tech
MW-SF-10	10/17/2008	76.53	27.49	---	---	49.04	Envent
	10/19/2009	76.53	28.61	---	---	47.92	Blaine Tech
	10/4/2010	76.53	28.50	28.36	0.14	48.14	Blaine Tech
	4/11/2011	76.53	27.41	27.37	0.04	49.15	Blaine Tech
	10/10/2011	76.53	27.60	---	---	48.93	Blaine Tech
	4/16/2012	76.53	28.81	---	---	47.72	Blaine Tech
	7/9/2012	76.53	NM	---	---	NC	Blaine Tech
	10/15/2012	76.53	29.27	---	---	47.26	Blaine Tech
	4/8/2013	76.53	DRY	---	---	NC	Blaine Tech
	10/7/2013	76.53	DRY	---	---	NC	Blaine Tech
	4/14/2014	76.53	DRY	---	---	NC	Blaine Tech
	10/27/2014	76.53	DRY	---	---	NC	Blaine Tech
	4/20/2015	76.53	DRY	---	---	NC	Blaine Tech
	10/19/2015	76.53	DRY	---	---	NC	Blaine Tech
	3/14/2016	76.53	DRY	---	---	NC	Blaine Tech
	4/11/2016	76.53	DRY	---	---	NC	Blaine Tech
	6/29/2016	76.53	DRY	---	---	NC	Blaine Tech
	8/22/2016	76.53	DRY	---	---	NC	Blaine Tech
	10/3/2016	76.53	DRY	---	---	NC	Blaine Tech
	4/17/2017	76.53	DRY	---	---	NC	Blaine Tech
	10/2/2017	76.53	DRY	---	---	NC	Blaine Tech
	4/16/2018	76.53	DRY	---	---	NC	Blaine Tech
	11/5/2018	76.53	DRY	---	---	NC	Blaine Tech
MW-SF-11	8/14/2007	78.56	28.58	28.30	0.28	50.20	Geomatrix
	8/21/2007	78.56	28.76	28.63	0.13	49.90	Geomatrix
	8/28/2007	78.56	28.22	---	---	50.34	Stantec
	9/11/2007	78.56	26.90	---	---	51.66	Geomatrix
	10/5/2007	78.56	28.43	---	---	50.13	Geomatrix
	11/2/2007	78.56	29.48	29.38	0.10	49.16	Geomatrix
	11/12/2007	78.56	29.03	---	---	49.53	Stantec
	8/15/2008	78.56	30.13	---	---	48.43	Envent
	10/17/2008	78.56	30.50	---	---	48.06	Envent
	12/18/2008	78.56	29.92	---	---	48.64	Envent
	1/15/2009	78.56	30.32	---	---	48.24	Envent
	3/24/2009	78.56	31.05	---	---	47.51	Envent
	4/21/2009	78.56	30.03	---	---	48.53	Envent
	7/21/2009	78.56	30.89	---	---	47.67	Envent
	10/19/2009	78.56	NM	---	---	NC	Blaine Tech
	11/9/2009	78.56	31.00	---	---	47.56	Kinder Morgan
	9/3/2010	78.56	31.22	---	---	47.34	Kinder Morgan
	10/4/2010	78.56	30.94	---	---	47.62	Blaine Tech
	4/12/2011	78.56	30.82	---	---	47.74	Blaine Tech
	10/10/2011	78.56	30.10	---	---	48.46	Blaine Tech
	4/16/2012	78.56	NM	---	---	NC	Blaine Tech
	7/9/2012	78.56	NM	---	---	NC	Blaine Tech
	10/15/2012	78.56	33.28	---	---	45.28	Blaine Tech
	4/8/2013	78.56	33.11	---	---	45.45	Blaine Tech
	10/7/2013	78.56	33.91	---	---	44.65	Blaine Tech
	4/14/2014	78.56	35.20	34.95	0.25	43.56	Blaine Tech
	5/5/2014	78.56	36.52	33.71	2.81	44.29	Nieto & Sons
	5/12/2014	78.56	35.45	33.87	1.58	44.37	Nieto & Sons
	5/27/2014	78.56	35.38	34.65	0.73	43.76	Nieto & Sons
	6/4/2014	78.56	35.40	35.32	0.08	43.22	Nieto & Sons

Table 9. Groundwater and Product Measurements and Elevations for Total Fluids, Groundwater, and Soil Vapor Extraction Wells

SFPP Norwalk Pump Station, Norwalk, California

Well ID	Date Gauged	Top of Well Casing Elevation (feet msl)	Measured Depth to Groundwater (feet btoc)	Measured Depth to Product (feet btoc)	Apparent Product Thickness (feet)	Corrected Groundwater Elevation (feet msl)	Gauged By
	8/8/2014	78.56	36.22	33.11	3.11	44.83	Blaine Tech
	8/13/2014	78.56	36.22	33.47	2.75	44.54	Blaine Tech
	8/19/2014	78.56	36.46	33.94	2.52	44.12	Blaine Tech
	8/29/2014	78.56	36.68	33.83	2.85	44.16	Blaine Tech
	9/5/2014	78.56	36.62	33.80	2.82	44.20	Blaine Tech
	9/11/2014	78.56	37.15	33.78	3.37	44.11	Blaine Tech
	9/18/2014	78.56	36.79	33.93	2.86	44.06	Blaine Tech
	9/26/2014	78.56	36.89	33.88	3.01	44.08	Blaine Tech
	10/1/2014	78.56	34.95	33.32	1.63	44.91	Blaine Tech
	10/6/2014	78.56	36.36	33.95	2.41	44.13	Blaine Tech
	10/14/2014	78.56	36.67	33.86	2.81	44.14	Blaine Tech
	10/23/2014	78.56	36.86	33.86	3.00	44.10	Blaine Tech
	10/27/2014	78.56	36.20	33.99	2.21	44.13	Blaine Tech
	11/3/2014	78.56	36.91	33.84	3.07	44.11	Blaine Tech
	11/18/2014	78.56	36.78	33.95	2.83	44.04	Blaine Tech
	11/25/2014	78.56	36.65	34.03	2.62	44.01	Blaine Tech
	12/3/2014	78.56	36.71	33.94	2.77	44.07	Blaine Tech
	12/12/2014	78.56	37.29	34.08	3.21	43.84	Blaine Tech
	12/19/2014	78.56	38.03	34.04	3.99	43.72	Blaine Tech
	3/17/2015	78.56	35.94	35.50	0.44	42.97	Kinder Morgan
	4/20/2015	78.56	38.89	34.86	4.03	42.89	Kinder Morgan
	10/20/2015	78.56	37.42	35.38	2.04	42.77	Kinder Morgan
	3/16/2016	78.56	39.56	---	---	39.00	Kinder Morgan
	4/11/2016	78.56	37.62	---	---	40.94	Blaine Tech
	6/29/2016	78.56	37.06	---	---	41.50	Blaine Tech
	8/22/2016	78.56	39.25	---	---	39.31	Blaine Tech
	10/3/2016	78.56	40.05	---	---	38.51	Blaine Tech
	3/10/2017	78.56	36.56	---	---	42.00	CH2M
	4/17/2017	78.56	35.91	---	---	42.65	Blaine Tech
	10/2/2017	78.56	40.09	---	---	38.47	Blaine Tech
	4/16/2018	78.56	39.90	---	---	38.66	Blaine Tech
	11/5/2018	78.56	39.52	---	---	39.04	Blaine Tech
MW-SF-12	8/14/2007	78.07	27.76	---	---	50.31	Geomatrix
	8/21/2007	78.07	27.43	---	---	50.64	Geomatrix
	8/28/2007	78.07	27.58	---	---	50.49	Stantec
	9/11/2007	78.07	27.73	---	---	50.34	Geomatrix
	10/5/2007	78.07	28.06	---	---	50.01	Geomatrix
	11/2/2007	78.07	29.59	---	---	48.48	Geomatrix
	11/12/2007	78.07	28.33	---	---	49.74	Stantec
	8/12/2008	78.07	30.02	---	---	48.05	Envent
	10/17/2008	78.07	30.42	---	---	47.65	Envent
	12/18/2008	78.07	31.55	---	---	46.52	Envent
	1/15/2009	78.07	30.11	---	---	47.96	Envent
	3/24/2009	78.07	29.41	---	---	48.66	Envent
	4/21/2009	78.07	29.52	---	---	48.55	Envent
	7/21/2009	78.07	28.58	---	---	49.49	Envent
	10/19/2009	78.07	NM	---	---	NC	Blaine Tech
	11/4/2009	78.07	30.36	---	---	47.71	Kinder Morgan
	2/4/2010	78.07	29.20	---	---	48.87	Kinder Morgan
	10/4/2010	78.07	30.70	---	---	47.37	Blaine Tech
	4/11/2011	78.07	29.47	---	---	48.60	Blaine Tech
	10/10/2011	78.07	26.60	---	---	51.47	Blaine Tech
	4/16/2012	78.07	31.40	---	---	46.67	Blaine Tech
	7/9/2012	78.07	NM	---	---	NC	Blaine Tech
	10/15/2012	78.07	32.12	---	---	45.95	Blaine Tech
	4/8/2013	78.07	DRY	---	---	NC	Blaine Tech
	10/7/2013	78.07	NM	---	---	NC	Blaine Tech
	4/14/2014	78.07	38.04	32.67	5.37	44.33	Blaine Tech
	5/20/2014	78.07	37.80	32.90	4.90	44.19	Nieto & Sons

Table 9. Groundwater and Product Measurements and Elevations for Total Fluids, Groundwater, and Soil Vapor Extraction Wells

SFPP Norwalk Pump Station, Norwalk, California

Well ID	Date Gauged	Top of Well Casing Elevation (feet msl)	Measured Depth to Groundwater (feet btoc)	Measured Depth to Product (feet btoc)	Apparent Product Thickness (feet)	Corrected Groundwater Elevation (feet msl)	Gauged By
	5/27/2014	78.07	33.27	---	---	44.80	Nieto & Sons
	6/4/2014	78.07	32.78	---	---	45.29	Nieto & Sons
	6/10/2014	78.07	33.76	---	---	44.31	Nieto & Sons
	7/3/2014	78.07	NM	33.58	---	NC	Nieto & Sons
	7/24/2014	78.07	NM	33.35	3.97	NC	Blaine Tech
	8/1/2014	78.07	37.20	33.17	4.03	44.09	Blaine Tech
	9/5/2014	78.07	38.52	32.93	5.59	44.02	Blaine Tech
	9/11/2014	78.07	38.56	32.98	5.58	43.97	Blaine Tech
	9/18/2014	78.07	38.25	33.09	5.16	43.95	Blaine Tech
	9/26/2014	78.07	38.03	33.03	5.00	44.04	Blaine Tech
	10/1/2014	78.07	37.82	33.08	4.74	44.04	Blaine Tech
	10/6/2014	78.07	37.63	33.07	4.56	44.09	Blaine Tech
	10/14/2014	78.07	37.56	33.13	4.43	44.05	Blaine Tech
	10/23/2014	78.07	37.56	33.06	4.50	44.11	Blaine Tech
	10/27/2014	78.07	37.40	33.08	4.32	44.13	Blaine Tech
	11/3/2014	78.07	37.48	33.09	4.39	44.10	Blaine Tech
	11/18/2014	78.07	37.44	33.15	4.29	44.06	Blaine Tech
	11/25/2014	78.07	37.35	33.21	4.14	44.03	Blaine Tech
	12/3/2014	78.07	37.31	33.12	4.19	44.11	Blaine Tech
	12/12/2014	78.07	37.92	33.45	4.47	43.73	Blaine Tech
	12/19/2014	78.07	38.25	33.50	4.75	43.62	Blaine Tech
	3/17/2015	78.07	36.42	34.05	2.37	43.55	Kinder Morgan
	4/20/2015	78.07	36.42	34.05	2.37	43.55	Blaine Tech
	10/20/2015	78.07	36.78	34.84	1.94	42.84	Kinder Morgan
	3/16/2016	78.07	39.03	---	---	39.04	Kinder Morgan
	4/11/2016	78.07	37.13	---	---	40.94	Blaine Tech
	6/29/2016	78.07	38.34	38.28	0.06	39.78	Blaine Tech
	8/22/2016	78.07	38.60	---	---	39.47	Blaine Tech
	10/3/2016	78.07	39.45	---	---	38.62	Blaine Tech
	3/10/2017	78.07	36.09	---	---	41.98	CH2M
	4/17/2017	78.07	35.12	---	---	42.95	Blaine Tech
	10/2/2017	78.07	39.31	---	---	38.76	Blaine Tech
	4/16/2018	78.07	39.09	---	---	38.98	Blaine Tech
	11/5/2018	78.07	38.96	---	---	39.11	Blaine Tech
MW-SF-13	8/14/2007	73.40	22.98	---	---	50.42	Geomatrix
	8/21/2007	73.40	23.11	---	---	50.29	Geomatrix
	8/28/2007	73.40	22.85	---	---	50.55	Stantec
	9/11/2007	73.40	23.10	---	---	50.30	Geomatrix
	10/5/2007	73.40	28.11	---	---	45.29	Geomatrix
	11/2/2007	73.40	25.43	25.41	0.02	47.99	Geomatrix
	11/12/2007	73.40	23.70	---	---	49.70	Stantec
	12/21/2007	73.40	24.45	24.42	0.03	48.97	Geomatrix
	8/15/2008	73.40	27.38	24.11	3.27	48.47	Envent
	10/17/2008	73.40	27.28	24.33	2.95	48.33	Envent
	10/21/2008	73.40	27.14	24.26	2.88	48.42	Envent
	12/17/2008	73.40	26.21	24.70	1.51	48.32	Envent
	1/15/2009	73.40	26.90	24.80	2.10	48.08	Envent
	3/27/2009	73.40	26.46	25.49	0.97	47.67	Envent
	4/21/2009	73.40	24.86	24.78	0.08	48.60	Envent
	7/21/2009	73.40	25.72	25.48	0.24	47.86	Envent
	10/19/2009	73.40	NM	---	---	NC	Blaine Tech
	11/6/2009	73.40	25.72	---	---	47.68	Kinder Morgan
	2/4/2010	73.40	25.43	25.30	0.13	48.07	Kinder Morgan
	9/3/2010	73.40	27.40	25.71	1.69	47.27	Kinder Morgan
	10/4/2010	73.40	26.95	25.92	1.03	47.22	Blaine Tech
	4/12/2011	73.40	24.79	24.78	0.01	48.62	Blaine Tech
	10/10/2011	73.40	26.00	---	---	47.40	Blaine Tech
	4/16/2012	73.40	27.19	---	---	46.21	Blaine Tech
	7/9/2012	73.40	NM	---	---	NC	Blaine Tech

Table 9. Groundwater and Product Measurements and Elevations for Total Fluids, Groundwater, and Soil Vapor Extraction Wells

SFPP Norwalk Pump Station, Norwalk, California

Well ID	Date Gauged	Top of Well Casing Elevation (feet msl)	Measured Depth to Groundwater (feet btoc)	Measured Depth to Product (feet btoc)	Apparent Product Thickness (feet)	Corrected Groundwater Elevation (feet msl)	Gauged By
	10/15/2012	73.40	27.01	---	---	46.39	Blaine Tech
	4/8/2013	73.40	27.90	---	---	45.50	Blaine Tech
	10/7/2013	73.40	NM	---	---	NC	Blaine Tech
	11/14/2013	73.40	29.95	28.25	1.70	44.73	Blaine Tech
	4/14/2014	73.40	31.36	28.47	2.89	44.21	Blaine Tech
	5/5/2014	73.40	31.62	28.49	3.13	44.13	Nieto & Sons
	5/12/2014	73.40	30.02	28.88	1.14	44.24	Nieto & Sons
	5/20/2014	73.40	31.10	29.77	1.33	43.30	Nieto & Sons
	5/27/2014	73.40	30.17	29.48	0.69	43.75	Nieto & Sons
	6/4/2014	73.40	30.22	---	---	43.18	Nieto & Sons
	6/10/2014	73.40	30.20	29.76	0.44	43.53	Nieto & Sons
	7/3/2014	73.40	30.49	29.88	0.61	43.37	Nieto & Sons
	7/24/2014	73.40	30.50	29.54	0.96	43.62	Blaine Tech
	8/1/2014	73.40	29.82	29.25	0.57	44.01	Blaine Tech
	8/8/2014	73.40	34.07	33.71	0.36	39.60	Blaine Tech
	8/14/2014	73.40	29.96	29.13	0.83	44.06	Blaine Tech
	8/19/2014	73.40	29.91	29.15	0.76	44.06	Blaine Tech
	8/29/2014	73.40	30.15	29.02	1.13	44.10	Blaine Tech
	9/5/2014	73.40	30.19	29.08	1.11	44.04	Blaine Tech
	9/11/2014	73.40	30.66	28.91	1.75	44.05	Blaine Tech
	9/18/2014	73.40	30.41	29.15	1.26	43.94	Blaine Tech
	9/26/2014	73.40	30.18	29.14	1.04	44.00	Blaine Tech
	10/1/2014	73.40	30.38	29.05	1.33	44.02	Blaine Tech
	10/6/2014	73.40	30.10	29.12	0.98	44.04	Blaine Tech
	10/13/2014	73.40	30.28	29.07	1.21	44.03	Blaine Tech
	10/23/2014	73.40	30.72	28.95	1.77	44.01	Blaine Tech
	10/27/2014	73.40	30.21	29.06	1.15	44.05	Blaine Tech
	11/3/2014	73.40	30.62	28.93	1.69	44.05	Blaine Tech
	11/18/2014	73.40	30.54	29.11	1.43	43.93	Blaine Tech
	11/25/2014	73.40	29.48	29.14	0.34	44.18	Blaine Tech
	12/3/2014	73.40	31.02	28.93	2.09	43.95	Blaine Tech
	12/12/2014	73.40	31.05	29.40	1.65	43.59	Blaine Tech
	12/19/2014	73.40	31.11	29.40	1.71	43.57	Blaine Tech
	4/20/2015	73.40	32.44	29.04	3.40	43.51	Blaine Tech
	10/19/2015	73.40	35.16	29.31	5.85	42.63	Blaine Tech
	3/14/2016	73.40	34.72	---	---	38.68	Blaine Tech
	4/11/2016	73.40	32.28	---	---	41.12	Blaine Tech
	6/29/2016	73.40	33.62	---	---	39.78	Blaine Tech
	8/22/2016	73.40	33.66	---	---	39.74	Blaine Tech
	10/3/2016	73.40	34.20	---	---	39.20	Blaine Tech
	3/24/2017	73.40	31.25	---	---	42.15	CH2M
	4/17/2017	73.40	30.40	---	---	43.00	Blaine Tech
	10/2/2017	73.40	34.52	---	---	38.88	Blaine Tech
	4/16/2018	73.40	34.26	---	---	39.14	Blaine Tech
	11/5/2018	73.40	34.43	---	---	38.97	Blaine Tech
MW-SF-14	8/14/2007	78.16	27.68	---	---	50.48	Geomatrix
	8/21/2007	78.16	27.60	---	---	50.56	Geomatrix
	8/28/2007	78.16	27.53	---	---	50.63	Stantec
	9/11/2007	78.16	27.66	---	---	50.50	Geomatrix
	10/5/2007	78.16	27.75	---	---	50.41	Geomatrix
	11/2/2007	78.16	29.83	---	---	48.33	Geomatrix
	11/12/2007	78.16	NM	---	---	NC	Secor
	8/15/2008	78.16	29.77	29.24	0.53	48.81	Envent
	10/17/2008	78.16	29.52	29.50	0.02	48.66	Envent
	12/18/2008	78.16	30.62	---	---	47.54	Envent
	1/15/2009	78.16	30.08	---	---	48.08	Envent
	3/24/2009	78.16	29.73	---	---	48.43	Envent
	4/21/2009	78.16	29.61	---	---	48.55	Envent
	7/21/2009	78.16	29.20	---	---	48.96	Envent

Table 9. Groundwater and Product Measurements and Elevations for Total Fluids, Groundwater, and Soil Vapor Extraction Wells

SFPP Norwalk Pump Station, Norwalk, California

Well ID	Date Gauged	Top of Well Casing Elevation (feet msl)	Measured Depth to Groundwater (feet btoc)	Measured Depth to Product (feet btoc)	Apparent Product Thickness (feet)	Corrected Groundwater Elevation (feet msl)	Gauged By
	10/19/2009	78.16	NM	---	---	NC	Blaine Tech
	11/6/2009	78.16	30.48	---	---	47.68	Kinder Morgan
	12/9/2009	78.16	30.68	---	---	47.48	Kinder Morgan
	6/22/2010	78.16	26.17	---	---	51.99	Blaine Tech
	10/4/2010	78.16	30.54	---	---	47.62	Blaine Tech
	4/12/2011	78.16	29.55	---	---	48.61	Blaine Tech
	10/10/2011	78.16	29.84	---	---	48.32	Blaine Tech
	4/16/2012	78.16	NM	---	---	NC	Blaine Tech
	7/9/2012	78.16	NM	---	---	NC	Blaine Tech
	10/15/2012	78.16	30.02	---	---	48.14	Blaine Tech
	4/8/2013	78.16	32.75	---	---	45.41	Blaine Tech
	5/24/2013	78.16	32.75	---	---	45.41	Blaine Tech
	9/26/2013	78.16	34.50	34.25	0.25	43.86	Blaine Tech
	10/7/2013	78.16	NM	---	---	NC	Blaine Tech
	11/14/2013	78.16	33.57	33.19	0.38	44.89	Blaine Tech
	4/14/2014	78.16	34.81	33.56	1.25	44.35	Blaine Tech
	8/8/2014	78.16	34.24	33.98	0.26	44.13	Blaine Tech
	10/14/2014	78.16	34.36	33.80	0.56	44.25	Blaine Tech
	10/23/2014	78.16	34.49	34.43	0.06	43.72	Blaine Tech
	10/27/2014	78.16	34.40	33.97	0.43	44.10	Blaine Tech
	11/18/2014	78.16	34.27	34.07	0.20	44.05	Blaine Tech
	4/20/2015	78.16	34.48	---	---	43.68	Blaine Tech
	10/21/2015	78.16	35.25	---	---	42.91	Blaine Tech
	3/14/2016	78.16	36.21	---	---	41.95	Blaine Tech
	4/11/2016	78.16	37.14	---	---	41.02	Blaine Tech
	6/29/2016	78.16	37.36	---	---	40.80	Blaine Tech
	8/22/2016	78.16	DRY	---	---	NC	Blaine Tech
	10/3/2016	78.16	DRY	---	---	NC	Blaine Tech
	4/17/2017	78.16	35.40	---	---	42.76	Blaine Tech
	10/2/2017	78.16	DRY	---	---	NC	Blaine Tech
	4/16/2018	78.16	DRY	---	---	NC	Blaine Tech
	11/5/2018	78.16	DRY	---	---	NC	Blaine Tech
MW-SF-15	8/14/2007	78.27	27.78	27.75	0.03	50.51	Geomatrix
	8/21/2007	78.27	27.69	27.65	0.04	50.61	Geomatrix
	8/28/2007	78.27	27.65	27.61	0.04	50.65	Stantec
	9/11/2007	78.27	27.62	---	---	50.65	Geomatrix
	10/5/2007	78.27	28.15	---	---	50.12	Geomatrix
	11/2/2007	78.27	30.45	30.20	0.25	48.02	Geomatrix
	11/12/2007	78.27	28.75	---	---	49.52	Stantec
	8/15/2008	78.27	30.12	29.35	0.77	48.77	Envent
	10/17/2008	78.27	30.80	29.44	1.36	48.56	Envent
	10/21/2008	78.27	30.80	29.31	1.49	48.66	Envent
	12/18/2008	78.27	32.11	30.56	1.55	47.40	Envent
	1/15/2009	78.27	31.75	29.70	2.05	48.16	Envent
	3/24/2009	78.27	30.32	29.93	0.39	48.26	Envent
	4/21/2009	78.27	29.96	29.60	0.36	48.60	Envent
	7/21/2009	78.27	30.45	---	---	47.82	Envent
	10/19/2009	78.27	NM	---	---	NC	Blaine Tech
	11/4/2009	78.27	31.10	30.45	0.36	47.46	Kinder Morgan
	12/9/2009	78.27	30.87	---	---	47.40	Kinder Morgan
	10/4/2010	78.27	30.66	30.65	0.01	47.62	Blaine Tech
	4/12/2011	78.27	30.50	29.40	1.10	48.65	Blaine Tech
	10/10/2011	78.27	29.60	---	---	48.67	Blaine Tech
	12/2/2011	78.27	31.40	30.05	1.35	47.95	Blaine Tech
	4/16/2012	78.27	32.48	32.39	0.09	45.86	Blaine Tech
	7/9/2012	78.27	NM	---	---	NC	Blaine Tech
	10/15/2012	78.16	33.04	---	---	45.12	Blaine Tech
	4/8/2013	78.27	33.90	---	---	44.37	Blaine Tech
	5/24/2013	78.27	33.90	---	---	44.37	Blaine Tech

Table 9. Groundwater and Product Measurements and Elevations for Total Fluids, Groundwater, and Soil Vapor Extraction Wells

SFPP Norwalk Pump Station, Norwalk, California

Well ID	Date Gauged	Top of Well Casing Elevation (feet msl)	Measured Depth to Groundwater (feet btoc)	Measured Depth to Product (feet btoc)	Apparent Product Thickness (feet)	Corrected Groundwater Elevation (feet msl)	Gauged By
	10/7/2013	78.27	NM	---	---	NC	Blaine Tech
	11/14/2013	78.27	33.41	33.38	0.03	44.88	Blaine Tech
	4/18/2014	78.27	33.85	---	---	44.42	Blaine Tech
	8/8/2014	78.27	34.87	33.96	0.91	44.13	Blaine Tech
	8/13/2014	78.27	34.89	33.95	0.94	44.13	Blaine Tech
	8/19/2014	78.27	34.90	33.94	0.96	44.14	Blaine Tech
	8/29/2014	78.27	35.65	35.38	0.27	42.84	Blaine Tech
	10/27/2014	78.27	35.82	---	---	42.45	Blaine Tech
	4/20/2015	78.27	36.63	34.12	2.51	43.65	Blaine Tech
	10/19/2015	78.27	37.90	34.87	3.03	42.79	Blaine Tech
	11/17/2015	78.27	37.71	35.36	2.35	42.44	Kinder Morgan
	3/14/2016	78.27	39.70	---	---	38.57	Blaine Tech
	4/11/2016	78.27	37.24	---	---	41.03	Blaine Tech
	6/29/2016	78.27	38.70	---	---	39.57	Blaine Tech
	8/22/2016	78.27	38.78	---	---	39.49	Blaine Tech
	10/3/2016	78.27	39.56	---	---	38.71	Blaine Tech
	3/23/2017	78.27	36.10	---	---	42.17	CH2M
	4/17/2017	78.27	35.39	---	---	42.88	Blaine Tech
	10/2/2017	78.27	39.40	---	---	38.87	Blaine Tech
	4/16/2018	78.27	39.10	---	---	39.17	Blaine Tech
	11/5/2018	78.27	39.00	---	---	39.27	Blaine Tech
MW-SF-16	8/14/2007	78.21	27.68	---	---	50.53	Geomatrix
	8/21/2007	78.21	27.33	---	---	50.88	Geomatrix
	8/28/2007	78.21	27.51	---	---	50.70	Stantec
	9/11/2007	78.21	27.59	---	---	50.62	Geomatrix
	10/5/2007	78.21	28.10	---	---	50.11	Geomatrix
	11/2/2007	78.21	29.81	---	---	48.40	Geomatrix
	11/12/2007	78.21	28.40	---	---	49.81	Stantec
	8/15/2008	78.21	29.36	---	---	48.85	Envent
	10/17/2008	78.21	29.51	---	---	48.70	Envent
	12/18/2008	78.21	30.94	---	---	47.27	Envent
	1/15/2009	78.21	30.01	30.00	0.01	48.21	Envent
	3/24/2009	78.21	29.82	---	---	48.39	Envent
	4/21/2009	78.21	29.60	---	---	48.61	Envent
	7/21/2009	78.21	30.36	---	---	47.85	Envent
	10/19/2009	78.21	NM	---	---	NC	Blaine Tech
	11/4/2009	78.21	30.58	---	---	47.63	Kinder Morgan
	2/4/2010	78.21	30.36	---	---	47.85	Kinder Morgan
	9/3/2010	78.21	30.25	---	---	47.96	Kinder Morgan
	10/4/2010	78.21	30.49	---	---	47.72	Blaine Tech
	4/12/2011	78.21	29.52	---	---	48.69	Blaine Tech
	10/10/2011	78.21	29.85	---	---	48.36	Blaine Tech
	4/16/2012	78.21	NM	---	---	NC	Blaine Tech
	7/9/2012	78.21	NM	---	---	NC	Blaine Tech
	10/15/2012	78.21	32.47	---	---	45.74	Blaine Tech
	4/8/2013	78.21	32.97	32.73	0.24	45.43	Blaine Tech
	5/24/2013	78.21	32.97	32.73	0.24	45.43	Blaine Tech
	10/7/2013	78.21	NM	---	---	NC	Blaine Tech
	11/14/2013	78.21	33.80	33.21	0.59	44.88	Blaine Tech
	4/18/2014	78.21	34.20	33.65	0.55	44.45	Blaine Tech
	8/8/2014	78.21	34.06	34.05	0.01	44.16	Blaine Tech
	10/27/2014	78.21	34.25	---	---	43.96	Blaine Tech
	4/20/2015	78.21	34.52	---	---	43.69	Blaine Tech
	6/8/2015	78.21	35.17	35.00	0.17	43.18	Blaine Tech
	10/21/2015	78.21	34.56	---	---	43.65	Kinder Morgan
	3/14/2016	78.21	39.60	---	---	38.61	Blaine Tech
	4/11/2016	78.21	37.15	---	---	41.06	Blaine Tech
	6/29/2016	78.21	38.35	---	---	39.86	Blaine Tech
	8/22/2016	78.21	38.51	---	---	39.70	Blaine Tech

Table 9. Groundwater and Product Measurements and Elevations for Total Fluids, Groundwater, and Soil Vapor Extraction Wells

SFPP Norwalk Pump Station, Norwalk, California

Well ID	Date Gauged	Top of Well Casing Elevation (feet msl)	Measured Depth to Groundwater (feet btoc)	Measured Depth to Product (feet btoc)	Apparent Product Thickness (feet)	Corrected Groundwater Elevation (feet msl)	Gauged By
	10/3/2016	78.21	39.35	---	---	38.86	Blaine Tech
	4/17/2017	78.21	35.20	---	---	43.01	Blaine Tech
	10/2/2017	78.21	DRY	---	---	NC	Blaine Tech
	4/16/2018	78.21	DRY	---	---	NC	Blaine Tech
	11/5/2018	78.21	DRY	---	---	NC	Blaine Tech

Notes:

Corrected groundwater elevations are based on specific gravity data collected during baildown testing, or a default value of 0.8 foot msl was used for wells not tested.

--- = not detected or not applicable

DRY = No measurable water observed in the well.

feet btoc = feet below top of casing

feet msl = feet above mean sea level based on National Geodetic Vertical Datum of 1929

NC = not calculated

NM = not measured

Figures

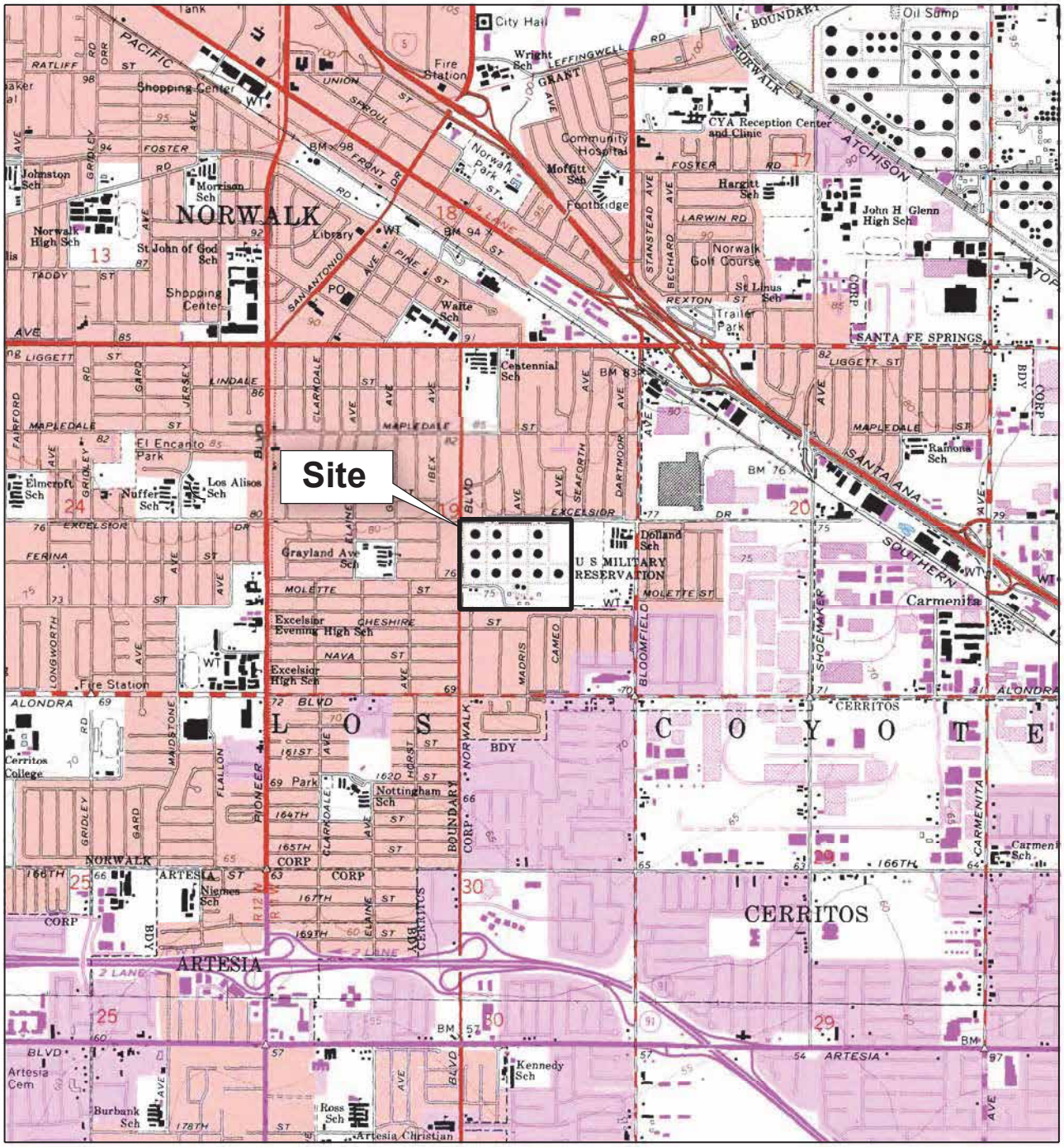
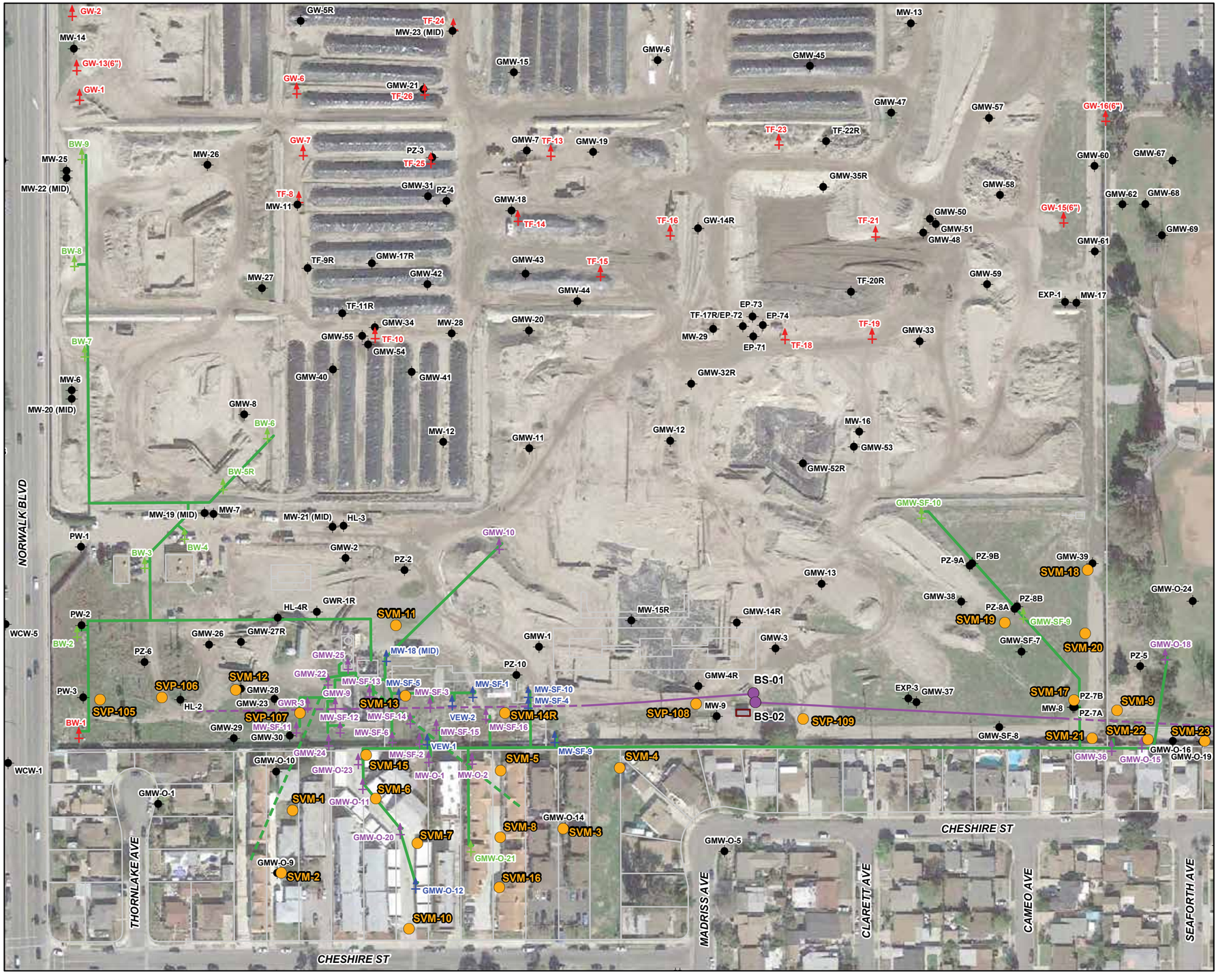


Figure 1. Site Location Map
SFPP Norwalk Pump Station
Norwalk, California

BASEMAP MODIFIED FROM U.S.G.S. 7.5 MINUTE QUADRANGLE MAP
LOS ALAMITOS 1964, CALIFORNIA. PHOTO-REVISED 1981.
WHITTIER 1965, CALIFORNIA. PHOTO-REVISED 1981.

JACOBS®



LEGEND

- Soil Vapor Probe/Soil Vapor Monitoring Probe
- Horizontal Biosparge Well Entry Point
- Existing Groundwater Monitoring Well
- Existing Remediation Well
- Kinder Morgan Combined Soil Vapor and Total Fluids Extraction Wells
- Kinder Morgan Soil Vapor Extraction Wells
- Kinder Morgan Total Fluids and/or Groundwater Extraction Wells
- Kinder Morgan Remediation Piping Layout (Above Ground and Below Ground)
- Horizontal Vapor Extraction Well Piping
- Horizontal Biosparge Well (Dashed Line Depicts Approximate Lateral Extent of Well Screen)
- Air Compressor System

Imagery Source:
Google Earth October 18, 2016.

N

0 75 150 300

Feet

1 inch = 150 feet

Figure 2. Remediation System Layout
SFPP Norwalk Pump Station
Norwalk, California

JACOBS

R:\ENBG\00_PROJ\K\KINDERMORGAN\NORWALK\MAPFILES\2018\FIGURE_2_REMEDIATION_SYSTEM_LAYOUT.MXD AESPEJO 2/15/2018

Appendix A
Laboratory Analytical Reports

Air TECHNOLOGY Laboratories, Inc.

October 26, 2018

LA Cert #04140
EPA Methods TO3, TO14A, TO15, 25C/3C, RSK-175
TX Cert T104704450-14-6
EPA Methods TO14A, TO15
UT Cert CA0133332015-3
EPA Methods TO3, TO14A, TO15, RSK-175

CH2M Hill
ATTN: Eric Davis
1000 Wilshire Blvd., Suite 2100
Los Angeles, CA 90017

LABORATORY TEST RESULTS

Project Reference: SFPP Norwalk
Lab Number: J100804-01/04

Enclosed are results for sample(s) received 10/08/18 by Air Technology Laboratories. Samples were received intact. Analyses were performed according to specifications on the chain of custody provided with the sample(s).

Report Narrative:

- Unless otherwise noted in the report, sample analyses were performed within method performance criteria and meet all requirements of the TNI Standards.
- The enclosed results relate only to the sample(s).

Preliminary results were e-mailed to Eric Davis and Vladimir Carino on 10/24/18, and Nils Orliczky on 10/25/18.

ATL appreciates the opportunity to provide testing services to your company. If you have any questions regarding these results, please call me at (626) 964-4032.

Sincerely,

Mark Johnson
Operations Manager
MJohnson@AirTechLabs.com

Note: The cover letter is an integral part of this analytical report.

J100804-01/04

Air Technology Laboratories, Inc.
18501 Gale Ave. #130
City of Industry, CA 91748
Tel: 626-964-4032
Joann De La Ossa (JDeLaOssa@airtechlabs.com)

CHAIN OF CUSTODY RECORD

DATE: 10/5/18
PAGE: 1 of 1

Section A (Required Client Information)		Section B (Required Project Information)		Section C (Invoice Information)		Section D (Sampler Information)	
Company:	CH2M HILL Attention: Eric Davis	Report To:	Eric Davis (eric.davis@ch2m.com)	Attention:	Eric Davis	Sampler Name:	James Dye
Address:	1000 Wilshire Blvd. Suite 2100 Los Angeles, CA 90017	Copy To:	Vladimir Carino (vcarino@ch2m.com)	Company Name:	CH2M	Sampler Signature:	
Email To:	eric.davis@ch2m.com vcarino@ch2m.com	Purchase Order No.:		Address:	1000 Wilshire Blvd. Suite 2100 Los Angeles, CA 90017	Sample Date:	10/5/18
Phone: 404-323-1600	Fax:	Project Name:	SFPP Norwalk	Project Manager:	Joann De La Ossa		

Section E — Required Sample Information

ITEM #	SAMPLE ID	LOCATION/ DESCRIPTION	MATRIX	SAMPLE TYPE (G=GRAB C=COMP)	SAMPLING DATE	SAMPLING TIME	TOTAL # OF CONTAINERS	Analysis Test: TO-3 (Total VOCs as Hexane)	Analysis Test: TO-15 (VOCs, Target Analytes)	Analysis Test: ASTM-D 1946 (O2/Argon, CO2, CH4, N2)	Comments
01	VEFF-10.05	Effluent (stack)	Vapor	G	10/5/18	1200	1	X	X		Individually Certified 6-Liter SUMMA
02	VEFF-10.05D	Effluent (stack) (duplicate)	Vapor	G	10/5/18	1200	1	X	X		Individually Certified 6-Liter SUMMA
03	VPOST-10.05	Influent (post-dilution)	Vapor	G	10/5/18	1205	1	X	X		Individually Certified 1-Liter SUMMA
04	VINF-10.05	Influent (pre-dilution)	Vapor	G	10/5/18	1220	1	X	X	X	Batch Certified 1-Liter Summa
5											Target analytes includes Historical VOCs and remaining ATLI list per subcontract
6											
7											
8											
9											

Relinquished by (Signature and Printed Name)	Date / Time	Relinquished by (Signature and Printed Name)	Date / Time
	10/5/18 1530	FED EX	10/5/18 1530
Fed Ex			10/8/18 1111

Turn Around Time (TAT):
- ☐ A = Same Day
- ☐ B = 24 Hours
- ☐ C = 48 Hours
- ☐ D = 72 Hours
- ☐ E = 5 Workdays
- ☑ E = 10 Workdays

TAT Starts at 8 AM the following day if samples received after 3:00 PM.

Special Instruction:

Matrix:			Preservatives:			Container Type:			
W = Water	WW = Wastewater		H = HCl	N = HNO3	S = H2SO4	T = Tube	V = VOA	P = Pint	A= Amber
O = Oil	P = Product	S = Soil	Z = Zn(AC)2	O = NaOH	T = Na2S2O3	J = Jar	B = Tedlar	G = Glass	
Others/Specify:			Others/Specify:			M = Metal	P = Plastic	C = Can	

Client: CH2M Hill
Attn: Eric Davis
Project Name: SFPP Norwalk
Project No.: NA
Date Received: 10/08/18
Matrix: Air
Reporting Units: ppmv

EPA Method TO15

Lab No.:	J100804-01			J100804-02			J100804-03			J100804-04		
Client Sample I.D.:	VEFF-10-05			VEFF-10-05D			VPOST-10-05			VINF-10-05		
Date/Time Sampled:	10/5/18 12:00			10/5/18 12:00			10/5/18 12:05			10/5/18 12:20		
Date/Time Analyzed:	10/10/18 23:48			10/11/18 0:28			10/11/18 1:09			10/11/18 1:49		
QC Batch No.:	181010MS2A1			181010MS2A1			181011MS2A1			181011MS2A1		
Analyst Initials:	DT			DT			DT			DT		
Dilution Factor:	2.1			2.1			40			42		
ANALYTE	Result ppmv	RL ppmv	MDL ppmv	Result ppmv	RL ppmv	MDL ppmv	Result ppmv	RL ppmv	MDL ppmv	Result ppmv	RL ppmv	MDL ppmv
Dichlorodifluoromethane (12)	ND	0.0021	0.00032	ND	0.0021	0.00032	ND	0.040	0.0062	ND	0.042	0.0065
Chloromethane	ND	0.0042	0.00046	0.00051 J	0.0042	0.00046	ND	0.081	0.0089	ND	0.084	0.0093
1,2-Cl-1,1,2,2-F ethane (114)	ND	0.0021	0.00042	ND	0.0021	0.00042	ND	0.040	0.0081	ND	0.042	0.0085
Vinyl Chloride	ND	0.0021	0.00034	ND	0.0021	0.00034	ND	0.040	0.0066	ND	0.042	0.0068
Bromomethane	ND	0.0021	0.00062	ND	0.0021	0.00062	ND	0.040	0.012	ND	0.042	0.012
Chloroethane	ND	0.0021	0.0018	ND	0.0021	0.0018	ND	0.040	0.034	ND	0.042	0.035
Trichlorofluoromethane (11)	ND	0.0021	0.00045	ND	0.0021	0.00045	ND	0.040	0.0087	ND	0.042	0.0091
1,1-Dichloroethene	ND	0.0021	0.00048	ND	0.0021	0.00048	ND	0.040	0.0092	ND	0.042	0.0096
Carbon Disulfide	0.12	0.011	0.00050	0.093	0.011	0.00050	0.065 J	0.20	0.0097	0.022 J	0.21	0.010
1,1,2-Cl 1,2,2-F ethane (113)	ND	0.0021	0.00057	ND	0.0021	0.00057	ND	0.040	0.011	ND	0.042	0.011
Acetone	0.025	0.011	0.00061	0.016	0.011	0.00061	0.052 J	0.20	0.012	0.030 J	0.21	0.012
Methylene Chloride	ND	0.0021	0.00060	ND	0.0021	0.00060	ND	0.040	0.012	ND	0.042	0.012
t-1,2-Dichloroethene	ND	0.0021	0.00063	ND	0.0021	0.00063	ND	0.040	0.012	ND	0.042	0.013
1,1-Dichloroethane	ND	0.0021	0.00029	ND	0.0021	0.00029	ND	0.040	0.0055	ND	0.042	0.0057
c-1,2-Dichloroethene	ND	0.0021	0.00041	ND	0.0021	0.00041	ND	0.040	0.0078	ND	0.042	0.0081
2-Butanone	0.014	0.0021	0.0013	0.0089	0.0021	0.0013	ND	0.040	0.025	ND	0.042	0.026
t-Butyl Methyl Ether (MTBE)	ND	0.0021	0.00047	0.0026	0.0021	0.00047	0.24	0.040	0.0090	ND	0.042	0.0094
Chloroform	ND	0.0021	0.00029	ND	0.0021	0.00029	ND	0.040	0.0057	ND	0.042	0.0059
1,1,1-Trichloroethane	ND	0.0021	0.00021	ND	0.0021	0.00021	ND	0.040	0.0041	ND	0.042	0.0042
Carbon Tetrachloride	ND	0.0021	0.00037	ND	0.0021	0.00037	ND	0.040	0.0070	ND	0.042	0.0073
Benzene	0.017	0.0021	0.00020	0.018	0.0021	0.00020	1.2	0.040	0.0039	1.2	0.042	0.0040
1,2-Dichloroethane	ND	0.0021	0.00016	ND	0.0021	0.00016	ND	0.040	0.0030	ND	0.042	0.0031
Trichloroethene	ND	0.0021	0.00030	ND	0.0021	0.00030	ND	0.040	0.0057	ND	0.042	0.0060
1,2-Dichloropropane	ND	0.0021	0.00038	ND	0.0021	0.00038	ND	0.040	0.0073	ND	0.042	0.0076
Bromodichloromethane	ND	0.0021	0.00013	ND	0.0021	0.00013	ND	0.040	0.0024	ND	0.042	0.0025
c-1,3-Dichloropropene	ND	0.0021	0.00025	ND	0.0021	0.00025	ND	0.040	0.0048	ND	0.042	0.0050
4-Methyl-2-Pentanone	ND	0.0021	0.00014	ND	0.0021	0.00014	ND	0.040	0.0027	ND	0.042	0.0028
Toluene	0.020	0.0021	0.00017	0.021	0.0021	0.00017	1.5	0.040	0.0032	1.4	0.042	0.0033
t-1,3-Dichloropropene	ND	0.0021	0.00022	ND	0.0021	0.00022	ND	0.040	0.0042	ND	0.042	0.0043
1,1,2-Trichloroethane	ND	0.0021	0.00034	ND	0.0021	0.00034	ND	0.040	0.0065	ND	0.042	0.0068
1,3-Dichloropropane	ND	0.0021	0.00010	ND	0.0021	0.00010	ND	0.040	0.0020	ND	0.042	0.0021
Tetrachloroethene	ND	0.0021	0.00025	ND	0.0021	0.00025	ND	0.040	0.0049	ND	0.042	0.0051
2-Hexanone	ND	0.0021	0.00043	ND	0.0021	0.00043	ND	0.040	0.0083	ND	0.042	0.0087
Dibromochloromethane	ND	0.0021	0.00038	ND	0.0021	0.00038	ND	0.040	0.0074	ND	0.042	0.0077
1,2-Dibromoethane	ND	0.0021	0.00019	ND	0.0021	0.00019	ND	0.040	0.0037	ND	0.042	0.0038
Chlorobenzene	ND	0.0021	0.00016	ND	0.0021	0.00016	ND	0.040	0.0031	ND	0.042	0.0033
Ethylbenzene	0.0025	0.0021	0.00012	0.0026	0.0021	0.00012	0.18	0.040	0.0023	0.18	0.042	0.0024
p,&m-Xylene	0.020	0.0021	0.00024	0.021	0.0021	0.00024	1.3	0.040	0.0046	1.3	0.042	0.0048
o-Xylene	0.0083	0.0021	0.00026	0.010	0.0021	0.00026	0.55	0.040	0.0049	0.55	0.042	0.0051

AirTECHNOLOGY Laboratories, Inc.
18501 E. Gale Avenue, Suite 130 ♦ City of Industry, CA 91748 ♦ Ph: (626) 964-4032 ♦ Fx: (626) 964-5832

Client: CH2M Hill
Attn: Eric Davis
Project Name: SFPP Norwalk
Project No.: NA
Date Received: 10/08/18
Matrix: Air
Reporting Units: ppmv

EPA Method TO15

Lab No.:	J100804-01			J100804-02			J100804-03			J100804-04		
Client Sample I.D.:	VEFF-10-05			VEFF-10-05D			VPOST-10-05			VINF-10-05		
Date/Time Sampled:	10/5/18 12:00			10/5/18 12:00			10/5/18 12:05			10/5/18 12:20		
Date/Time Analyzed:	10/10/18 23:48			10/11/18 0:28			10/11/18 1:09			10/11/18 1:49		
QC Batch No.:	181010MS2A1			181010MS2A1			181011MS2A1			181011MS2A1		
Analyst Initials:	DT			DT			DT			DT		
Dilution Factor:	2.1			2.1			40			42		
ANALYTE	Result ppmv	RL ppmv	MDL ppmv	Result ppmv	RL ppmv	MDL ppmv	Result ppmv	RL ppmv	MDL ppmv	Result ppmv	RL ppmv	MDL ppmv
Styrene	ND	0.0021	0.00027	ND	0.0021	0.00027	ND	0.040	0.0052	ND	0.042	0.0054
Bromoform	ND	0.0021	0.00012	ND	0.0021	0.00012	ND	0.040	0.0023	ND	0.042	0.0023
Isopropyl benzene	ND	0.0021	0.00022	ND	0.0021	0.00022	0.0074 J	0.040	0.0042	0.017 J	0.042	0.0044
1,1,2,2-Tetrachloroethane	ND	0.0042	0.00013	ND	0.0042	0.00013	ND	0.081	0.0025	0.0043 J	0.084	0.0026
Benzyl Chloride	ND	0.0021	0.00039	ND	0.0021	0.00039	ND	0.040	0.0074	ND	0.042	0.0077
1,2,3-Trichloropropane	ND	0.0021	0.00057	ND	0.0021	0.00057	ND	0.040	0.011	ND	0.042	0.011
n-Propyl Benzene	0.00024 J	0.0021	0.00012	0.00038 J	0.0021	0.00012	0.019 J	0.040	0.0024	0.025 J	0.042	0.0024
4-Ethyl Toluene	0.0033	0.0021	0.00013	0.0036	0.0021	0.00013	0.20	0.040	0.0026	0.21	0.042	0.0027
1,3,5-Trimethylbenzene	0.0021 J	0.0042	0.00036	0.0023 J	0.0042	0.00036	0.13	0.081	0.0070	0.13	0.084	0.0073
4-Chlorotoluene	ND	0.0021	0.00025	ND	0.0021	0.00025	ND	0.040	0.0048	0.0075 J	0.042	0.0050
tert-Butylbenzene	ND	0.0021	0.00019	ND	0.0021	0.00019	ND	0.040	0.0037	0.025 J	0.042	0.0038
1,2,4-Trimethylbenzene	0.0026 J	0.0042	0.00024	0.0031 J	0.0042	0.00024	0.12	0.081	0.0046	0.13	0.084	0.0048
sec-Butylbenzene	ND	0.0021	0.00020	ND	0.0021	0.00020	ND	0.040	0.0039	ND	0.042	0.0041
p-Isopropyltoluene	0.0012 J	0.0021	0.00027	0.0044	0.0021	0.00027	0.0088 J	0.040	0.0053	0.0058 J	0.042	0.0055
1,3-Dichlorobenzene	ND	0.0021	0.00026	ND	0.0021	0.00026	ND	0.040	0.0049	ND	0.042	0.0051
1,4-Dichlorobenzene	ND	0.0021	0.00031	ND	0.0021	0.00031	ND	0.040	0.0059	ND	0.042	0.0061
n-Butylbenzene	ND	0.0021	0.00015	0.00038 J	0.0021	0.00015	ND	0.040	0.0030	ND	0.042	0.0031
1,2-Dichlorobenzene	ND	0.0021	0.00026	ND	0.0021	0.00026	ND	0.040	0.0050	ND	0.042	0.0052
1,2,4-Trichlorobenzene	ND	0.0042	0.00035	ND	0.0042	0.00035	ND	0.081	0.0067	ND	0.084	0.0070
Hexachlorobutadiene	ND	0.0021	0.00012	ND	0.0021	0.00012	ND	0.040	0.0024	ND	0.042	0.0025
t-Butanol	ND	0.011	0.00040	ND	0.011	0.00040	ND	0.20	0.0078	ND	0.21	0.0081
n-Hexane	0.033	0.011	0.00028	0.034	0.011	0.00028	2.9	0.20	0.0054	2.7	0.21	0.0057
Isopropyl ether	ND	0.011	0.00023	ND	0.011	0.00023	ND	0.20	0.0045	ND	0.21	0.0047
t-Butyl ethyl ether	ND	0.011	0.00042	ND	0.011	0.00042	ND	0.20	0.0081	ND	0.21	0.0084
2,2-Dichloropropane	ND	0.011	0.00020	ND	0.011	0.00020	ND	0.20	0.0038	ND	0.21	0.0040
t-Amyl methyl ether	ND	0.011	0.00015	ND	0.011	0.00015	ND	0.20	0.0029	ND	0.21	0.0030
1,4-Dioxane	ND	0.011	0.00037	ND	0.011	0.00037	ND	0.20	0.0071	ND	0.21	0.0074
Naphthalene	ND	0.011	0.00081	ND	0.011	0.00081	ND	0.20	0.016	ND	0.21	0.016
1,2,3-Trichlorobenzene (TIC)	ND	--	--	ND	--	--	ND	--	--	ND	--	--

MDL = Method Detection Limit
ND= Not Detected (below MDL)
RL = Reporting Limit
J = Trace amount. Analyte concentration between RL and MDL.

Reviewed/Approved By: _____ Date 10/24/18
Mark Johnson
Operations Manager

The cover letter is an integral part of this analytical report

AirTECHNOLOGY Laboratories, Inc.
18501 E. Gale Avenue, Suite 130 • City of Industry, CA 91748 • Ph: (626) 964-4032 • Fx: (626) 964-5832

Client: CH2M Hill
Attn: Eric Davis
Project Name: SFPP Norwalk
Project No.: NA
Date Received: 10/08/18
Matrix: Air
Reporting Units: ppmv

EPA Method TO15

Lab No.:	METHOD BLANK
Client Sample I.D.:	-
Date/Time Sampled:	-
Date/Time Analyzed:	10/10/18 7:48
QC Batch No.:	181010MS2A1
Analyst Initials:	DT
Dilution Factor:	0.20

ANALYTE	Result ppmv	RL ppmv	MDL ppmv
Dichlorodifluoromethane (12)	ND	0.00020	0.000031
Chloromethane	ND	0.00040	0.000044
1,2-Cl-1,1,2,2-F ethane (114)	ND	0.00020	0.000040
Vinyl Chloride	ND	0.00020	0.000032
Bromomethane	0.000062 J	0.00020	0.000059
Chloroethane	ND	0.00020	0.00017
Trichlorofluoromethane (11)	ND	0.00020	0.000043
1,1-Dichloroethene	ND	0.00020	0.000045
Carbon Disulfide	ND	0.0010	0.000048
1,1,2-Cl 1,2,2-F ethane (113)	ND	0.00020	0.000054
Acetone	ND	0.0010	0.000058
Methylene Chloride	ND	0.00020	0.000057
t-1,2-Dichloroethene	ND	0.00020	0.000060
1,1-Dichloroethane	ND	0.00020	0.000027
c-1,2-Dichloroethene	ND	0.00020	0.000039
2-Butanone	ND	0.00020	0.00012
t-Butyl Methyl Ether (MTBE)	ND	0.00020	0.000045
Chloroform	ND	0.00020	0.000028
1,1,1-Trichloroethane	ND	0.00020	0.000020
Carbon Tetrachloride	ND	0.00020	0.000035
Benzene	ND	0.00020	0.000019
1,2-Dichloroethane	ND	0.00020	0.000015
Trichloroethene	ND	0.00020	0.000028
1,2-Dichloropropane	ND	0.00020	0.000036
Bromodichloromethane	ND	0.00020	0.000012
c-1,3-Dichloropropene	ND	0.00020	0.000024
4-Methyl-2-Pentanone	ND	0.00020	0.000013
Toluene	ND	0.00020	0.000016
t-1,3-Dichloropropene	ND	0.00020	0.000021
1,1,2-Trichloroethane	ND	0.00020	0.000032
1,3-Dichloropropane	ND	0.00020	0.0000099
Tetrachloroethene	ND	0.00020	0.000024
2-Hexanone	ND	0.00020	0.000041
Dibromochloromethane	ND	0.00020	0.000036
1,2-Dibromoethane	ND	0.00020	0.000018
Chlorobenzene	ND	0.00020	0.000016
Ethylbenzene	ND	0.00020	0.000011
p,&m-Xylene	ND	0.00020	0.000023
o-Xylene	ND	0.00020	0.000024

AirTECHNOLOGY Laboratories, Inc.
18501 E. Gale Avenue, Suite 130 ♦ City of Industry, CA 91748 ♦ Ph: (626) 964-4032 ♦ Fx: (626) 964-5832

Client: CH2M Hill
Attn: Eric Davis
Project Name: SFPP Norwalk
Project No.: NA
Date Received: 10/08/18
Matrix: Air
Reporting Units: ppmv

EPA Method TO15

Lab No.:	METHOD BLANK
Client Sample I.D.:	-
Date/Time Sampled:	-
Date/Time Analyzed:	10/10/18 7:48
QC Batch No.:	181010MS2A1
Analyst Initials:	DT
Dilution Factor:	0.20

ANALYTE	Result ppmv	RL ppmv	MDL ppmv
Styrene	ND	0.00020	0.000026
Bromoform	ND	0.00020	0.000011
Isopropyl benzene	ND	0.00020	0.000021
1,1,2,2-Tetrachloroethane	ND	0.00040	0.000012
Benzyl Chloride	ND	0.00020	0.000037
1,2,3-Trichloropropane	ND	0.00020	0.000054
n-Propyl Benzene	ND	0.00020	0.000012
4-Ethyl Toluene	ND	0.00020	0.000013
1,3,5-Trimethylbenzene	ND	0.00040	0.000035
4-Chlorotoluene	ND	0.00020	0.000024
tert-Butylbenzene	ND	0.00020	0.000018
1,2,4-Trimethylbenzene	ND	0.00040	0.000023
sec-Butylbenzene	ND	0.00020	0.000019
p-Isopropyltoluene	ND	0.00020	0.000026
1,3-Dichlorobenzene	ND	0.00020	0.000024
1,4-Dichlorobenzene	ND	0.00020	0.000029
n-Butylbenzene	ND	0.00020	0.000015
1,2-Dichlorobenzene	ND	0.00020	0.000025
1,2,4-Trichlorobenzene	ND	0.00040	0.000033
Hexachlorobutadiene	ND	0.00020	0.000012
t-Butanol	ND	0.0010	0.000038
n-Hexane	ND	0.0010	0.000027
Isopropyl ether	ND	0.0010	0.000022
t-Butyl ethyl ether	ND	0.0010	0.000040
2,2-Dichloropropane	ND	0.0010	0.000019
t-Amyl methyl ether	ND	0.0010	0.000014
1,4-Dioxane	ND	0.0010	0.000035
Naphthalene	ND	0.0010	0.000077
1,2,3-Trichlorobenzene (TIC)	ND	--	--

MDL = Method Detection Limit
ND= Not Detected (below MDL)
RL = Reporting Limit
J = Trace amount. Analyte concentration between RL and MDL.

Reviewed/Approved By: _____ Date 10/24/18
Mark Johnson
Operations Manager

The cover letter is an integral part of this analytical report

AIRTECHNOLOGY Laboratories, Inc.
18501 E. Gale Avenue, Suite 130 ♦ City of Industry, CA 91748 ♦ Ph: (626) 964-4032 ♦ Fx: (626) 964-5832

LCS/LCSD Recovery and RPD Summary Report

QC Batch #: 181010MS2A1

Matrix: Air

EPA Method TO-14/TO-15

Lab No:	Method Blank		LCS		LCSD						
Date/Time Analyzed:	10/10/18 7:48		10/10/18 6:21		10/10/18 7:03						
Data File ID:	10OCT007.D		10OCT005.D		10OCT006.D						
Analyst Initials:	DT		DT		DT						
Dilution Factor:	0.2		1.0		1.0			Limits			
ANALYTE	Result ppbv	Spike Amount	Result ppbv	% Rec	Result ppbv	% Rec	RPD	Low %Rec	High %Rec	Max. RPD	Pass/ Fail
1,1-Dichloroethene	0.0	10.0	8.5	85	8.5	85	0.8	70	130	30	Pass
Methylene Chloride	0.0	10.0	9.2	92	9.7	97	5.9	70	130	30	Pass
Trichloroethene	0.0	10.0	9.2	92	9.1	91	0.1	70	130	30	Pass
Toluene	0.0	10.0	10.2	102	9.9	99	2.9	70	130	30	Pass
1,1,2,2-Tetrachloroethane	0.0	10.0	11.7	117	10.9	109	7.2	70	130	30	Pass

RPD = Relative Percent Difference

Reviewed/Approved By: _____ Date: 10/24/18

Mark Johnson
Operations Manager

The cover letter is an integral part of this analytical report

Client: CH2M Hill
Attn: Eric Davis
Project Name: SFPP Norwalk
Project No.: NA
Date Received: 10/08/18
Matrix: Air
Reporting Units: ppmv

EPA METHOD TO3

Lab No.:	J100804-01			J100804-02			J100804-03			J100804-04		
Client Sample I.D.:	VEFF-10-05			VEFF-10-05D			VPOST-10-05			VINF-10-05		
Date/Time Sampled:	10/5/18 12:00			10/5/18 12:00			10/5/18 12:05			10/5/18 12:20		
Date/Time Analyzed:	10/10/18 8:54			10/10/18 9:17			10/10/18 6:05			10/10/18 6:28		
QC Batch No.:	181009GC11A1			181009GC11A1			181009GC11A1			181009GC11A1		
Analyst Initials:	AS			AS			AS			AS		
Dilution Factor:	2.1			2.1			2.0			2.1		
ANALYTE	Result ppmv	RL ppmv	MDL ppmv	Result ppmv	RL ppmv	MDL ppmv	Result ppmv	RL ppmv	MDL ppmv	Result ppmv	RL ppmv	MDL ppmv
TVOC as Hexane	0.76 J	2.1	0.37	0.61 J	2.1	0.37	180	2.0	0.36	180	2.1	0.37

MDL = Method Detection Limit
ND= Not Detected (below MDL)
RL = Reporting Limit
J = Trace amount. Analyte concentration between RL and MDL.

Reviewed/Approved By: _____ Date 10/22/18
Mark Johnson
Operations Manager

The cover letter is an integral part of this analytical report

AirTECHNOLOGY Laboratories, Inc.
18501 E. Gale Avenue, Suite 130 ♦ City of Industry, CA 91748 ♦ Ph: (626) 964-4032 ♦ Fx: (626) 964-5832

QC Batch No: 181009GC11A1
Matrix: Air
Reporting Units: ppmv

EPA METHOD TO3
LABORATORY CONTROL SAMPLE SUMMARY

Lab No.:	METHOD BLANK			LCS		LCSD					
Date Analyzed:	10/9/18 12:24			10/9/18 11:39		10/9/18 12:01					
Analyst Initials:	AS			AS		AS					
Dilution Factor:	1.0			1.0		1.0					
ANALYTE	Result ppmv	RL ppmv	MDL ppmv	Result ppmv	% Rec.	Result ppmv	% Rec.	RPD %	Low %Rec	High %Rec	Max. RPD
TVOC as Hexane	ND	1.0	0.18	4.52	90	4.51	90	0.2	70	130	25

MDL = Method Detection Limit
ND= Not Detected (below MDL)
RL = Reporting Limit
J = Trace amount. Analyte concentration between RL and MDL.

Reviewed/Approved By: _____ Date 10/22/18
Mark Johnson
Operations Manager

The cover letter is an integral part of this analytical report

AirTECHNOLOGY Laboratories, Inc.
18501 E. Gale Avenue, Suite 130 ♦ City of Industry, CA 91748 ♦ Ph: (626) 964-4032 ♦ Fx: (626) 964-5832

Client: CH2M Hill
Attn: Eric Davis
Project Name: SFPP Norwalk
Project No.: NA
Date Received: 10/08/18
Matrix: Air
Reporting Units: % v/v

ASTM D1946

Lab No.:	J100804-04							
Client Sample I.D.:	VINF-10-05							
Date/Time Sampled:	10/5/18 12:20							
Date/Time Analyzed:	10/9/18 15:55							
QC Batch No.:	181009GC8A2							
Analyst Initials:	AS							
Dilution Factor:	2.1							
ANALYTE	**Result % v/v**	**RL % v/v**						
Carbon Dioxide	0.85	0.021						
Oxygen/Argon	22	1.1						
Nitrogen	78	2.1						
Methane	0.0034	0.0021						

Results normalized including non-methane hydrocarbons
ND = Not Detected (below RL)
RL = Reporting Limit

Reviewed/Approved By: _____ Date 10/22/18
Mark Johnson
Operations Manager

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AirTECHNOLOGY Laboratories, Inc.
18501 E. Gale Avenue, Suite 130 ♦ City of Industry, CA 91748 ♦ Ph: (626) 964-4032 ♦ Fx: (626) 964-5832

QC Batch No: 181009GC8A2
Matrix: Air
Reporting Units: % v/v

ASTM D1946
LABORATORY CONTROL SAMPLE SUMMARY

Lab No.:	METHOD BLANK			LCS		LCSD					
Date Analyzed:	10/9/18 15:40			10/9/18 15:11		10/9/18 15:25					
Analyst Initials:	AS			AS		AS					
Dilution Factor:	1.0			1.0		1.0			Limits		
ANALYTE	Result % v/v	RL % v/v	SPIKE AMT. % v/v	Result % v/v	% Rec.	Result % v/v	% Rec.	RPD %	Low %Rec	High %Rec	Max. RPD
Carbon Dioxide	ND	0.010	10	9.24	92	9.17	92	0.7	70	130	30
Oxygen/Argon	ND	0.50	15	16.8	114	16.8	114	0.0	70	130	30
Nitrogen	ND	1.0	70	73.3	105	73.2	105	0.1	70	130	30
Methane	ND	0.0010	0.10	0.109	109	0.108	108	1.2	70	130	30

ND = Not Detected (below RL)
RL = Reporting Limit

Reviewed/Approved By: _____ Date 10/22/18
Mark Johnson
Operations Manager

The cover letter is an integral part of this analytical report

Air TECHNOLOGY
Laboratories, Inc.

December 13, 2018

LA Cert #04140
EPA Methods TO3, TO14A, TO15, 25C/3C, RSK-175
TX Cert T104704450-14-6
EPA Methods TO14A, TO15
UT Cert CA0133332015-3
EPA Methods TO3, TO14A, TO15, RSK-175

CH2M Hill
ATTN: Eric Davis
1000 Wilshire Blvd., Suite 2100
Los Angeles, CA 90017

LABORATORY TEST RESULTS

Project Reference: SFPP Norwalk
Lab Number: J112103-01/04

Enclosed are results for sample(s) received 11/21/18 by Air Technology Laboratories. Samples were received intact. Analyses were performed according to specifications on the chain of custody provided with the sample(s).

Report Narrative:

- Unless otherwise noted in the report, sample analyses were performed within method performance criteria and meet all requirements of the TNI Standards.
- The enclosed results relate only to the sample(s).

Preliminary results were e-mailed to Eric Davis, Vladimir Carino and Nils Orliczky on 12/12/18.

ATL appreciates the opportunity to provide testing services to your company. If you have any questions regarding these results, please call me at (626) 964-4032.

Sincerely,

Mark Johnson
Operations Manager
MJohnson@AirTechLabs.com

Note: The cover letter is an integral part of this analytical report.

Air Technology Laboratories, Inc.
18501 Gale Ave. #130
City of Industry, CA 91748
Tel: 626-964-4032
Joann De La Ossa (JDeLaOssa@airtechlabs.com)

J112103-01/04

CHAIN OF CUSTODY RECORD

DATE: 11/20/18
PAGE: 1 of 1

Section A (Required Client Information)		Section B (Required Project Information)		Section C (Invoice Information)		Section D (Sampler Information)	
Company:	CH2M HILL	Report To:	Eric Davis (eric.davis@ch2m.com)	Attention:	Eric Davis	Sampler Name:	James Dye
	Attention: Eric Davis	Copy To:	Vladimir Carino (vcarino@ch2m.com)	Company Name:	CH2M	Sampler Signature:	
Address:	1000 Wilshire Blvd. Suite 2100 Los Angeles, CA 90017	Purchase Order No.:		Address:	1000 Wilshire Blvd. Suite 2100 Los Angeles, CA 90017	Sample Date:	11/20/18
Email To:	eric.davis@ch2m.com; vcarino@ch2m.com			Project Manager:	Joann De La Ossa		
Phone:	404-323-1600	Fax:		Project Name:	SFPP Norwalk		

Section E (Required Sample Information)																							
					CONTAINER TYPE																		
					# OF CONTAINERS																		
					PRESERVATIVE																		
					VOLUME (mL)																		
					SAMPLING				Analysis Test	TO-3 (Total VOCs as Hexane)	TO-15 (VOCs, Target Analytes)	ASTM-D 1946 (O2/Argon, CO2, CH4, N2)											
ITEM #	SAMPLE ID	LOCATION/ DESCRIPTION	MATRIX	SAMPLE TYPE (G=GRAB C=COMP)	DATE	TIME	TOTAL # OF CONTAINERS																Comments
01	VEFF-11-20	Effluent (stack)	Vapor	G	11/20/18	1100	1			X	X												Individually Certified 6-Liter SUMMA
02	VEFF-11-20 D	Effluent (stack) (duplicate)	Vapor	G	11/20/18	1100	1			X	X												Individually Certified 6-Liter SUMMA
03	VPOST-11-20	Influent (post-dilution)	Vapor	G	11/20/18	1200	1			X	X												Individually Certified 1-Liter SUMMA
04	VINF-11-20	Influent (pre-dilution)	Vapor	G	11/20/18	1210	1			X	X	X											Batch Certified 1-Liter Summa
5																							Target analytes includes Historical VOCs and remaining ATLI list per subcontract
6																							
7																							
8																							
9																							
10																							
11																							
12																							

Relinquished by (Signature and Printed Name):	Date / Time	Relinquished by (Signature and Printed Name):	Date / Time
	11/20/18 1500	FEDEX	
FEDEX		Dwayne	11/21/18 1101
Relinquished by (Signature and Printed Name):	Date / Time	Relinquished by (Signature and Printed Name):	Date / Time

Turn Around Time (TAT):
- ☐ A = Same Day
- ☐ B = 24 Hours
- ☐ C = 48 Hours
- ☐ D = 72 Hours
- ☐ E = 5 Workdays
- ☑ E = 10 Workdays

TAT Starts at 8 AM the following day if samples received after 5:00 PM.

Special Instruction:

Matrix:			Preservatives:			Container Type:			
W = Water	WW = Wastewater		H = HCl	N = HNO3	S = H2SO4	T = Tube	V = VOA	P = Pint	A= Amber
O = Oil	P = Product	S = Soil	Z = Zn(AC)2	O = NaOH	T = Na2S2O3	J = Jar	B = Tedlar	G = Glass	
Others/Specify:			Others/Specify:			M = Metal	P = Plastic	C = Can	

Client: CH2M Hill
Attn: Eric Davis
Project Name: SFPP Norwalk
Project No.: NA
Date Received: 11/21/18
Matrix: Air
Reporting Units: ppmv

EPA Method TO15

Lab No.:	J112103-01			J112103-02			J112103-03			J112103-04		
Client Sample I.D.:	VEFF-11-20			VEFF-11-20D			VPOST-11-20			VINF-11-20		
Date/Time Sampled:	11/20/18 11:00			11/20/18 11:00			11/20/18 12:00			11/20/18 12:10		
Date/Time Analyzed:	12/2/18 18:38			12/2/18 19:17			12/3/18 1:18			12/3/18 20:03		
QC Batch No.:	181202MS2A1			181202MS2A1			181202MS2A1			181203MS2A1		
Analyst Initials:	DT			DT			DT			DT		
Dilution Factor:	2.1			2.1			10			11		
ANALYTE	Result ppmv	RL ppmv	MDL ppmv	Result ppmv	RL ppmv	MDL ppmv	Result ppmv	RL ppmv	MDL ppmv	Result ppmv	RL ppmv	MDL ppmv
Dichlorodifluoromethane (12)	ND	0.0021	0.00032	ND	0.0021	0.00032	ND	0.010	0.0016	ND	0.011	0.0016
Chloromethane	0.0011 J	0.0041	0.00045	ND	0.0041	0.00045	0.0098 J	0.021	0.0023	ND	0.021	0.0023
1,2-Cl-1,1,2,2-F ethane (114)	ND	0.0021	0.00041	ND	0.0021	0.00041	ND	0.010	0.0021	ND	0.011	0.0021
Vinyl Chloride	ND	0.0021	0.00033	ND	0.0021	0.00033	ND	0.010	0.0017	ND	0.011	0.0017
Bromomethane	0.0010 J	0.0021	0.00060	0.0011 J	0.0021	0.00060	ND	0.010	0.0030	ND	0.011	0.0031
Chloroethane	ND	0.0021	0.0017	ND	0.0021	0.0017	ND	0.010	0.0087	ND	0.011	0.0088
Trichlorofluoromethane (11)	ND	0.0021	0.00044	ND	0.0021	0.00044	ND	0.010	0.0022	ND	0.011	0.0023
1,1-Dichloroethene	ND	0.0021	0.00047	ND	0.0021	0.00047	ND	0.010	0.0023	ND	0.011	0.0024
Carbon Disulfide	0.050	0.010	0.00049	0.13	0.010	0.00049	0.038 J	0.052	0.0025	0.43	0.053	0.0025
1,1,2-Cl 1,2,2-F ethane (113)	ND	0.0021	0.00055	ND	0.0021	0.00055	ND	0.010	0.0028	ND	0.011	0.0028
Acetone	0.024	0.010	0.00059	0.026	0.010	0.00059	ND	0.052	0.0030	0.066	0.053	0.0030
Methylene Chloride	ND	0.0021	0.00059	ND	0.0021	0.00059	ND	0.010	0.0029	ND	0.011	0.0030
t-1,2-Dichloroethene	ND	0.0021	0.00062	ND	0.0021	0.00062	ND	0.010	0.0031	ND	0.011	0.0031
1,1-Dichloroethane	ND	0.0021	0.00028	ND	0.0021	0.00028	ND	0.010	0.0014	0.0034 J	0.011	0.0014
c-1,2-Dichloroethene	ND	0.0021	0.00040	ND	0.0021	0.00040	0.095	0.010	0.0020	ND	0.011	0.0020
2-Butanone	0.021	0.0021	0.0013	0.0088	0.0021	0.0013	0.71	0.010	0.0064	ND	0.011	0.0065
t-Butyl Methyl Ether (MTBE)	0.0017 J	0.0021	0.00046	0.0018 J	0.0021	0.00046	ND	0.010	0.0023	ND	0.011	0.0024
Chloroform	ND	0.0021	0.00029	ND	0.0021	0.00029	ND	0.010	0.0014	ND	0.011	0.0015
1,1,1-Trichloroethane	ND	0.0021	0.00021	ND	0.0021	0.00021	ND	0.010	0.0010	ND	0.011	0.0011
Carbon Tetrachloride	ND	0.0021	0.00036	ND	0.0021	0.00036	ND	0.010	0.0018	ND	0.011	0.0018
Benzene	0.018	0.0021	0.00020	0.017	0.0021	0.00020	1.4	0.010	0.00099	1.2	0.011	0.0010
1,2-Dichloroethane	ND	0.0021	0.00015	ND	0.0021	0.00015	0.0085 J	0.010	0.00077	0.0075 J	0.011	0.00078
Trichloroethene	ND	0.0021	0.00029	ND	0.0021	0.00029	0.045	0.010	0.0015	ND	0.011	0.0015
1,2-Dichloropropane	ND	0.0021	0.00037	ND	0.0021	0.00037	ND	0.010	0.0019	ND	0.011	0.0019
Bromodichloromethane	ND	0.0021	0.00012	ND	0.0021	0.00012	ND	0.010	0.00062	ND	0.011	0.00063
c-1,3-Dichloropropene	ND	0.0021	0.00025	ND	0.0021	0.00025	ND	0.010	0.0012	ND	0.011	0.0013
4-Methyl-2-Pentanone	ND	0.0021	0.00014	ND	0.0021	0.00014	ND	0.010	0.00069	ND	0.011	0.00071
Toluene	0.016	0.0021	0.00016	0.018	0.0021	0.00016	1.2	0.010	0.00082	1.1	0.011	0.00084
t-1,3-Dichloropropene	ND	0.0021	0.00021	ND	0.0021	0.00021	ND	0.010	0.0011	ND	0.011	0.0011
1,1,2-Trichloroethane	ND	0.0021	0.00033	ND	0.0021	0.00033	ND	0.010	0.0017	ND	0.011	0.0017
1,3-Dichloropropane	ND	0.0021	0.00010	ND	0.0021	0.00010	ND	0.010	0.00051	ND	0.011	0.00052
Tetrachloroethene	ND	0.0021	0.00025	ND	0.0021	0.00025	0.0019 J	0.010	0.0012	ND	0.011	0.0013
2-Hexanone	ND	0.0021	0.00042	ND	0.0021	0.00042	ND	0.010	0.0021	ND	0.011	0.0022
Dibromochloromethane	ND	0.0021	0.00038	ND	0.0021	0.00038	ND	0.010	0.0019	ND	0.011	0.0019
1,2-Dibromoethane	ND	0.0021	0.00019	ND	0.0021	0.00019	ND	0.010	0.00094	ND	0.011	0.00096
Chlorobenzene	ND	0.0021	0.00016	ND	0.0021	0.00016	0.011	0.010	0.00080	ND	0.011	0.00082
Ethylbenzene	0.0022	0.0021	0.00012	0.0023	0.0021	0.00012	0.31	0.010	0.00059	0.27	0.011	0.00061
p,&m-Xylene	0.018	0.0021	0.00023	0.018	0.0021	0.00023	0.69	0.010	0.0012	0.96	0.011	0.0012
o-Xylene	0.0078	0.0021	0.00025	0.0080	0.0021	0.00025	0.094	0.010	0.0013	0.33	0.011	0.0013

AirTECHNOLOGY Laboratories, Inc.
18501 E. Gale Avenue, Suite 130 • City of Industry, CA 91748 • Ph: (626) 964-4032 • Fx: (626) 964-5832

Client: CH2M Hill
Attn: Eric Davis
Project Name: SFPP Norwalk
Project No.: NA
Date Received: 11/21/18
Matrix: Air
Reporting Units: ppmv

EPA Method TO15

Lab No.:	J112103-01			J112103-02			J112103-03			J112103-04		
Client Sample I.D.:	VEFF-11-20			VEFF-11-20D			VPOST-11-20			VINF-11-20		
Date/Time Sampled:	11/20/18 11:00			11/20/18 11:00			11/20/18 12:00			11/20/18 12:10		
Date/Time Analyzed:	12/2/18 18:38			12/2/18 19:17			12/3/18 1:18			12/3/18 20:03		
QC Batch No.:	181202MS2A1			181202MS2A1			181202MS2A1			181203MS2A1		
Analyst Initials:	DT			DT			DT			DT		
Dilution Factor:	2.1			2.1			10			11		
ANALYTE	Result ppmv	RL ppmv	MDL ppmv	Result ppmv	RL ppmv	MDL ppmv	Result ppmv	RL ppmv	MDL ppmv	Result ppmv	RL ppmv	MDL ppmv
Styrene	ND	0.0021	0.00026	ND	0.0021	0.00026	0.0048 J	0.010	0.0013	0.014	0.011	0.0014
Bromoform	ND	0.0021	0.00011	ND	0.0021	0.00011	ND	0.010	0.00057	ND	0.011	0.00059
Isopropyl benzene	ND	0.0021	0.00022	ND	0.0021	0.00022	0.010	0.010	0.0011	0.011	0.011	0.0011
1,1,2,2-Tetrachloroethane	ND	0.0041	0.00013	ND	0.0041	0.00013	ND	0.021	0.00063	ND	0.021	0.00064
Benzyl Chloride	ND	0.0021	0.00038	ND	0.0021	0.00038	0.0019 J	0.010	0.0019	ND	0.011	0.0019
1,2,3-Trichloropropane	ND	0.0021	0.00055	ND	0.0021	0.00055	0.0057 J	0.010	0.0028	0.0081 J	0.011	0.0028
n-Propyl Benzene	ND	0.0021	0.00012	ND	0.0021	0.00012	0.015	0.010	0.00060	0.018	0.011	0.00061
4-Ethyl Toluene	0.0040	0.0021	0.00013	0.0040	0.0021	0.00013	0.19	0.010	0.00065	0.28	0.011	0.00067
1,3,5-Trimethylbenzene	0.0025 J	0.0041	0.00036	0.0024 J	0.0041	0.00036	0.13	0.021	0.0018	0.20	0.021	0.0018
4-Chlorotoluene	ND	0.0021	0.00025	ND	0.0021	0.00025	0.0032 J	0.010	0.0012	ND	0.011	0.0013
tert-Butylbenzene	ND	0.0021	0.00019	ND	0.0021	0.00019	ND	0.010	0.00093	ND	0.011	0.00095
1,2,4-Trimethylbenzene	0.0030 J	0.0041	0.00023	0.0031 J	0.0041	0.00023	0.020 J	0.021	0.0012	0.14	0.021	0.0012
sec-Butylbenzene	ND	0.0021	0.00020	ND	0.0021	0.00020	ND	0.010	0.00100	0.0030 J	0.011	0.0010
p-Isopropyltoluene	0.0012 J	0.0021	0.00027	0.0011 J	0.0021	0.00027	0.017	0.010	0.0013	0.0064 J	0.011	0.0014
1,3-Dichlorobenzene	ND	0.0021	0.00025	ND	0.0021	0.00025	ND	0.010	0.0013	ND	0.011	0.0013
1,4-Dichlorobenzene	ND	0.0021	0.00030	ND	0.0021	0.00030	ND	0.010	0.0015	ND	0.011	0.0015
n-Butylbenzene	ND	0.0021	0.00015	ND	0.0021	0.00015	ND	0.010	0.00075	ND	0.011	0.00077
1,2-Dichlorobenzene	ND	0.0021	0.00026	ND	0.0021	0.00026	ND	0.010	0.0013	ND	0.011	0.0013
1,2,4-Trichlorobenzene	ND	0.0041	0.00034	ND	0.0041	0.00034	ND	0.021	0.0017	ND	0.021	0.0017
Hexachlorobutadiene	ND	0.0021	0.00012	ND	0.0021	0.00012	ND	0.010	0.00061	ND	0.011	0.00062
t-Butanol	0.0015 J	0.010	0.00040	0.0019 J	0.010	0.00040	0.049 J	0.052	0.0020	0.032 J	0.053	0.0020
n-Hexane	0.025	0.010	0.00028	0.027	0.010	0.00028	4.6 d	0.052	0.0014	4.8 d	0.053	0.0014
Isopropyl ether	ND	0.010	0.00023	ND	0.010	0.00023	ND	0.052	0.0011	ND	0.053	0.0012
t-Butyl ethyl ether	ND	0.010	0.00041	ND	0.010	0.00041	ND	0.052	0.0021	ND	0.053	0.0021
2,2-Dichloropropane	ND	0.010	0.00020	ND	0.010	0.00020	ND	0.052	0.00098	ND	0.053	0.0010
t-Amyl methyl ether	ND	0.010	0.00015	ND	0.010	0.00015	ND	0.052	0.00073	ND	0.053	0.00074
1,4-Dioxane	ND	0.010	0.00036	ND	0.010	0.00036	ND	0.052	0.0018	ND	0.053	0.0018
Naphthalene	0.0018 J	0.010	0.00079	ND	0.010	0.00079	ND	0.052	0.0040	ND	0.053	0.0040
1,2,3-Trichlorobenzene (TIC)	ND	--	--	ND	--	--	ND	--	--	ND	--	--

MDL = Method Detection Limit
ND= Not Detected (below MDL)
RL = Reporting Limit
J = Trace amount. Analyte concentration between RL and MDL.
d = Analyte reported from secondary dilution.

Reviewed/Approved By: _____ Date 12/4/18
Mark Johnson
Operations Manager

The cover letter is an integral part of this analytical report

AirTECHNOLOGY Laboratories, Inc.
18501 E. Gale Avenue, Suite 130 ♦ City of Industry, CA 91748 ♦ Ph: (626) 964-4032 ♦ Fx: (626) 964-5832

Client: CH2M Hill
Attn: Eric Davis
Project Name: SFPP Norwalk
Project No.: NA
Date Received: 11/21/18
Matrix: Air
Reporting Units: ppmv

EPA Method TO15

Lab No.:	METHOD BLANK			METHOD BLANK		
Client Sample I.D.:	-			-		
Date/Time Sampled:	-			-		
Date/Time Analyzed:	12/2/18 13:55			12/3/18 19:15		
QC Batch No.:	181202MS2A1			181203MS2A1		
Analyst Initials:	DT			DT		
Dilution Factor:	0.20			0.20		

ANALYTE	Result ppmv	RL ppmv	MDL ppmv	Result ppmv	RL ppmv	MDL ppmv
Dichlorodifluoromethane (12)	ND	0.00020	0.000031	ND	0.00020	0.000031
Chloromethane	ND	0.00040	0.000044	ND	0.00040	0.000044
1,2-Cl-1,1,2,2-F ethane (114)	ND	0.00020	0.000040	ND	0.00020	0.000040
Vinyl Chloride	ND	0.00020	0.000032	ND	0.00020	0.000032
Bromomethane	0.000064 J	0.00020	0.000059	ND	0.00020	0.000059
Chloroethane	ND	0.00020	0.00017	ND	0.00020	0.00017
Trichlorofluoromethane (11)	ND	0.00020	0.000043	ND	0.00020	0.000043
1,1-Dichloroethene	ND	0.00020	0.000045	ND	0.00020	0.000045
Carbon Disulfide	ND	0.0010	0.000048	ND	0.0010	0.000048
1,1,2-Cl 1,2,2-F ethane (113)	ND	0.00020	0.000054	ND	0.00020	0.000054
Acetone	0.00018 J	0.0010	0.000058	0.00014 J	0.0010	0.000058
Methylene Chloride	ND	0.00020	0.000057	ND	0.00020	0.000057
t-1,2-Dichloroethene	ND	0.00020	0.000060	ND	0.00020	0.000060
1,1-Dichloroethane	ND	0.00020	0.000027	ND	0.00020	0.000027
c-1,2-Dichloroethene	ND	0.00020	0.000039	ND	0.00020	0.000039
2-Butanone	ND	0.00020	0.00012	ND	0.00020	0.00012
t-Butyl Methyl Ether (MTBE)	ND	0.00020	0.000045	ND	0.00020	0.000045
Chloroform	ND	0.00020	0.000028	ND	0.00020	0.000028
1,1,1-Trichloroethane	ND	0.00020	0.000020	ND	0.00020	0.000020
Carbon Tetrachloride	ND	0.00020	0.000035	ND	0.00020	0.000035
Benzene	0.000028 J	0.00020	0.000019	0.00014 J	0.00020	0.000019
1,2-Dichloroethane	ND	0.00020	0.000015	ND	0.00020	0.000015
Trichloroethene	ND	0.00020	0.000028	ND	0.00020	0.000028
1,2-Dichloropropane	ND	0.00020	0.000036	ND	0.00020	0.000036
Bromodichloromethane	ND	0.00020	0.000012	ND	0.00020	0.000012
c-1,3-Dichloropropene	ND	0.00020	0.000024	ND	0.00020	0.000024
4-Methyl-2-Pentanone	ND	0.00020	0.000013	ND	0.00020	0.000013
Toluene	ND	0.00020	0.000016	ND	0.00020	0.000016
t-1,3-Dichloropropene	ND	0.00020	0.000021	ND	0.00020	0.000021
1,1,2-Trichloroethane	ND	0.00020	0.000032	ND	0.00020	0.000032
1,3-Dichloropropane	ND	0.00020	0.0000099	ND	0.00020	0.0000099
Tetrachloroethene	ND	0.00020	0.000024	ND	0.00020	0.000024
2-Hexanone	ND	0.00020	0.000041	ND	0.00020	0.000041
Dibromochloromethane	ND	0.00020	0.000036	ND	0.00020	0.000036
1,2-Dibromoethane	ND	0.00020	0.000018	ND	0.00020	0.000018
Chlorobenzene	ND	0.00020	0.000016	ND	0.00020	0.000016
Ethylbenzene	ND	0.00020	0.000011	ND	0.00020	0.000011
p,&m-Xylene	ND	0.00020	0.000023	ND	0.00020	0.000023
o-Xylene	ND	0.00020	0.000024	ND	0.00020	0.000024

AirTECHNOLOGY Laboratories, Inc.
18501 E. Gale Avenue, Suite 130 ♦ City of Industry, CA 91748 ♦ Ph: (626) 964-4032 ♦ Fx: (626) 964-5832

Client: CH2M Hill
Attn: Eric Davis
Project Name: SFPP Norwalk
Project No.: NA
Date Received: 11/21/18
Matrix: Air
Reporting Units: ppmv

EPA Method TO15

Lab No.:	METHOD BLANK			METHOD BLANK								
Client Sample I.D.:	-			-								
Date/Time Sampled:	-			-								
Date/Time Analyzed:	12/2/18 13:55			12/3/18 19:15								
QC Batch No.:	181202MS2A1			181203MS2A1								
Analyst Initials:	DT			DT								
Dilution Factor:	0.20			0.20								
ANALYTE	Result ppmv	RL ppmv	MDL ppmv	Result ppmv	RL ppmv	MDL ppmv						
Styrene	ND	0.00020	0.000026	ND	0.00020	0.000026						
Bromoform	ND	0.00020	0.000011	ND	0.00020	0.000011						
Isopropyl benzene	ND	0.00020	0.000021	ND	0.00020	0.000021						
1,1,2,2-Tetrachloroethane	ND	0.00040	0.000012	ND	0.00040	0.000012						
Benzyl Chloride	ND	0.00020	0.000037	ND	0.00020	0.000037						
1,2,3-Trichloropropane	ND	0.00020	0.000054	ND	0.00020	0.000054						
n-Propyl Benzene	ND	0.00020	0.000012	ND	0.00020	0.000012						
4-Ethyl Toluene	ND	0.00020	0.000013	ND	0.00020	0.000013						
1,3,5-Trimethylbenzene	ND	0.00040	0.000035	ND	0.00040	0.000035						
4-Chlorotoluene	ND	0.00020	0.000024	ND	0.00020	0.000024						
tert-Butylbenzene	ND	0.00020	0.000018	ND	0.00020	0.000018						
1,2,4-Trimethylbenzene	ND	0.00040	0.000023	ND	0.00040	0.000023						
sec-Butylbenzene	ND	0.00020	0.000019	ND	0.00020	0.000019						
p-Isopropyltoluene	ND	0.00020	0.000026	ND	0.00020	0.000026						
1,3-Dichlorobenzene	ND	0.00020	0.000024	ND	0.00020	0.000024						
1,4-Dichlorobenzene	ND	0.00020	0.000029	ND	0.00020	0.000029						
n-Butylbenzene	ND	0.00020	0.000015	ND	0.00020	0.000015						
1,2-Dichlorobenzene	ND	0.00020	0.000025	ND	0.00020	0.000025						
1,2,4-Trichlorobenzene	ND	0.00040	0.000033	ND	0.00040	0.000033						
Hexachlorobutadiene	ND	0.00020	0.000012	ND	0.00020	0.000012						
t-Butanol	ND	0.0010	0.000038	ND	0.0010	0.000038						
n-Hexane	ND	0.0010	0.000027	ND	0.0010	0.000027						
Isopropyl ether	ND	0.0010	0.000022	ND	0.0010	0.000022						
t-Butyl ethyl ether	ND	0.0010	0.000040	ND	0.0010	0.000040						
2,2-Dichloropropane	ND	0.0010	0.000019	ND	0.0010	0.000019						
t-Amyl methyl ether	ND	0.0010	0.000014	ND	0.0010	0.000014						
1,4-Dioxane	ND	0.0010	0.000035	ND	0.0010	0.000035						
Naphthalene	ND	0.0010	0.000077	ND	0.0010	0.000077						
1,2,3-Trichlorobenzene (TIC)	ND	--	--	ND	--	--						

MDL = Method Detection Limit
ND= Not Detected (below MDL)
RL = Reporting Limit
J = Trace amount. Analyte concentration between RL and MDL.

Reviewed/Approved By: _____ Date 12/4/18
Mark Johnson
Operations Manager

The cover letter is an integral part of this analytical report

AirTECHNOLOGY Laboratories, Inc.
18501 E. Gale Avenue, Suite 130 • City of Industry, CA 91748 • Ph: (626) 964-4032 • Fx: (626) 964-5832

LCS/LCSD Recovery and RPD Summary Report

QC Batch #: 181202MS2A1

Matrix: Air

EPA Method TO-14/TO-15

Lab No:	Method Blank		LCS		LCSD						
Date/Time Analyzed:	12/2/18 13:55		12/2/18 10:25		12/2/18 11:03						
Data File ID:	02DEC008.D		02DEC004.D		02DEC005.D						
Analyst Initials:	DT		DT		DT						
Dilution Factor:	0.2		1.0		1.0			Limits			
ANALYTE	Result ppbv	Spike Amount	Result ppbv	% Rec	Result ppbv	% Rec	RPD	Low %Rec	High %Rec	Max. RPD	Pass/ Fail
1,1-Dichloroethene	0.0	10.0	10.1	101	10.7	107	5.9	70	130	30	Pass
Methylene Chloride	0.0	10.0	10.1	101	10.8	108	6.7	70	130	30	Pass
Trichloroethene	0.0	10.0	10.4	104	10.4	104	0.2	70	130	30	Pass
Toluene	0.0	10.0	11.4	114	11.1	111	3.1	70	130	30	Pass
1,1,2,2-Tetrachloroethane	0.0	10.0	10.3	103	10.3	103	0.7	70	130	30	Pass

RPD = Relative Percent Difference

Reviewed/Approved By: _____ Date: 12/11/18

Mark Johnson
Operations Manager

The cover letter is an integral part of this analytical report

LCS/LCSD Recovery and RPD Summary Report

QC Batch #: 181203MS2A1

Matrix: Air

EPA Method TO-14/TO-15

Lab No:	Method Blank		LCS		LCSD						
Date/Time Analyzed:	12/3/18 19:15		12/3/18 12:57		12/3/18 13:36						
Data File ID:	03DEC009.D		03DEC004.D		03DEC005.D						
Analyst Initials:	DT		DT		DT						
Dilution Factor:	0.2		1.0		1.0			Limits			
ANALYTE	Result ppbv	Spike Amount	Result ppbv	% Rec	Result ppbv	% Rec	RPD	Low %Rec	High %Rec	Max. RPD	Pass/ Fail
1,1-Dichloroethene	0.0	10.0	10.4	104	10.6	106	1.9	70	130	30	Pass
Methylene Chloride	0.0	10.0	11.2	112	10.7	107	3.9	70	130	30	Pass
Trichloroethene	0.0	10.0	10.2	102	10.1	101	0.7	70	130	30	Pass
Toluene	0.0	10.0	11.4	114	11.5	115	1.2	70	130	30	Pass
1,1,2,2-Tetrachloroethane	0.0	10.0	9.7	97	10.0	100	2.4	70	130	30	Pass

RPD = Relative Percent Difference

Reviewed/Approved By: _____ Date: 12/4/18

Mark Johnson
Operations Manager

The cover letter is an integral part of this analytical report

Client: CH2M Hill
Attn: Eric Davis
Project Name: SFPP Norwalk
Project No.: NA
Date Received: 11/21/18
Matrix: Air
Reporting Units: ppmv

EPA METHOD TO3

Lab No.:	J112103-01		J112103-02		J112103-03		J112103-04	
Client Sample I.D.:	VEFF-11-20		VEFF-11-20D		VPOST-11-20		VINF-11-20	
Date/Time Sampled:	11/20/18 11:00		11/20/18 11:00		11/20/18 12:00		11/20/18 12:10	
Date/Time Analyzed:	11/29/18 20:51		11/29/18 21:13		11/29/18 21:36		11/29/18 21:58	
QC Batch No.:	181129GC11A2		181129GC11A2		181129GC11A2		181129GC11A2	
Analyst Initials:	VM		VM		VM		VM	
Dilution Factor:	2.1		2.1		2.1		2.1	
ANALYTE	Result ppmv	RL ppmv	Result ppmv	RL ppmv	Result ppmv	RL ppmv	Result ppmv	RL ppmv
TVOC as Hexane	ND	2.1	ND	2.1	150	2.1	150	2.1

ND = Not Detected (below RL)
RL = Reporting Limit

Reviewed/Approved By: _____ Date 12/7/18
Mark Johnson
Operations Manager

The cover letter is an integral part of this analytical report

AirTECHNOLOGY Laboratories, Inc.
18501 E. Gale Avenue, Suite 130 ♦ City of Industry, CA 91748 ♦ Ph: (626) 964-4032 ♦ Fx: (626) 964-5832

QC Batch No: 181129GC11A2
Matrix: Air
Reporting Units: ppmv

EPA METHOD TO3
LABORATORY CONTROL SAMPLE SUMMARY

Lab No.:	METHOD BLANK		LCS		LCSD					
Date Analyzed:	11/29/18 20:28		11/29/18 19:43		11/29/18 20:06					
Analyst Initials:	AS		AS		AS					
Dilution Factor:	1.0		1.0		1.0					
ANALYTE	Result ppmv	RL ppmv	Result ppmv	% Rec.	Result ppmv	% Rec.	RPD %	Low %Rec	High %Rec	Max. RPD
TVOC as Hexane	ND	1.0	0.850	85	0.880	88	3.5	70	130	25

ND = Not Detected (below RL)
RL = Reporting Limit

Reviewed/Approved By: _____ Date 12/4/18
Mark Johnson
Operations Manager

The cover letter is an integral part of this analytical report

AIRTECHNOLOGY Laboratories, Inc.
18501 E. Gale Avenue, Suite 130 ♦ City of Industry, CA 91748 ♦ Ph: (626) 964-4032 ♦ Fx: (626) 964-5832

Client:	**CH2M Hill**
Attn:	**Eric Davis**
Project Name:	**SFPP Norwalk**
Project No.:	**NA**
Date Received:	**11/21/18**
Matrix:	**Air**
Reporting Units:	**% v/v**

ASTM D1946

Lab No.:	**J112103-04**							
Client Sample I.D.:	**VINF-11-20**							
Date/Time Sampled:	**11/20/18 12:10**							
Date/Time Analyzed:	**11/26/18 12:46**							
QC Batch No.:	**181126GC8A1**							
Analyst Initials:	**CM/MJ**							
Dilution Factor:	**2.1**							
ANALYTE	**Result % v/v**	**RL % v/v**						
Carbon Dioxide	0.80	0.021						
Oxygen/Argon	21	1.1						
Nitrogen	78	2.1						
Methane	0.0088	0.0021						

Results normalized including non-methane hydrocarbons

ND = Not Detected (below RL)
RL = Reporting Limit

Reviewed/Approved By: _____ **Date** 12/6/18

Mark Johnson
Operations Manager

The cover letter is an integral part of this analytical report

AirTECHNOLOGY Laboratories, Inc.
18501 E. Gale Avenue, Suite 130 ♦ City of Industry, CA 91748 ♦ Ph: (626) 964-4032 ♦ Fx: (626) 964-5832

QC Batch No: 181126GC8A1
Matrix: Air
Reporting Units: % v/v

ASTM D1946
LABORATORY CONTROL SAMPLE SUMMARY

Lab No.:	METHOD BLANK			LCS		LCSD					
Date Analyzed:	11/26/18 11:25			11/26/18 10:56		11/26/18 11:10					
Analyst Initials:	CM/MJ			CM/MJ		CM/MJ					
Dilution Factor:	1.0			1.0		1.0			Limits		
ANALYTE	Result % v/v	RL % v/v	SPIKE AMT. % v/v	Result % v/v	% Rec.	Result % v/v	% Rec.	RPD %	Low %Rec	High %Rec	Max. RPD
Carbon Dioxide	ND	0.010	10	9.17	91	9.15	91	0.2	70	130	30
Oxygen/Argon	ND	0.50	15	16.5	111	16.4	111	0.3	70	130	30
Nitrogen	ND	1.0	70	74.1	106	74.0	106	0.1	70	130	30
Methane	ND	0.0010	0.10	0.116	116	0.115	115	0.7	70	130	30

ND = Not Detected (below RL)
RL = Reporting Limit

Reviewed/Approved By: _____ Date 12/6/18
Mark Johnson
Operations Manager

The cover letter is an integral part of this analytical report

Air TECHNOLOGY Laboratories, Inc.

January 3, 2019

LA Cert #04140
EPA Methods TO3, TO14A, TO15, 25C/3C, RSK-175
TX Cert T104704450-14-6
EPA Methods TO14A, TO15
UT Cert CA0133332015-3
EPA Methods TO3, TO14A, TO15, RSK-175

CH2M Hill
ATTN: Eric Davis
1000 Wilshire Blvd., Suite 2100
Los Angeles, CA 90017

LABORATORY TEST RESULTS

Project Reference: SFPP Norwalk
Lab Number: J121006-01/04

Enclosed are results for sample(s) received 12/10/18 by Air Technology Laboratories. Samples were received intact. Analyses were performed according to specifications on the chain of custody provided with the sample(s).

Report Narrative:

- Unless otherwise noted in the report, sample analyses were performed within method performance criteria and meet all requirements of the TNI Standards.
- The enclosed results relate only to the sample(s).

Preliminary results were e-mailed to Eric Davis, Vladimir Carino and Nils Orliczky on 1/02/19.

ATL appreciates the opportunity to provide testing services to your company. If you have any questions regarding these results, please call me at (626) 964-4032.

Sincerely,

Mark Johnson
Operations Manager
MJohnson@AirTechLabs.com

Note: The cover letter is an integral part of this analytical report.

Air Technology Laboratories, Inc.
18501 Gale Ave. #130
City of Industry, CA 91748
Tel: 626-964-4032
Joann De La Ossa (JDeLaOssa@airtechlabs.com)

J121006-01/04

CHAIN OF CUSTODY RECORD

DATE: 12/7/18
PAGE: 1 of 1

Section A Required Client Information:		Section B Required Project Information:	Section C Invoice Information:	Section D Sampler Information:
Company:	CH2M HILL Attention: Eric Davis	Report To: Eric Davis (eric.davis@ch2m.com)	Attention: Eric Davis	Sampler Name: James Dye
Address:	1000 Wilshire Blvd. Suite 2100 Los Angeles, CA 90017	Copy To: Vladimir Carino (vcarino@ch2m.com)	Company Name: CH2M	Sampler Signature:
Email To:	eric.davis@ch2m.com vcarino@ch2m.com	Purchase Order No.:	Address: 1000 Wilshire Blvd. Suite 2100 Los Angeles, CA 90017	Sample Date: 12/7/2018
Phone: 404-323-1600	Fax:	Project Name: SFPP Norwalk	Project Manager: Joann De La Ossa	

Section E
Required Sample Information

ITEM #	SAMPLE ID	LOCATION/ DESCRIPTION	MATRIX	SAMPLE TYPE (G=GRAB C=COMP)	SAMPLING DATE	SAMPLING TIME	TOTAL # OF CONTAINERS	Analysis Test	TO-3 (Total VOCs as Hexane)	TO-15 (VOCs, Target Analytes)	ASTM-D 1946 (O2/Argon, CO2, CH4, N2	Comments
CONTAINER TYPE												
# OF CONTAINERS												
PRESERVATIVE												
VOLUME (mL)												
1	VEFF-12.07	Effluent (stack)	Vapor	G	12/7/18	1214	1		X	X		Individually Certified 6-Liter SUMMA
2	VEFF-12.07 D	Effluent (stack) (duplicate)	Vapor	G	12/7/18	1214	1		X	X		Individually Certified 6-Liter SUMMA
3	VPOST-12.07	Influent (post-dilution)	Vapor	G	12/7/18	1308	1		X	X		Individually Certified 1-Liter SUMMA
4	VINF-12.07	Influent (pre-dilution)	Vapor	G	12/7/18	1325	1		X	X	X	Batch Certified 1-Liter Summa
5												Target analytes includes Historical VOCs and remaining ATLI list per subcontract
6												
7												
8												
9												

Relinquished by (Signature and Printed Name):	Date / Time	Relinquished by (Signature and Printed Name):	Date / Time
JAMES DYE	12/7/18 1330	FED EX	12/7/18 1530
Relinquished by (Signature and Printed Name):	Date / Time	Relinquished by (Signature and Printed Name):	Date / Time
FEDEX		[illegible]	12/13/18 1438
Relinquished by (Signature and Printed Name):	Date / Time	Relinquished by (Signature and Printed Name):	Date / Time

Turn Around Time (TAT):
- ☐ A = Same Day
- ☐ B = 24 Hours
- ☐ C = 48 Hours
- ☐ D = 72 Hours
- ☐ E = 5 Workdays
- ☑ E = 10 Workdays

TAT Starts at 8 AM the following day if samples received after 3:00 PM.

Special Instruction:

Matrix:			Preservatives:			Container Type:			
W = Water	WW = Wastewater		H = HCl	N = HNO3	S = H2SO4	T = Tube	V = VOA	P = Pint	A= Amber
O = Oil	P = Product	S = Soil	Z = Zn(AC)2	O = NaOH	T = Na2S2O3	J = Jar	B = Tedlar	G = Glass	
Others/Specify:			Others/Specify:			M = Metal	P = Plastic	C = Can	

Client: CH2M Hill
Attn: Eric Davis
Project Name: SFPP Norwalk
Project No.: NA
Date Received: 12/10/18
Matrix: Air
Reporting Units: ppmv

EPA Method TO15

Lab No.:	J121006-01			J121006-02			J121006-03			J121006-04		
Client Sample I.D.:	VEFF-12-07			VEFF-12-07D			VPOST-12-07			VINF-12-07		
Date/Time Sampled:	12/7/18 12:14			12/7/18 12:14			12/7/18 13:08			12/7/18 13:25		
Date/Time Analyzed:	12/18/18 10:19			12/17/18 20:27			12/17/18 21:06			12/17/18 21:46		
QC Batch No.:	181218MS2A1			181217MS2A1			181217MS2A1			181217MS2A1		
Analyst Initials:	DT			DT			DT			DT		
Dilution Factor:	2.1			2.1			21			20		
ANALYTE	Result ppmv	RL ppmv	MDL ppmv	Result ppmv	RL ppmv	MDL ppmv	Result ppmv	RL ppmv	MDL ppmv	Result ppmv	RL ppmv	MDL ppmv
Dichlorodifluoromethane (12)	ND	0.0021	0.00032	ND	0.0021	0.00032	ND	0.021	0.0032	ND	0.020	0.0031
Chloromethane	ND	0.0042	0.00046	0.0028 J	0.0042	0.00046	ND	0.041	0.0045	ND	0.040	0.0044
1,2-Cl-1,1,2,2-F ethane (114)	ND	0.0021	0.00042	ND	0.0021	0.00042	ND	0.021	0.0041	ND	0.020	0.0041
Vinyl Chloride	ND	0.0021	0.00034	ND	0.0021	0.00034	ND	0.021	0.0033	ND	0.020	0.0033
Bromomethane	0.0023	0.0021	0.00062	0.0033	0.0021	0.00062	0.014 J	0.021	0.0060	0.019 J	0.020	0.0059
Chloroethane	ND	0.0021	0.0018	ND	0.0021	0.0018	ND	0.021	0.017	ND	0.020	0.017
Trichlorofluoromethane (11)	ND	0.0021	0.00045	ND	0.0021	0.00045	ND	0.021	0.0044	ND	0.020	0.0044
1,1-Dichloroethene	ND	0.0021	0.00048	ND	0.0021	0.00048	ND	0.021	0.0047	ND	0.020	0.0046
Carbon Disulfide	0.11	0.011	0.00050	0.11	0.011	0.00050	0.11	0.10	0.0049	0.12	0.10	0.0048
1,1,2-Cl 1,2,2-F ethane (113)	ND	0.0021	0.00057	ND	0.0021	0.00057	ND	0.021	0.0055	ND	0.020	0.0054
Acetone	0.028	0.011	0.00061	0.022	0.011	0.00061	0.030 J	0.10	0.0059	0.024 J	0.10	0.0058
Methylene Chloride	ND	0.0021	0.00060	ND	0.0021	0.00060	ND	0.021	0.0059	ND	0.020	0.0058
t-1,2-Dichloroethene	ND	0.0021	0.00063	ND	0.0021	0.00063	ND	0.021	0.0062	ND	0.020	0.0060
1,1-Dichloroethane	ND	0.0021	0.00029	ND	0.0021	0.00029	ND	0.021	0.0028	ND	0.020	0.0028
c-1,2-Dichloroethene	ND	0.0021	0.00041	ND	0.0021	0.00041	ND	0.021	0.0040	ND	0.020	0.0039
2-Butanone	0.011	0.0021	0.0013	0.0075	0.0021	0.0013	ND	0.021	0.013	0.021	0.020	0.012
t-Butyl Methyl Ether (MTBE)	0.0041	0.0021	0.00047	0.0039	0.0021	0.00047	ND	0.021	0.0046	ND	0.020	0.0045
Chloroform	ND	0.0021	0.00029	ND	0.0021	0.00029	ND	0.021	0.0029	ND	0.020	0.0028
1,1,1-Trichloroethane	ND	0.0021	0.00021	ND	0.0021	0.00021	ND	0.021	0.0021	ND	0.020	0.0020
Carbon Tetrachloride	ND	0.0021	0.00037	ND	0.0021	0.00037	ND	0.021	0.0036	ND	0.020	0.0035
Benzene	0.024	0.0021	0.00020	0.025	0.0021	0.00020	1.9	0.021	0.0020	1.7	0.020	0.0019
1,2-Dichloroethane	ND	0.0021	0.00016	ND	0.0021	0.00016	0.0075 J	0.021	0.0015	0.0066 J	0.020	0.0015
Trichloroethene	ND	0.0021	0.00030	ND	0.0021	0.00030	ND	0.021	0.0029	ND	0.020	0.0029
1,2-Dichloropropane	ND	0.0021	0.00038	ND	0.0021	0.00038	ND	0.021	0.0037	ND	0.020	0.0037
Bromodichloromethane	ND	0.0021	0.00013	ND	0.0021	0.00013	ND	0.021	0.0012	ND	0.020	0.0012
c-1,3-Dichloropropene	ND	0.0021	0.00025	ND	0.0021	0.00025	ND	0.021	0.0025	ND	0.020	0.0024
4-Methyl-2-Pentanone	ND	0.0021	0.00014	ND	0.0021	0.00014	ND	0.021	0.0014	ND	0.020	0.0014
Toluene	0.029	0.0021	0.00017	0.031	0.0021	0.00017	2.1	0.021	0.0016	2.1	0.020	0.0016
t-1,3-Dichloropropene	ND	0.0021	0.00022	ND	0.0021	0.00022	ND	0.021	0.0021	ND	0.020	0.0021
1,1,2-Trichloroethane	ND	0.0021	0.00034	ND	0.0021	0.00034	ND	0.021	0.0033	ND	0.020	0.0033
1,3-Dichloropropane	ND	0.0021	0.00010	ND	0.0021	0.00010	ND	0.021	0.0010	ND	0.020	0.0010
Tetrachloroethene	ND	0.0021	0.00025	ND	0.0021	0.00025	ND	0.021	0.0025	ND	0.020	0.0024
2-Hexanone	ND	0.0021	0.00043	ND	0.0021	0.00043	ND	0.021	0.0042	ND	0.020	0.0042
Dibromochloromethane	ND	0.0021	0.00038	ND	0.0021	0.00038	ND	0.021	0.0038	ND	0.020	0.0037
1,2-Dibromoethane	ND	0.0021	0.00019	ND	0.0021	0.00019	ND	0.021	0.0019	ND	0.020	0.0018
Chlorobenzene	ND	0.0021	0.00016	ND	0.0021	0.00016	0.013 J	0.021	0.0016	0.011 J	0.020	0.0016
Ethylbenzene	0.0042	0.0021	0.00012	0.0044	0.0021	0.00012	0.39	0.021	0.0012	0.36	0.020	0.0012
p,&m-Xylene	0.037	0.0021	0.00024	0.038	0.0021	0.00024	2.1	0.021	0.0023	2.0	0.020	0.0023
o-Xylene	0.017	0.0021	0.00026	0.017	0.0021	0.00026	0.21	0.021	0.0025	0.14	0.020	0.0025

18501 E. Gale Avenue, Suite 130 ♦ City of Industry, CA 91748 ♦ Ph: (626) 964-4032 ♦ Fx: (626) 964-5832

Client: CH2M Hill
Attn: Eric Davis
Project Name: SFPP Norwalk
Project No.: NA
Date Received: 12/10/18
Matrix: Air
Reporting Units: ppmv

EPA Method TO15

Lab No.:	J121006-01			J121006-02			J121006-03			J121006-04		
Client Sample I.D.:	VEFF-12-07			VEFF-12-07D			VPOST-12-07			VINF-12-07		
Date/Time Sampled:	12/7/18 12:14			12/7/18 12:14			12/7/18 13:08			12/7/18 13:25		
Date/Time Analyzed:	12/18/18 10:19			12/17/18 20:27			12/17/18 21:06			12/17/18 21:46		
QC Batch No.:	181218MS2A1			181217MS2A1			181217MS2A1			181217MS2A1		
Analyst Initials:	DT			DT			DT			DT		
Dilution Factor:	2.1			2.1			21			20		
ANALYTE	Result ppmv	RL ppmv	MDL ppmv	Result ppmv	RL ppmv	MDL ppmv	Result ppmv	RL ppmv	MDL ppmv	Result ppmv	RL ppmv	MDL ppmv
Styrene	0.00087 J	0.0021	0.00027	0.00079 J	0.0021	0.00027	0.0090 J	0.021	0.0026	0.0049 J	0.020	0.0026
Bromoform	ND	0.0021	0.00012	ND	0.0021	0.00012	ND	0.021	0.0011	ND	0.020	0.0011
Isopropyl benzene	ND	0.0021	0.00022	ND	0.0021	0.00022	0.0080 J	0.021	0.0022	0.0052 J	0.020	0.0021
1,1,2,2-Tetrachloroethane	ND	0.0042	0.00013	ND	0.0042	0.00013	ND	0.041	0.0013	ND	0.040	0.0012
Benzyl Chloride	ND	0.0021	0.00039	ND	0.0021	0.00039	ND	0.021	0.0038	ND	0.020	0.0037
1,2,3-Trichloropropane	ND	0.0021	0.00057	ND	0.0021	0.00057	ND	0.021	0.0055	ND	0.020	0.0054
n-Propyl Benzene	ND	0.0021	0.00012	0.00077 J	0.0021	0.00012	0.035	0.021	0.0012	0.031	0.020	0.0012
4-Ethyl Toluene	0.0091	0.0021	0.00013	0.0086	0.0021	0.00013	0.46	0.021	0.0013	0.41	0.020	0.0013
1,3,5-Trimethylbenzene	0.0057	0.0042	0.00036	0.0057	0.0042	0.00036	0.36	0.041	0.0036	0.32	0.040	0.0035
4-Chlorotoluene	ND	0.0021	0.00025	ND	0.0021	0.00025	ND	0.021	0.0025	ND	0.020	0.0024
tert-Butylbenzene	ND	0.0021	0.00019	ND	0.0021	0.00019	ND	0.021	0.0019	ND	0.020	0.0018
1,2,4-Trimethylbenzene	0.0071	0.0042	0.00024	0.0071	0.0042	0.00024	0.045	0.041	0.0023	0.041	0.040	0.0023
sec-Butylbenzene	ND	0.0021	0.00020	ND	0.0021	0.00020	ND	0.021	0.0020	ND	0.020	0.0020
p-Isopropyltoluene	0.0012 J	0.0021	0.00027	0.0015 J	0.0021	0.00027	ND	0.021	0.0027	ND	0.020	0.0026
1,3-Dichlorobenzene	ND	0.0021	0.00026	ND	0.0021	0.00026	ND	0.021	0.0025	ND	0.020	0.0025
1,4-Dichlorobenzene	ND	0.0021	0.00031	ND	0.0021	0.00031	ND	0.021	0.0030	ND	0.020	0.0030
n-Butylbenzene	ND	0.0021	0.00015	0.0012 J	0.0021	0.00015	ND	0.021	0.0015	ND	0.020	0.0015
1,2-Dichlorobenzene	ND	0.0021	0.00026	ND	0.0021	0.00026	ND	0.021	0.0026	ND	0.020	0.0025
1,2,4-Trichlorobenzene	ND	0.0042	0.00035	ND	0.0042	0.00035	ND	0.041	0.0034	0.0046 J	0.040	0.0033
Hexachlorobutadiene	ND	0.0021	0.00012	0.00057 J	0.0021	0.00012	0.0079 J	0.021	0.0012	ND	0.020	0.0012
t-Butanol	0.0038 J	0.011	0.00040	0.0011 J	0.011	0.00040	0.046 J	0.10	0.0040	0.043 J	0.10	0.0039
n-Hexane	0.048	0.011	0.00028	0.047	0.011	0.00028	6.8 d	0.10	0.0028	5.6 d	0.10	0.0027
Isopropyl ether	ND	0.011	0.00023	ND	0.011	0.00023	ND	0.10	0.0023	ND	0.10	0.0022
t-Butyl ethyl ether	ND	0.011	0.00042	ND	0.011	0.00042	ND	0.10	0.0041	ND	0.10	0.0040
2,2-Dichloropropane	ND	0.011	0.00020	ND	0.011	0.00020	ND	0.10	0.0020	ND	0.10	0.0019
t-Amyl methyl ether	ND	0.011	0.00015	ND	0.011	0.00015	ND	0.10	0.0015	ND	0.10	0.0014
1,4-Dioxane	ND	0.011	0.00037	ND	0.011	0.00037	ND	0.10	0.0036	ND	0.10	0.0035
Naphthalene	ND	0.011	0.00081	0.0015 J	0.011	0.00081	ND	0.10	0.0079	0.0095 J	0.10	0.0078
1,2,3-Trichlorobenzene (TIC)	ND	–	–	ND	–	–	ND	–	–	ND	–	–

MDL = Method Detection Limit
ND= Not Detected (below MDL)
RL = Reporting Limit
J = Trace amount. Analyte concentration between RL and MDL.
d = Result obtained from secondary dilution. QC Batch No. 181218MS2A1

Reviewed/Approved By: _____ Date 1/2/19
Mark Johnson
Operations Manager

The cover letter is an integral part of this analytical report

18501 E. Gale Avenue, Suite 130 ♦ City of Industry, CA 91748 ♦ Ph: (626) 964-4032 ♦ Fx: (626) 964-5832

Client: CH2M Hill
Attn: Eric Davis
Project Name: SFPP Norwalk
Project No.: NA
Date Received: 12/10/18
Matrix: Air
Reporting Units: ppmv

EPA Method TO15

Lab No.:	METHOD BLANK			METHOD BLANK		
Client Sample I.D.:	-			-		
Date/Time Sampled:	-			-		
Date/Time Analyzed:	12/17/18 19:07			12/18/18 7:37		
QC Batch No.:	181217MS2A1			181218MS2A1		
Analyst Initials:	DT			DT		
Dilution Factor:	0.20			0.20		

ANALYTE	Result ppmv	RL ppmv	MDL ppmv	Result ppmv	RL ppmv	MDL ppmv
Dichlorodifluoromethane (12)	ND	0.00020	0.000031	ND	0.00020	0.000031
Chloromethane	0.000089 J	0.00040	0.000044	ND	0.00040	0.000044
1,2-Cl-1,1,2,2-F ethane (114)	ND	0.00020	0.000040	ND	0.00020	0.000040
Vinyl Chloride	ND	0.00020	0.000032	ND	0.00020	0.000032
Bromomethane	ND	0.00020	0.000059	ND	0.00020	0.000059
Chloroethane	ND	0.00020	0.00017	ND	0.00020	0.00017
Trichlorofluoromethane (11)	ND	0.00020	0.000043	ND	0.00020	0.000043
1,1-Dichloroethene	ND	0.00020	0.000045	ND	0.00020	0.000045
Carbon Disulfide	0.000051 J	0.0010	0.000048	ND	0.0010	0.000048
1,1,2-Cl 1,2,2-F ethane (113)	ND	0.00020	0.000054	ND	0.00020	0.000054
Acetone	ND	0.0010	0.000058	ND	0.0010	0.000058
Methylene Chloride	ND	0.00020	0.000057	ND	0.00020	0.000057
t-1,2-Dichloroethene	ND	0.00020	0.000060	ND	0.00020	0.000060
1,1-Dichloroethane	ND	0.00020	0.000027	ND	0.00020	0.000027
c-1,2-Dichloroethene	ND	0.00020	0.000039	ND	0.00020	0.000039
2-Butanone	ND	0.00020	0.00012	ND	0.00020	0.00012
t-Butyl Methyl Ether (MTBE)	ND	0.00020	0.000045	ND	0.00020	0.000045
Chloroform	ND	0.00020	0.000028	ND	0.00020	0.000028
1,1,1-Trichloroethane	ND	0.00020	0.000020	ND	0.00020	0.000020
Carbon Tetrachloride	ND	0.00020	0.000035	ND	0.00020	0.000035
Benzene	0.000078 J	0.00020	0.000019	0.000025 J	0.00020	0.000019
1,2-Dichloroethane	ND	0.00020	0.000015	ND	0.00020	0.000015
Trichloroethene	ND	0.00020	0.000028	ND	0.00020	0.000028
1,2-Dichloropropane	ND	0.00020	0.000036	ND	0.00020	0.000036
Bromodichloromethane	ND	0.00020	0.000012	ND	0.00020	0.000012
c-1,3-Dichloropropene	ND	0.00020	0.000024	ND	0.00020	0.000024
4-Methyl-2-Pentanone	ND	0.00020	0.000013	ND	0.00020	0.000013
Toluene	0.000020 J	0.00020	0.000016	ND	0.00020	0.000016
t-1,3-Dichloropropene	ND	0.00020	0.000021	ND	0.00020	0.000021
1,1,2-Trichloroethane	ND	0.00020	0.000032	ND	0.00020	0.000032
1,3-Dichloropropane	ND	0.00020	0.0000099	ND	0.00020	0.0000099
Tetrachloroethene	ND	0.00020	0.000024	ND	0.00020	0.000024
2-Hexanone	ND	0.00020	0.000041	ND	0.00020	0.000041
Dibromochloromethane	ND	0.00020	0.000036	ND	0.00020	0.000036
1,2-Dibromoethane	ND	0.00020	0.000018	ND	0.00020	0.000018
Chlorobenzene	ND	0.00020	0.000016	ND	0.00020	0.000016
Ethylbenzene	ND	0.00020	0.000011	ND	0.00020	0.000011
p,&m-Xylene	ND	0.00020	0.000023	ND	0.00020	0.000023
o-Xylene	ND	0.00020	0.000024	ND	0.00020	0.000024

Client: CH2M Hill
Attn: Eric Davis
Project Name: SFPP Norwalk
Project No.: NA
Date Received: 12/10/18
Matrix: Air
Reporting Units: ppmv

EPA Method TO15

Lab No.:	METHOD BLANK			METHOD BLANK		
Client Sample I.D.:	-			-		
Date/Time Sampled:	-			-		
Date/Time Analyzed:	12/17/18 19:07			12/18/18 7:37		
QC Batch No.:	181217MS2A1			181218MS2A1		
Analyst Initials:	DT			DT		
Dilution Factor:	0.20			0.20		
ANALYTE	Result ppmv	RL ppmv	MDL ppmv	Result ppmv	RL ppmv	MDL ppmv
Styrene	ND	0.00020	0.000026	ND	0.00020	0.000026
Bromoform	ND	0.00020	0.000011	ND	0.00020	0.000011
Isopropyl benzene	ND	0.00020	0.000021	ND	0.00020	0.000021
1,1,2,2-Tetrachloroethane	ND	0.00040	0.000012	ND	0.00040	0.000012
Benzyl Chloride	ND	0.00020	0.000037	ND	0.00020	0.000037
1,2,3-Trichloropropane	ND	0.00020	0.000054	ND	0.00020	0.000054
n-Propyl Benzene	ND	0.00020	0.000012	ND	0.00020	0.000012
4-Ethyl Toluene	0.000016 J	0.00020	0.000013	ND	0.00020	0.000013
1,3,5-Trimethylbenzene	ND	0.00040	0.000035	ND	0.00040	0.000035
4-Chlorotoluene	ND	0.00020	0.000024	ND	0.00020	0.000024
tert-Butylbenzene	ND	0.00020	0.000018	ND	0.00020	0.000018
1,2,4-Trimethylbenzene	ND	0.00040	0.000023	ND	0.00040	0.000023
sec-Butylbenzene	0.000075 J	0.00020	0.000019	ND	0.00020	0.000019
p-Isopropyltoluene	0.000046 J	0.00020	0.000026	ND	0.00020	0.000026
1,3-Dichlorobenzene	0.000046 J	0.00020	0.000024	ND	0.00020	0.000024
1,4-Dichlorobenzene	0.000069 J	0.00020	0.000029	ND	0.00020	0.000029
n-Butylbenzene	ND	0.00020	0.000015	ND	0.00020	0.000015
1,2-Dichlorobenzene	0.000044 J	0.00020	0.000025	ND	0.00020	0.000025
1,2,4-Trichlorobenzene	ND	0.00040	0.000033	ND	0.00040	0.000033
Hexachlorobutadiene	0.000099 J	0.00020	0.000012	ND	0.00020	0.000012
t-Butanol	ND	0.0010	0.000038	ND	0.0010	0.000038
n-Hexane	ND	0.0010	0.000027	ND	0.0010	0.000027
Isopropyl ether	ND	0.0010	0.000022	ND	0.0010	0.000022
t-Butyl ethyl ether	ND	0.0010	0.000040	ND	0.0010	0.000040
2,2-Dichloropropane	ND	0.0010	0.000019	ND	0.0010	0.000019
t-Amyl methyl ether	ND	0.0010	0.000014	ND	0.0010	0.000014
1,4-Dioxane	ND	0.0010	0.000035	ND	0.0010	0.000035
Naphthalene	ND	0.0010	0.000077	ND	0.0010	0.000077
1,2,3-Trichlorobenzene (TIC)	ND	--	--	ND	--	--

MDL = Method Detection Limit
ND= Not Detected (below MDL)
RL = Reporting Limit
J = Trace amount. Analyte concentration between RL and MDL.

Reviewed/Approved By: _____ Date 1/2/19
Mark Johnson
Operations Manager

The cover letter is an integral part of this analytical report

18501 E. Gale Avenue, Suite 130 ♦ City of Industry, CA 91748 ♦ Ph: (626) 964-4032 ♦ Fx: (626) 964-5832

LCS/LCSD Recovery and RPD Summary Report

QC Batch #: 181217MS2A1

Matrix: Air

EPA Method TO-14/TO-15

Lab No:	Method Blank		LCS		LCSD						
Date/Time Analyzed:	12/17/18 19:07		12/17/18 17:46		12/17/18 18:26						
Data File ID:	17DEC015.D		17DEC013.D		17DEC014.D						
Analyst Initials:	DT		DT		DT						
Dilution Factor:	0.2		1.0		1.0			Limits			
ANALYTE	Result ppbv	Spike Amount	Result ppbv	% Rec	Result ppbv	% Rec	RPD	Low %Rec	High %Rec	Max. RPD	Pass/ Fail
1,1-Dichloroethene	0.0	10.0	9.1	91	9.3	93	2.6	70	130	30	Pass
Methylene Chloride	0.0	10.0	9.9	99	9.7	97	1.7	70	130	30	Pass
Trichloroethene	0.0	10.0	9.6	96	9.8	98	1.9	70	130	30	Pass
Toluene	0.0	10.0	11.0	110	11.4	114	3.3	70	130	30	Pass
1,1,2,2-Tetrachloroethane	0.0	10.0	9.9	99	10.1	101	2.1	70	130	30	Pass

RPD = Relative Percent Difference

Reviewed/Approved By: _____ Date: 1/2/19

Mark Johnson
Operations Manager

The cover letter is an integral part of this analytical report

LCS/LCSD Recovery and RPD Summary Report

QC Batch #: 181218MS2A1

Matrix: Air

EPA Method TO-14/TO-15

Lab No:	Method Blank		LCS		LCSD						
Date/Time Analyzed:	12/18/18 7:37		12/18/18 6:16		12/18/18 6:54						
Data File ID:	18DEC009.D		18DEC007.D		18DEC008.D						
Analyst Initials:	DT		DT		DT						
Dilution Factor:	0.2		1.0		1.0			Limits			
ANALYTE	Result ppbv	Spike Amount	Result ppbv	% Rec	Result ppbv	% Rec	RPD	Low %Rec	High %Rec	Max. RPD	Pass/ Fail
1,1-Dichloroethene	0.0	10.0	9.1	91	8.9	89	1.8	70	130	30	Pass
Methylene Chloride	0.0	10.0	8.9	89	9.3	93	4.6	70	130	30	Pass
Trichloroethene	0.0	10.0	9.5	95	9.5	95	0.3	70	130	30	Pass
Toluene	0.0	10.0	10.7	107	10.6	106	0.9	70	130	30	Pass
1,1,2,2-Tetrachloroethane	0.0	10.0	9.7	97	9.8	98	0.9	70	130	30	Pass

RPD = Relative Percent Difference

Reviewed/Approved By: _____ Date: 1/2/19

Mark Johnson
Operations Manager

The cover letter is an integral part of this analytical report

Client: CH2M Hill
Attn: Eric Davis
Project Name: SFPP Norwalk
Project No.: NA
Date Received: 12/10/18
Matrix: Air
Reporting Units: ppmv

EPA METHOD TO3

Lab No.:	J121006-01		J121006-02		J121006-03		J121006-04	
Client Sample I.D.:	VEFF-12-07		VEFF-12-07D		VPOST-12-07		VINF-12-07	
Date/Time Sampled:	12/7/18 12:14		12/7/18 12:14		12/7/18 13:08		12/7/18 13:25	
Date/Time Analyzed:	12/13/18 13:00		12/13/18 13:22		12/13/18 13:45		12/13/18 14:07	
QC Batch No.:	181213GC11A1		181213GC11A1		181213GC11A1		181213GC11A1	
Analyst Initials:	VM		VM		VM		VM	
Dilution Factor:	2.1		2.1		2.1		2.0	
ANALYTE	Result ppmv	RL ppmv	Result ppmv	RL ppmv	Result ppmv	RL ppmv	Result ppmv	RL ppmv
TVOC as Hexane	ND	2.1	ND	2.1	180	2.1	190	2.0

ND = Not Detected (below RL)
RL = Reporting Limit

Reviewed/Approved By: _____ Date 1/2/19
Mark Johnson
Operations Manager

The cover letter is an integral part of this analytical report

AirTECHNOLOGY Laboratories, Inc.
18501 E. Gale Avenue, Suite 130 ♦ City of Industry, CA 91748 ♦ Ph: (626) 964-4032 ♦ Fx: (626) 964-5832

QC Batch No: 181213GC11A1
Matrix: Air
Reporting Units: ppmv

EPA METHOD TO3
LABORATORY CONTROL SAMPLE SUMMARY

Lab No.:	METHOD BLANK		LCS		LCSD					
Date Analyzed:	12/13/18 12:38		12/13/18 10:46		12/13/18 11:09					
Analyst Initials:	VM		VM		VM					
Dilution Factor:	1.0		1.0		1.0					
ANALYTE	Result ppmv	RL ppmv	Result ppmv	% Rec.	Result ppmv	% Rec.	RPD %	Low %Rec	High %Rec	Max. RPD
TVOC as Hexane	ND	1.0	4.56	91	4.70	94	3.0	70	130	25

ND = Not Detected (below RL)
RL = Reporting Limit

Reviewed/Approved By: _____ Date 1/2/19

Mark Johnson
Operations Manager

The cover letter is an integral part of this analytical report

AIRTECHNOLOGY Laboratories, Inc.
18501 E. Gale Avenue, Suite 130 ♦ City of Industry, CA 91748 ♦ Ph: (626) 964-4032 ♦ Fx: (626) 964-5832

Client:	**CH2M Hill**
Attn:	**Eric Davis**
Project Name:	**SFPP Norwalk**
Project No.:	**NA**
Date Received:	**12/10/18**
Matrix:	**Air**
Reporting Units:	**% v/v**

ASTM D1946

Lab No.:	J121006-04							
Client Sample I.D.:	VINF-12-07							
Date/Time Sampled:	12/7/18 13:25							
Date/Time Analyzed:	12/26/18 17:48							
QC Batch No.:	181226GC8A1							
Analyst Initials:	CM/MJ							
Dilution Factor:	2.0							
ANALYTE	**Result % v/v**	**RL % v/v**						
Carbon Dioxide	0.75	0.020						
Oxygen/Argon	22	1.0						
Nitrogen	77	2.0						
Methane	0.0038	0.0020						

Results normalized including non-methane hydrocarbons

ND = Not Detected (below RL)
RL = Reporting Limit

Reviewed/Approved By: _____ Date 12-28-18

Mark Johnson
Operations Manager

The cover letter is an integral part of this analytical report

AirTECHNOLOGY Laboratories, Inc.
18501 E. Gale Avenue, Suite 130 ♦ City of Industry, CA 91748 ♦ Ph: (626) 964-4032 ♦ Fx: (626) 964-5832

November 15, 2018

Eric Davis
CH2MHill
1000 Wilshire Blvd.
Los Angeles, CA 90017

TEL:
FAX:

Workorder No.: N032715

RE: SFPP Norwalk

Attention: Eric Davis

Enclosed are the results for sample(s) received on October 26, 2018 by ASSET Laboratories. The sample(s) are tested for the parameters as indicated in the enclosed chain of custody in accordance with the applicable laboratory certifications.

This is an amended report. Please disregard all previous documentation that corresponds to the page(s) enclosed.

Thank you for the opportunity to service the needs of your company.

Please feel free to call me at (702) 307-2659 if I can be of further assistance to your company.

Sincerely,

Quennie Manimtim

Laboratory Director

CLIENT: CH2MHill
Project: SFPP Norwalk
Lab Order: N032715

CASE NARRATIVE

SAMPLE RECEIVING/GENERAL COMMENTS:

All sample containers were received intact with proper chain of custody documentation.

Information on sample receipt conditions including discrepancies can be found in attached Sample Receipt Checklist Form.

Cooler temperature and sample preservation were verified upon receipt of samples if applicable.

Sample was analyzed within method holding time.

Results were J-Flag. "J" is used to flag those results that are between the PQL (Practical Quantitation Limit) and the calculated MDL (Method Detection Limit). Results that are "J" Flagged are estimated values since it becomes difficult to accurately quantitate the analyte near the MDL.

Subcontracted Analyses:

EPA 8015B for DRO, ORO and GRO was subcontracted to BC Laboratories, Bakersfield, CA. Total TPH was calculated and reported in the lab based on Subcon Lab's result.

Analytical Comment For EPA 8260B:

RPD for Laboratory Control Sample Duplicate (LCSD) is outside criteria for 2-Butanone and Acetone; however, analyte recovery met acceptance criteria.

Laboratory Control Sample (LCS) recovery biased high for Acetone. Sample results were non-detect (ND) for this analyte therefore reanalysis of the samples was not necessary.

ASSET Laboratories

Date: *15-Nov-18*

CLIENT: CH2MHill
Project: SFPP Norwalk
Lab Order: N032715
Contract No:

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N032715-001A	INF-10-23	Wastewater	10/23/2018 10:55:00 AM	10/26/2018	11/13/2018
N032715-001B	INF-10-23	Wastewater	10/23/2018 10:55:00 AM	10/26/2018	11/13/2018
N032715-001C	INF-10-23	Wastewater	10/23/2018 10:55:00 AM	10/26/2018	11/13/2018

CLIENT: CH2MHill
Lab Order: N032715
Project: SFPP Norwalk
Lab ID: N032715-001

Client Sample ID: INF-10-23
Collection Date: 10/23/2018 10:55:00 AM
Matrix: WASTEWATER

VOLATILE ORGANIC COMPOUNDS BY GC/MS

EPA 8260B

RunID: **CA01638-MS10_181031A** QC Batch: **CA18VW037** PrepDate: Analyst: **GAC**

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
1,1,1,2-Tetrachloroethane	ND	0.38	1.0		ug/L	1	10/31/2018 01:23 PM
1,1,1-Trichloroethane	ND	0.38	1.0		ug/L	1	10/31/2018 01:23 PM
1,1,2,2-Tetrachloroethane	ND	0.34	1.0		ug/L	1	10/31/2018 01:23 PM
1,1,2-Trichloroethane	ND	0.29	1.0		ug/L	1	10/31/2018 01:23 PM
1,1-Dichloroethane	ND	0.45	0.50		ug/L	1	10/31/2018 01:23 PM
1,1-Dichloroethene	ND	0.34	1.0		ug/L	1	10/31/2018 01:23 PM
1,1-Dichloropropene	ND	0.32	1.0		ug/L	1	10/31/2018 01:23 PM
1,2,3-Trichlorobenzene	ND	0.28	1.0		ug/L	1	10/31/2018 01:23 PM
1,2,3-Trichloropropane	ND	0.26	1.0		ug/L	1	10/31/2018 01:23 PM
1,2,4-Trichlorobenzene	ND	0.21	1.0		ug/L	1	10/31/2018 01:23 PM
1,2,4-Trimethylbenzene	ND	0.33	1.0		ug/L	1	10/31/2018 01:23 PM
1,2-Dibromo-3-chloropropane	ND	0.67	2.0		ug/L	1	10/31/2018 01:23 PM
1,2-Dibromoethane	ND	0.31	1.0		ug/L	1	10/31/2018 01:23 PM
1,2-Dichlorobenzene	ND	0.29	1.0		ug/L	1	10/31/2018 01:23 PM
1,2-Dichloroethane	0.41	0.29	0.50	J	ug/L	1	10/31/2018 01:23 PM
1,2-Dichloropropane	ND	0.24	1.0		ug/L	1	10/31/2018 01:23 PM
1,3,5-Trimethylbenzene	ND	0.27	1.0		ug/L	1	10/31/2018 01:23 PM
1,3-Dichlorobenzene	ND	0.28	1.0		ug/L	1	10/31/2018 01:23 PM
1,3-Dichloropropane	ND	0.32	1.0		ug/L	1	10/31/2018 01:23 PM
1,4-Dichlorobenzene	ND	0.32	1.0		ug/L	1	10/31/2018 01:23 PM
2,2-Dichloropropane	ND	0.32	1.0		ug/L	1	10/31/2018 01:23 PM
2-Butanone	ND	4.9	10		ug/L	1	10/31/2018 01:23 PM
2-Chlorotoluene	ND	0.28	1.0		ug/L	1	10/31/2018 01:23 PM
4-Chlorotoluene	ND	0.30	1.0		ug/L	1	10/31/2018 01:23 PM
4-Isopropyltoluene	ND	0.33	1.0		ug/L	1	10/31/2018 01:23 PM
4-Methyl-2-pentanone	ND	3.2	10		ug/L	1	10/31/2018 01:23 PM
Acetone	ND	9.7	10		ug/L	1	10/31/2018 01:23 PM
Benzene	1.2	0.34	1.0		ug/L	1	10/31/2018 01:23 PM
Bromobenzene	ND	0.25	1.0		ug/L	1	10/31/2018 01:23 PM
Bromochloromethane	ND	0.41	1.0		ug/L	1	10/31/2018 01:23 PM
Bromodichloromethane	ND	0.38	1.0		ug/L	1	10/31/2018 01:23 PM
Bromoform	ND	0.39	1.0		ug/L	1	10/31/2018 01:23 PM
Bromomethane	ND	0.79	1.0		ug/L	1	10/31/2018 01:23 PM
Carbon disulfide	ND	0.81	1.0		ug/L	1	10/31/2018 01:23 PM
Carbon tetrachloride	ND	0.40	0.50		ug/L	1	10/31/2018 01:23 PM
Chlorobenzene	ND	0.30	1.0		ug/L	1	10/31/2018 01:23 PM

Qualifiers:

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- S Spike/Surrogate outside of limits due to matrix interference
- Results are wet unless otherwise specified
- DO Surrogate Diluted Out

CLIENT: CH2MHill
Lab Order: N032715
Project: SFPP Norwalk
Lab ID: N032715-001

Client Sample ID: INF-10-23
Collection Date: 10/23/2018 10:55:00 AM
Matrix: WASTEWATER

VOLATILE ORGANIC COMPOUNDS BY GC/MS

EPA 8260B

RunID: **CA01638-MS10_181031A** QC Batch: **CA18VW037** PrepDate: Analyst: **GAC**

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
Chloroethane	ND	0.97	1.0		ug/L	1	10/31/2018 01:23 PM
Chloroform	ND	0.27	1.0		ug/L	1	10/31/2018 01:23 PM
Chloromethane	ND	0.36	1.0		ug/L	1	10/31/2018 01:23 PM
cis-1,2-Dichloroethene	ND	0.32	1.0		ug/L	1	10/31/2018 01:23 PM
cis-1,3-Dichloropropene	ND	0.28	1.0		ug/L	1	10/31/2018 01:23 PM
Di-isopropyl ether	3.8	0.079	1.0		ug/L	1	10/31/2018 01:23 PM
Dibromochloromethane	ND	0.41	1.0		ug/L	1	10/31/2018 01:23 PM
Dibromomethane	ND	0.28	1.0		ug/L	1	10/31/2018 01:23 PM
Dichlorodifluoromethane	ND	0.29	1.0		ug/L	1	10/31/2018 01:23 PM
Ethyl tert-butyl ether	ND	0.30	1.0		ug/L	1	10/31/2018 01:23 PM
Ethylbenzene	ND	0.31	1.0		ug/L	1	10/31/2018 01:23 PM
Freon-113	ND	0.35	1.0		ug/L	1	10/31/2018 01:23 PM
Hexachlorobutadiene	ND	0.30	1.0		ug/L	1	10/31/2018 01:23 PM
Isopropylbenzene	ND	0.26	1.0		ug/L	1	10/31/2018 01:23 PM
m,p-Xylene	ND	0.23	1.0		ug/L	1	10/31/2018 01:23 PM
Methylene chloride	ND	1.9	2.0		ug/L	1	10/31/2018 01:23 PM
MTBE	2.2	0.34	1.0		ug/L	1	10/31/2018 01:23 PM
n-Butylbenzene	ND	0.34	1.0		ug/L	1	10/31/2018 01:23 PM
n-Propylbenzene	ND	0.32	1.0		ug/L	1	10/31/2018 01:23 PM
Naphthalene	ND	0.42	1.0		ug/L	1	10/31/2018 01:23 PM
o-Xylene	ND	0.31	1.0		ug/L	1	10/31/2018 01:23 PM
sec-Butylbenzene	ND	0.32	1.0		ug/L	1	10/31/2018 01:23 PM
Styrene	ND	0.21	1.0		ug/L	1	10/31/2018 01:23 PM
Tert-amyl methyl ether	ND	0.26	1.0		ug/L	1	10/31/2018 01:23 PM
Tert-Butanol	38	2.4	5.0		ug/L	1	10/31/2018 01:23 PM
tert-Butylbenzene	ND	0.28	1.0		ug/L	1	10/31/2018 01:23 PM
Tetrachloroethene	ND	0.30	1.0		ug/L	1	10/31/2018 01:23 PM
Toluene	ND	0.46	2.0		ug/L	1	10/31/2018 01:23 PM
trans-1,2-Dichloroethene	ND	0.40	1.0		ug/L	1	10/31/2018 01:23 PM
trans-1,3-Dichloropropene	ND	0.25	1.0		ug/L	1	10/31/2018 01:23 PM
Trichloroethene	ND	0.37	1.0		ug/L	1	10/31/2018 01:23 PM
Trichlorofluoromethane	ND	0.37	1.0		ug/L	1	10/31/2018 01:23 PM
Vinyl chloride	ND	0.29	0.50		ug/L	1	10/31/2018 01:23 PM
Xylenes, Total	ND	1.5	2.0		ug/L	1	10/31/2018 01:23 PM
Surr: 1,2-Dichloroethane-d4	95.1	0	72-119		%REC	1	10/31/2018 01:23 PM
Surr: 4-Bromofluorobenzene	90.1	0	76-119		%REC	1	10/31/2018 01:23 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified
E	Value above quantitation range
J	Analyte detected below quantitation limits
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out

CLIENT: CH2MHill
Lab Order: N032715
Project: SFPP Norwalk
Lab ID: N032715-001

Client Sample ID: INF-10-23
Collection Date: 10/23/2018 10:55:00 AM
Matrix: WASTEWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
VOLATILE ORGANIC COMPOUNDS BY GC/MS							
			EPA 8260B				
RunID: **CA01638-MS10_181031A**	QC Batch: **CA18VW037**			PrepDate:			Analyst: **GAC**
Surr: Dibromofluoromethane	106	0	85-115		%REC	1	10/31/2018 01:23 PM
Surr: Toluene-d8	96.9	0	81-120		%REC	1	10/31/2018 01:23 PM
TOTAL TPH							
			EPA 8015B				
RunID: **SUBCONTRACT_181112A**	QC Batch: **R129915**			PrepDate:			Analyst: **admin**
Total TPH	74	22	80	J	ug/L	1	11/12/2018

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified	DO	Surrogate Diluted Out

CLIENT: CH2MHill
Work Order: N032715
Project: SFPP Norwalk

ANALYTICAL QC SUMMARY REPORT

TestCode: 8015_W_SFPPTOT

Sample ID: **MB-R129915** SampType: **MBLK** TestCode: **8015_W_SFP** Units: **ug/L** Prep Date: RunNo: **129915**
Client ID: **PBW** Batch ID: **R129915** TestNo: **EPA 8015B** Analysis Date: **11/12/2018** SeqNo: **3203415**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total TPH	ND	80									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
S	Spike/Surrogate outside of limits due to matrix interference	DO	Surrogate Diluted Out		Calculations are based on raw values

CLIENT: CH2MHill
Work Order: N032715
Project: SFPP Norwalk

ANALYTICAL QC SUMMARY REPORT

TestCode: 8260_WP_SFPP

Sample ID: **CA181031-LCS** SampType: **LCS** TestCode: **8260_WP_SF** Units: **ug/L** Prep Date: RunNo: **129661**
Client ID: **LCSW** Batch ID: **CA18VW037** TestNo: **EPA 8260B** Analysis Date: **10/31/2018** SeqNo: **3190738**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1,1,2-Tetrachloroethane	23.140	1.0	20.00	0	116	81	129				
1,1,1-Trichloroethane	21.920	1.0	20.00	0	110	67	132				
1,1,2,2-Tetrachloroethane	15.390	1.0	20.00	0	77.0	63	128				
1,1,2-Trichloroethane	19.420	1.0	20.00	0	97.1	75	125				
1,1-Dichloroethane	19.120	0.50	20.00	0	95.6	69	133				
1,1-Dichloroethene	18.440	1.0	20.00	0	92.2	68	130				
1,1-Dichloropropene	19.180	1.0	20.00	0	95.9	73	132				
1,2,3-Trichlorobenzene	15.840	1.0	20.00	0	79.2	67	137				
1,2,3-Trichloropropane	15.720	1.0	20.00	0	78.6	73	124				
1,2,4-Trichlorobenzene	15.660	1.0	20.00	0	78.3	66	134				
1,2,4-Trimethylbenzene	18.070	1.0	20.00	0	90.4	74	132				
1,2-Dibromo-3-chloropropane	21.030	2.0	20.00	0	105	50	132				
1,2-Dibromoethane	19.890	1.0	20.00	0	99.4	80	121				
1,2-Dichlorobenzene	18.250	1.0	20.00	0	91.2	71	122				
1,2-Dichloroethane	17.760	0.50	20.00	0	88.8	69	132				
1,2-Dichloropropane	19.380	1.0	20.00	0	96.9	75	125				
1,3,5-Trimethylbenzene	17.960	1.0	20.00	0	89.8	74	131				
1,3-Dichlorobenzene	18.790	1.0	20.00	0	94.0	75	124				
1,3-Dichloropropane	19.200	1.0	20.00	0	96.0	73	126				
1,4-Dichlorobenzene	17.780	1.0	20.00	0	88.9	74	123				
2,2-Dichloropropane	26.830	1.0	20.00	0	134	69	137				
2-Butanone	170.210	10	200.0	0	85.1	49	136				
2-Chlorotoluene	17.640	1.0	20.00	0	88.2	73	126				
4-Chlorotoluene	18.010	1.0	20.00	0	90.1	74	128				
4-Isopropyltoluene	18.350	1.0	20.00	0	91.8	73	130				
4-Methyl-2-pentanone	164.600	10	200.0	0	82.3	58	134				
Acetone	215.580	10	200.0	0	108	40	135				
Benzene	18.690	1.0	20.00	0	93.5	81	122				
Bromobenzene	17.700	1.0	20.00	0	88.5	76	124				
Bromochloromethane	18.710	1.0	20.00	0	93.6	65	129				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
S	Spike/Surrogate outside of limits due to matrix interference	DO	Surrogate Diluted Out		Calculations are based on raw values

CLIENT: CH2MHill
Work Order: N032715
Project: SFPP Norwalk

ANALYTICAL QC SUMMARY REPORT

TestCode: 8260_WP_SFPP

Sample ID: **CA181031-LCS** SampType: **LCS** TestCode: **8260_WP_SF** Units: **ug/L** Prep Date: RunNo: **129661**
Client ID: **LCSW** Batch ID: **CA18VW037** TestNo: **EPA 8260B** Analysis Date: **10/31/2018** SeqNo: **3190738**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Bromodichloromethane	18.440	1.0	20.00	0	92.2	76	121				
Bromoform	22.350	1.0	20.00	0	112	69	128				
Bromomethane	17.980	1.0	20.00	0	89.9	53	141				
Carbon disulfide	18.250	1.0	20.00	0	91.2	75	125				
Carbon tetrachloride	22.840	0.50	20.00	0	114	66	138				
Chlorobenzene	19.160	1.0	20.00	0	95.8	81	122				
Chloroethane	20.440	1.0	20.00	0	102	58	133				
Chloroform	17.570	1.0	20.00	0	87.9	69	128				
Chloromethane	16.720	1.0	20.00	0	83.6	56	131				
cis-1,2-Dichloroethene	18.080	1.0	20.00	0	90.4	72	126				
cis-1,3-Dichloropropene	21.550	1.0	20.00	0	108	69	131				
Di-isopropyl ether	19.470	1.0	20.00	0	97.4	70	130				
Dibromochloromethane	19.460	1.0	20.00	0	97.3	66	133				
Dibromomethane	19.190	1.0	20.00	0	96.0	76	125				
Dichlorodifluoromethane	14.540	1.0	20.00	0	72.7	53	153				
Ethyl tert-butyl ether	22.720	1.0	20.00	0	114	70	130				
Ethylbenzene	18.400	1.0	20.00	0	92.0	73	127				
Freon-113	17.210	1.0	20.00	0	86.1	75	125				
Hexachlorobutadiene	17.080	1.0	20.00	0	85.4	67	131				
Isopropylbenzene	17.420	1.0	20.00	0	87.1	75	127				
m,p-Xylene	40.960	1.0	40.00	0	102	76	128				
Methylene chloride	20.460	2.0	20.00	0	102	63	137				
MTBE	20.630	1.0	20.00	0	103	65	123				
n-Butylbenzene	16.970	1.0	20.00	0	84.8	69	137				
n-Propylbenzene	19.060	1.0	20.00	0	95.3	72	129				
Naphthalene	13.860	1.0	20.00	0	69.3	54	138				
o-Xylene	19.490	1.0	20.00	0	97.5	80	121				
sec-Butylbenzene	18.770	1.0	20.00	0	93.8	72	127				
Styrene	19.860	1.0	20.00	0	99.3	65	134				
Tert-amyl methyl ether	21.820	1.0	20.00	0	109	70	130				

Qualifiers:

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike/Surrogate outside of limits due to matrix interference
- DO Surrogate Diluted Out
- Calculations are based on raw values

CLIENT: CH2MHill
Work Order: N032715
Project: SFPP Norwalk

ANALYTICAL QC SUMMARY REPORT

TestCode: 8260_WP_SFPP

Sample ID: **CA181031-LCS** SampType: **LCS** TestCode: **8260_WP_SF** Units: **ug/L** Prep Date: RunNo: **129661**
Client ID: **LCSW** Batch ID: **CA18VW037** TestNo: **EPA 8260B** Analysis Date: **10/31/2018** SeqNo: **3190738**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Tert-Butanol	98.510	5.0	100.0	0	98.5	70	130				
tert-Butylbenzene	19.690	1.0	20.00	0	98.4	70	129				
Tetrachloroethene	18.790	1.0	20.00	0	94.0	66	128				
Toluene	17.830	2.0	20.00	0	89.2	77	122				
trans-1,2-Dichloroethene	18.680	1.0	20.00	0	93.4	63	137				
trans-1,3-Dichloropropene	22.730	1.0	20.00	0	114	59	135				
Trichloroethene	19.250	1.0	20.00	0	96.2	70	127				
Trichlorofluoromethane	19.620	1.0	20.00	0	98.1	57	129				
Vinyl chloride	18.020	0.50	20.00	0	90.1	50	134				
Xylenes, Total	60.450	2.0	60.00	0	101	75	125				
Surr: 1,2-Dichloroethane-d4	21.600		25.00		86.4	72	119				
Surr: 4-Bromofluorobenzene	25.690		25.00		103	76	119				
Surr: Dibromofluoromethane	25.630		25.00		103	85	115				
Surr: Toluene-d8	24.610		25.00		98.4	81	120				

Sample ID: **CA181031-LCSD** SampType: **LCSD** TestCode: **8260_WP_SF** Units: **ug/L** Prep Date: RunNo: **129661**
Client ID: **LCSS02** Batch ID: **CA18VW037** TestNo: **EPA 8260B** Analysis Date: **10/31/2018** SeqNo: **3190739**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1,1,2-Tetrachloroethane	24.970	1.0	20.00	0	125	81	129	23.14	7.61	20	
1,1,1-Trichloroethane	22.550	1.0	20.00	0	113	67	132	21.92	2.83	20	
1,1,2,2-Tetrachloroethane	16.760	1.0	20.00	0	83.8	63	128	15.39	8.52	20	
1,1,2-Trichloroethane	21.060	1.0	20.00	0	105	75	125	19.42	8.10	20	
1,1-Dichloroethane	19.800	0.50	20.00	0	99.0	69	133	19.12	3.49	20	
1,1-Dichloroethene	18.920	1.0	20.00	0	94.6	68	130	18.44	2.57	20	
1,1-Dichloropropene	20.550	1.0	20.00	0	103	73	132	19.18	6.90	20	
1,2,3-Trichlorobenzene	17.850	1.0	20.00	0	89.2	67	137	15.84	11.9	20	
1,2,3-Trichloropropane	15.720	1.0	20.00	0	78.6	73	124	15.72	0	20	
1,2,4-Trichlorobenzene	17.030	1.0	20.00	0	85.2	66	134	15.66	8.38	20	
1,2,4-Trimethylbenzene	18.520	1.0	20.00	0	92.6	74	132	18.07	2.46	20	

Qualifiers:

B Analyte detected in the associated Method Blank
E Value above quantitation range
H Holding times for preparation or analysis exceeded
J Analyte detected below quantitation limits
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S Spike/Surrogate outside of limits due to matrix interference
DO Surrogate Diluted Out
Calculations are based on raw values

CLIENT: CH2MHill
Work Order: N032715
Project: SFPP Norwalk

ANALYTICAL QC SUMMARY REPORT

TestCode: 8260_WP_SFPP

Sample ID: **CA181031-LCSD** SampType: **LCSD** TestCode: **8260_WP_SF** Units: **ug/L** Prep Date: RunNo: **129661**
Client ID: **LCSS02** Batch ID: **CA18VW037** TestNo: **EPA 8260B** Analysis Date: **10/31/2018** SeqNo: **3190739**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,2-Dibromo-3-chloropropane	22.580	2.0	20.00	0	113	50	132	21.03	7.11	20	
1,2-Dibromoethane	21.590	1.0	20.00	0	108	80	121	19.89	8.20	20	
1,2-Dichlorobenzene	18.260	1.0	20.00	0	91.3	71	122	18.25	0.0548	20	
1,2-Dichloroethane	17.280	0.50	20.00	0	86.4	69	132	17.76	2.74	20	
1,2-Dichloropropane	19.650	1.0	20.00	0	98.2	75	125	19.38	1.38	20	
1,3,5-Trimethylbenzene	18.710	1.0	20.00	0	93.6	74	131	17.96	4.09	20	
1,3-Dichlorobenzene	19.020	1.0	20.00	0	95.1	75	124	18.79	1.22	20	
1,3-Dichloropropane	19.650	1.0	20.00	0	98.2	73	126	19.20	2.32	20	
1,4-Dichlorobenzene	18.210	1.0	20.00	0	91.1	74	123	17.78	2.39	20	
2,2-Dichloropropane	27.230	1.0	20.00	0	136	69	137	26.83	1.48	20	
2-Butanone	210.190	10	200.0	0	105	49	136	170.2	21.0	20	R
2-Chlorotoluene	17.640	1.0	20.00	0	88.2	73	126	17.64	0	20	
4-Chlorotoluene	18.410	1.0	20.00	0	92.0	74	128	18.01	2.20	20	
4-Isopropyltoluene	18.790	1.0	20.00	0	94.0	73	130	18.35	2.37	20	
4-Methyl-2-pentanone	166.890	10	200.0	0	83.4	58	134	164.6	1.38	20	
Acetone	320.330	10	200.0	0	160	40	135	215.6	39.1	20	SR
Benzene	19.520	1.0	20.00	0	97.6	81	122	18.69	4.34	20	
Bromobenzene	18.540	1.0	20.00	0	92.7	76	124	17.70	4.64	20	
Bromochloromethane	18.000	1.0	20.00	0	90.0	65	129	18.71	3.87	20	
Bromodichloromethane	19.030	1.0	20.00	0	95.2	76	121	18.44	3.15	20	
Bromoform	24.430	1.0	20.00	0	122	69	128	22.35	8.89	20	
Bromomethane	18.110	1.0	20.00	0	90.6	53	141	17.98	0.720	20	
Carbon disulfide	19.220	1.0	20.00	0	96.1	75	125	18.25	5.18	20	
Carbon tetrachloride	23.190	0.50	20.00	0	116	66	138	22.84	1.52	20	
Chlorobenzene	19.940	1.0	20.00	0	99.7	81	122	19.16	3.99	20	
Chloroethane	20.840	1.0	20.00	0	104	58	133	20.44	1.94	20	
Chloroform	17.840	1.0	20.00	0	89.2	69	128	17.57	1.52	20	
Chloromethane	17.050	1.0	20.00	0	85.2	56	131	16.72	1.95	20	
cis-1,2-Dichloroethene	18.710	1.0	20.00	0	93.6	72	126	18.08	3.42	20	
cis-1,3-Dichloropropene	23.710	1.0	20.00	0	119	69	131	21.55	9.54	20	

Qualifiers:

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike/Surrogate outside of limits due to matrix interference
- DO Surrogate Diluted Out
- Calculations are based on raw values

CLIENT: CH2MHill
Work Order: N032715
Project: SFPP Norwalk

ANALYTICAL QC SUMMARY REPORT

TestCode: 8260_WP_SFPP

Sample ID: **CA181031-LCSD** SampType: **LCSD** TestCode: **8260_WP_SF** Units: **ug/L** Prep Date: RunNo: **129661**
Client ID: **LCSS02** Batch ID: **CA18VW037** TestNo: **EPA 8260B** Analysis Date: **10/31/2018** SeqNo: **3190739**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Di-isopropyl ether	17.970	1.0	20.00	0	89.8	70	130	19.47	8.01	20	
Dibromochloromethane	21.990	1.0	20.00	0	110	66	133	19.46	12.2	20	
Dibromomethane	18.770	1.0	20.00	0	93.8	76	125	19.19	2.21	20	
Dichlorodifluoromethane	13.680	1.0	20.00	0	68.4	53	153	14.54	6.09	20	
Ethyl tert-butyl ether	22.850	1.0	20.00	0	114	70	130	22.72	0.571	20	
Ethylbenzene	18.380	1.0	20.00	0	91.9	73	127	18.40	0.109	20	
Freon-113	17.500	1.0	20.00	0	87.5	75	125	17.21	1.67	20	
Hexachlorobutadiene	17.870	1.0	20.00	0	89.4	67	131	17.08	4.52	20	
Isopropylbenzene	17.790	1.0	20.00	0	89.0	75	127	17.42	2.10	20	
m,p-Xylene	39.650	1.0	40.00	0	99.1	76	128	40.96	3.25	20	
Methylene chloride	21.250	2.0	20.00	0	106	63	137	20.46	3.79	20	
MTBE	21.330	1.0	20.00	0	107	65	123	20.63	3.34	20	
n-Butylbenzene	17.960	1.0	20.00	0	89.8	69	137	16.97	5.67	20	
n-Propylbenzene	18.930	1.0	20.00	0	94.6	72	129	19.06	0.684	20	
Naphthalene	15.430	1.0	20.00	0	77.2	54	138	13.86	10.7	20	
o-Xylene	18.710	1.0	20.00	0	93.6	80	121	19.49	4.08	20	
sec-Butylbenzene	18.730	1.0	20.00	0	93.6	72	127	18.77	0.213	20	
Styrene	19.350	1.0	20.00	0	96.8	65	134	19.86	2.60	20	
Tert-amyl methyl ether	22.790	1.0	20.00	0	114	70	130	21.82	4.35	20	
Tert-Butanol	103.020	5.0	100.0	0	103	70	130	98.51	4.48	20	
tert-Butylbenzene	18.960	1.0	20.00	0	94.8	70	129	19.69	3.78	20	
Tetrachloroethene	19.500	1.0	20.00	0	97.5	66	128	18.79	3.71	20	
Toluene	18.450	2.0	20.00	0	92.2	77	122	17.83	3.42	20	
trans-1,2-Dichloroethene	18.380	1.0	20.00	0	91.9	63	137	18.68	1.62	20	
trans-1,3-Dichloropropene	23.840	1.0	20.00	0	119	59	135	22.73	4.77	20	
Trichloroethene	19.440	1.0	20.00	0	97.2	70	127	19.25	0.982	20	
Trichlorofluoromethane	20.020	1.0	20.00	0	100	57	129	19.62	2.02	20	
Vinyl chloride	17.980	0.50	20.00	0	89.9	50	134	18.02	0.222	20	
Xylenes, Total	58.360	2.0	60.00	0	97.3	75	125	60.45	3.52	20	
Surr: 1,2-Dichloroethane-d4	22.350		25.00		89.4	72	119		0		

Qualifiers:

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike/Surrogate outside of limits due to matrix interference
- DO Surrogate Diluted Out
- Calculations are based on raw values

CLIENT: CH2MHill
Work Order: N032715
Project: SFPP Norwalk

ANALYTICAL QC SUMMARY REPORT

TestCode: 8260_WP_SFPP

Sample ID: **CA181031-LCSD** SampType: **LCSD** TestCode: **8260_WP_SF** Units: **ug/L** Prep Date: RunNo: **129661**
Client ID: **LCSS02** Batch ID: **CA18VW037** TestNo: **EPA 8260B** Analysis Date: **10/31/2018** SeqNo: **3190739**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Surr: 4-Bromofluorobenzene	25.250		25.00		101	76	119		0		
Surr: Dibromofluoromethane	25.810		25.00		103	85	115		0		
Surr: Toluene-d8	25.070		25.00		100	81	120		0		

Sample ID: **CA181031-MB3** SampType: **MBLK** TestCode: **8260_WP_SF** Units: **ug/L** Prep Date: RunNo: **129661**
Client ID: **PBW** Batch ID: **CA18VW037** TestNo: **EPA 8260B** Analysis Date: **10/31/2018** SeqNo: **3190742**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1,1,2-Tetrachloroethane	ND	1.0									
1,1,1-Trichloroethane	ND	1.0									
1,1,2,2-Tetrachloroethane	ND	1.0									
1,1,2-Trichloroethane	ND	1.0									
1,1-Dichloroethane	ND	0.50									
1,1-Dichloroethene	ND	1.0									
1,1-Dichloropropene	ND	1.0									
1,2,3-Trichlorobenzene	ND	1.0									
1,2,3-Trichloropropane	ND	1.0									
1,2,4-Trichlorobenzene	ND	1.0									
1,2,4-Trimethylbenzene	ND	1.0									
1,2-Dibromo-3-chloropropane	ND	2.0									
1,2-Dibromoethane	ND	1.0									
1,2-Dichlorobenzene	ND	1.0									
1,2-Dichloroethane	ND	0.50									
1,2-Dichloropropane	ND	1.0									
1,3,5-Trimethylbenzene	ND	1.0									
1,3-Dichlorobenzene	ND	1.0									
1,3-Dichloropropane	ND	1.0									
1,4-Dichlorobenzene	ND	1.0									
2,2-Dichloropropane	ND	1.0									
2-Butanone	ND	10									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
S	Spike/Surrogate outside of limits due to matrix interference	DO	Surrogate Diluted Out		Calculations are based on raw values

CLIENT: CH2MHill
Work Order: N032715
Project: SFPP Norwalk

ANALYTICAL QC SUMMARY REPORT

TestCode: 8260_WP_SFPP

Sample ID: **CA181031-MB3** SampType: **MBLK** TestCode: **8260_WP_SF** Units: **ug/L** Prep Date: RunNo: **129661**
Client ID: **PBW** Batch ID: **CA18VW037** TestNo: **EPA 8260B** Analysis Date: **10/31/2018** SeqNo: **3190742**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
2-Chlorotoluene	ND	1.0									
4-Chlorotoluene	ND	1.0									
4-Isopropyltoluene	ND	1.0									
4-Methyl-2-pentanone	ND	10									
Acetone	ND	10									
Benzene	ND	1.0									
Bromobenzene	ND	1.0									
Bromochloromethane	ND	1.0									
Bromodichloromethane	ND	1.0									
Bromoform	ND	1.0									
Bromomethane	ND	1.0									
Carbon disulfide	ND	1.0									
Carbon tetrachloride	ND	0.50									
Chlorobenzene	ND	1.0									
Chloroethane	ND	1.0									
Chloroform	ND	1.0									
Chloromethane	ND	1.0									
cis-1,2-Dichloroethene	ND	1.0									
cis-1,3-Dichloropropene	ND	1.0									
Di-isopropyl ether	ND	1.0									
Dibromochloromethane	ND	1.0									
Dibromomethane	ND	1.0									
Dichlorodifluoromethane	ND	1.0									
Ethyl tert-butyl ether	ND	1.0									
Ethylbenzene	ND	1.0									
Freon-113	ND	1.0									
Hexachlorobutadiene	ND	1.0									
Isopropylbenzene	ND	1.0									
m,p-Xylene	ND	1.0									
Methylene chloride	ND	2.0									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
S	Spike/Surrogate outside of limits due to matrix interference	DO	Surrogate Diluted Out		Calculations are based on raw values

CLIENT: CH2MHill
Work Order: N032715
Project: SFPP Norwalk

ANALYTICAL QC SUMMARY REPORT

TestCode: 8260_WP_SFPP

Sample ID: **CA181031-MB3** SampType: **MBLK** TestCode: **8260_WP_SF** Units: **ug/L** Prep Date: RunNo: **129661**
Client ID: **PBW** Batch ID: **CA18VW037** TestNo: **EPA 8260B** Analysis Date: **10/31/2018** SeqNo: **3190742**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
MTBE	ND	1.0									
n-Butylbenzene	ND	1.0									
n-Propylbenzene	ND	1.0									
Naphthalene	ND	1.0									
o-Xylene	ND	1.0									
sec-Butylbenzene	ND	1.0									
Styrene	ND	1.0									
Tert-amyl methyl ether	ND	1.0									
Tert-Butanol	ND	5.0									
tert-Butylbenzene	ND	1.0									
Tetrachloroethene	ND	1.0									
Toluene	ND	2.0									
trans-1,2-Dichloroethene	ND	1.0									
trans-1,3-Dichloropropene	ND	1.0									
Trichloroethene	ND	1.0									
Trichlorofluoromethane	ND	1.0									
Vinyl chloride	ND	0.50									
Xylenes, Total	ND	2.0									
Surr: 1,2-Dichloroethane-d4	25.180		25.00		101	72	119				
Surr: 4-Bromofluorobenzene	22.930		25.00		91.7	76	119				
Surr: Dibromofluoromethane	27.180		25.00		109	85	115				
Surr: Toluene-d8	25.290		25.00		101	81	120				

Sample ID: **N032715-001A-MS** SampType: **MS** TestCode: **8260_WP_SF** Units: **ug/L** Prep Date: RunNo: **129661**
Client ID: **ZZZZZZ** Batch ID: **CA18VW037** TestNo: **EPA 8260B** Analysis Date: **10/31/2018** SeqNo: **3190744**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1,1,2-Tetrachloroethane	24.590	1.0	20.00	0	123	81	129				
1,1,1-Trichloroethane	22.290	1.0	20.00	0	111	67	132				
1,1,2,2-Tetrachloroethane	18.070	1.0	20.00	0	90.4	63	128				

Qualifiers:

B Analyte detected in the associated Method Blank
E Value above quantitation range
H Holding times for preparation or analysis exceeded
J Analyte detected below quantitation limits
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S Spike/Surrogate outside of limits due to matrix interference
DO Surrogate Diluted Out
Calculations are based on raw values

CLIENT: CH2MHill
Work Order: N032715
Project: SFPP Norwalk

ANALYTICAL QC SUMMARY REPORT

TestCode: 8260_WP_SFPP

Sample ID: **N032715-001A-MS** SampType: **MS** TestCode: **8260_WP_SF** Units: **ug/L** Prep Date: RunNo: **129661**
Client ID: **ZZZZZZ** Batch ID: **CA18VW037** TestNo: **EPA 8260B** Analysis Date: **10/31/2018** SeqNo: **3190744**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1,2-Trichloroethane	21.400	1.0	20.00	0	107	75	125				
1,1-Dichloroethane	20.110	0.50	20.00	0	101	69	133				
1,1-Dichloroethene	18.350	1.0	20.00	0	91.8	68	130				
1,1-Dichloropropene	20.590	1.0	20.00	0	103	73	132				
1,2,3-Trichlorobenzene	18.350	1.0	20.00	0	91.8	67	137				
1,2,3-Trichloropropane	20.110	1.0	20.00	0	101	73	124				
1,2,4-Trichlorobenzene	17.460	1.0	20.00	0	87.3	66	134				
1,2,4-Trimethylbenzene	19.530	1.0	20.00	0	97.6	74	132				
1,2-Dibromo-3-chloropropane	23.760	2.0	20.00	0	119	50	132				
1,2-Dibromoethane	21.100	1.0	20.00	0	106	80	121				
1,2-Dichlorobenzene	18.420	1.0	20.00	0	92.1	71	122				
1,2-Dichloroethane	18.910	0.50	20.00	0	94.6	69	132				
1,2-Dichloropropane	19.520	1.0	20.00	0	97.6	75	125				
1,3,5-Trimethylbenzene	19.790	1.0	20.00	0	99.0	74	131				
1,3-Dichlorobenzene	19.340	1.0	20.00	0	96.7	75	124				
1,3-Dichloropropane	20.590	1.0	20.00	0	103	73	126				
1,4-Dichlorobenzene	19.000	1.0	20.00	0	95.0	74	123				
2,2-Dichloropropane	26.230	1.0	20.00	0	131	69	137				
2-Butanone	161.180	10	200.0	0	80.6	49	136				
2-Chlorotoluene	17.620	1.0	20.00	0	88.1	73	126				
4-Chlorotoluene	18.850	1.0	20.00	0	94.3	74	128				
4-Isopropyltoluene	18.810	1.0	20.00	0	94.1	73	130				
4-Methyl-2-pentanone	189.810	10	200.0	0	94.9	58	134				
Acetone	169.290	10	200.0	0	84.6	40	135				
Benzene	20.290	1.0	20.00	1.250	95.2	81	122				
Bromobenzene	18.850	1.0	20.00	0	94.3	76	124				
Bromochloromethane	17.530	1.0	20.00	0	87.6	65	129				
Bromodichloromethane	19.480	1.0	20.00	0	97.4	76	121				
Bromoform	24.320	1.0	20.00	0	122	69	128				
Bromomethane	15.790	1.0	20.00	0	79.0	53	141				

Qualifiers:

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike/Surrogate outside of limits due to matrix interference
- DO Surrogate Diluted Out
- Calculations are based on raw values

CLIENT: CH2MHill
Work Order: N032715
Project: SFPP Norwalk

ANALYTICAL QC SUMMARY REPORT

TestCode: 8260_WP_SFPP

Sample ID: **N032715-001A-MS** SampType: **MS** TestCode: **8260_WP_SF** Units: **ug/L** Prep Date: RunNo: **129661**
Client ID: **ZZZZZZ** Batch ID: **CA18VW037** TestNo: **EPA 8260B** Analysis Date: **10/31/2018** SeqNo: **3190744**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Carbon disulfide	18.850	1.0	20.00	0	94.3	75	125				
Carbon tetrachloride	23.750	0.50	20.00	0	119	66	138				
Chlorobenzene	20.150	1.0	20.00	0	101	81	122				
Chloroethane	22.840	1.0	20.00	0	114	58	133				
Chloroform	18.920	1.0	20.00	0	94.6	69	128				
Chloromethane	17.130	1.0	20.00	0	85.7	56	131				
cis-1,2-Dichloroethene	18.110	1.0	20.00	0	90.6	72	126				
cis-1,3-Dichloropropene	23.100	1.0	20.00	0	116	69	131				
Di-isopropyl ether	21.640	1.0	20.00	3.820	89.1	70	130				
Dibromochloromethane	22.530	1.0	20.00	0	113	66	133				
Dibromomethane	20.230	1.0	20.00	0	101	76	125				
Dichlorodifluoromethane	14.450	1.0	20.00	0	72.3	53	153				
Ethyl tert-butyl ether	23.400	1.0	20.00	0	117	70	130				
Ethylbenzene	18.580	1.0	20.00	0	92.9	73	127				
Freon-113	16.950	1.0	20.00	0	84.8	75	125				
Hexachlorobutadiene	17.720	1.0	20.00	0	88.6	67	131				
Isopropylbenzene	17.410	1.0	20.00	0	87.1	75	127				
m,p-Xylene	39.160	1.0	40.00	0	97.9	76	128				
Methylene chloride	22.320	2.0	20.00	0	112	63	137				
MTBE	24.330	1.0	20.00	2.240	110	65	123				
n-Butylbenzene	17.970	1.0	20.00	0	89.8	69	137				
n-Propylbenzene	18.880	1.0	20.00	0	94.4	72	129				
Naphthalene	16.440	1.0	20.00	0	82.2	54	138				
o-Xylene	18.240	1.0	20.00	0	91.2	80	121				
sec-Butylbenzene	18.670	1.0	20.00	0	93.4	72	127				
Styrene	18.970	1.0	20.00	0	94.8	65	134				
Tert-amyl methyl ether	23.090	1.0	20.00	0	115	70	130				
Tert-Butanol	158.450	5.0	100.0	38.25	120	70	130				
tert-Butylbenzene	19.090	1.0	20.00	0	95.4	70	129				
Tetrachloroethene	19.760	1.0	20.00	0	98.8	66	128				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
S	Spike/Surrogate outside of limits due to matrix interference	DO	Surrogate Diluted Out		Calculations are based on raw values

CLIENT: CH2MHill
Work Order: N032715
Project: SFPP Norwalk

ANALYTICAL QC SUMMARY REPORT

TestCode: 8260_WP_SFPP

Sample ID: **N032715-001A-MS** SampType: **MS** TestCode: **8260_WP_SF** Units: **ug/L** Prep Date: RunNo: **129661**
Client ID: **ZZZZZZ** Batch ID: **CA18VW037** TestNo: **EPA 8260B** Analysis Date: **10/31/2018** SeqNo: **3190744**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Toluene	18.620	2.0	20.00	0	93.1	77	122				
trans-1,2-Dichloroethene	19.370	1.0	20.00	0	96.9	63	137				
trans-1,3-Dichloropropene	23.650	1.0	20.00	0	118	59	135				
Trichloroethene	21.070	1.0	20.00	0	105	70	127				
Trichlorofluoromethane	21.150	1.0	20.00	0	106	57	129				
Vinyl chloride	18.810	0.50	20.00	0	94.1	50	134				
Xylenes, Total	57.400	2.0	60.00	0	95.7	75	125				
Surr: 1,2-Dichloroethane-d4	23.580		25.00		94.3	72	119				
Surr: 4-Bromofluorobenzene	24.070		25.00		96.3	76	119				
Surr: Dibromofluoromethane	25.520		25.00		102	85	115				
Surr: Toluene-d8	24.860		25.00		99.4	81	120				

Sample ID: **N032715-001A-MSD** SampType: **MSD** TestCode: **8260_WP_SF** Units: **ug/L** Prep Date: RunNo: **129661**
Client ID: **ZZZZZZ** Batch ID: **CA18VW037** TestNo: **EPA 8260B** Analysis Date: **10/31/2018** SeqNo: **3190745**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1,1,2-Tetrachloroethane	23.670	1.0	20.00	0	118	81	129	24.59	3.81	20	
1,1,1-Trichloroethane	21.950	1.0	20.00	0	110	67	132	22.29	1.54	20	
1,1,2,2-Tetrachloroethane	16.910	1.0	20.00	0	84.6	63	128	18.07	6.63	20	
1,1,2-Trichloroethane	20.410	1.0	20.00	0	102	75	125	21.40	4.74	20	
1,1-Dichloroethane	19.710	0.50	20.00	0	98.6	69	133	20.11	2.01	20	
1,1-Dichloroethene	17.940	1.0	20.00	0	89.7	68	130	18.35	2.26	20	
1,1-Dichloropropene	20.620	1.0	20.00	0	103	73	132	20.59	0.146	20	
1,2,3-Trichlorobenzene	19.140	1.0	20.00	0	95.7	67	137	18.35	4.21	20	
1,2,3-Trichloropropane	17.280	1.0	20.00	0	86.4	73	124	20.11	15.1	20	
1,2,4-Trichlorobenzene	17.220	1.0	20.00	0	86.1	66	134	17.46	1.38	20	
1,2,4-Trimethylbenzene	19.180	1.0	20.00	0	95.9	74	132	19.53	1.81	20	
1,2-Dibromo-3-chloropropane	23.480	2.0	20.00	0	117	50	132	23.76	1.19	20	
1,2-Dibromoethane	21.530	1.0	20.00	0	108	80	121	21.10	2.02	20	
1,2-Dichlorobenzene	18.240	1.0	20.00	0	91.2	71	122	18.42	0.982	20	

Qualifiers:

B Analyte detected in the associated Method Blank
E Value above quantitation range
H Holding times for preparation or analysis exceeded
J Analyte detected below quantitation limits
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S Spike/Surrogate outside of limits due to matrix interference
DO Surrogate Diluted Out
Calculations are based on raw values

CLIENT: CH2MHill
Work Order: N032715
Project: SFPP Norwalk

ANALYTICAL QC SUMMARY REPORT

TestCode: 8260_WP_SFPP

Sample ID: **N032715-001A-MSD** SampType: **MSD** TestCode: **8260_WP_SF** Units: **ug/L** Prep Date: RunNo: **129661**
Client ID: **ZZZZZZ** Batch ID: **CA18VW037** TestNo: **EPA 8260B** Analysis Date: **10/31/2018** SeqNo: **3190745**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,2-Dichloroethane	18.980	0.50	20.00	0	94.9	69	132	18.91	0.369	20	
1,2-Dichloropropane	18.890	1.0	20.00	0	94.4	75	125	19.52	3.28	20	
1,3,5-Trimethylbenzene	18.680	1.0	20.00	0	93.4	74	131	19.79	5.77	20	
1,3-Dichlorobenzene	18.760	1.0	20.00	0	93.8	75	124	19.34	3.04	20	
1,3-Dichloropropane	20.460	1.0	20.00	0	102	73	126	20.59	0.633	20	
1,4-Dichlorobenzene	18.070	1.0	20.00	0	90.4	74	123	19.00	5.02	20	
2,2-Dichloropropane	26.260	1.0	20.00	0	131	69	137	26.23	0.114	20	
2-Butanone	160.260	10	200.0	0	80.1	49	136	161.2	0.572	20	
2-Chlorotoluene	18.000	1.0	20.00	0	90.0	73	126	17.62	2.13	20	
4-Chlorotoluene	18.410	1.0	20.00	0	92.0	74	128	18.85	2.36	20	
4-Isopropyltoluene	18.580	1.0	20.00	0	92.9	73	130	18.81	1.23	20	
4-Methyl-2-pentanone	180.040	10	200.0	0	90.0	58	134	189.8	5.28	20	
Acetone	152.520	10	200.0	0	76.3	40	135	169.3	10.4	20	
Benzene	19.770	1.0	20.00	1.250	92.6	81	122	20.29	2.60	20	
Bromobenzene	19.550	1.0	20.00	0	97.8	76	124	18.85	3.65	20	
Bromochloromethane	18.400	1.0	20.00	0	92.0	65	129	17.53	4.84	20	
Bromodichloromethane	18.730	1.0	20.00	0	93.6	76	121	19.48	3.93	20	
Bromoform	24.640	1.0	20.00	0	123	69	128	24.32	1.31	20	
Bromomethane	16.790	1.0	20.00	0	84.0	53	141	15.79	6.14	20	
Carbon disulfide	18.250	1.0	20.00	0	91.2	75	125	18.85	3.23	20	
Carbon tetrachloride	22.740	0.50	20.00	0	114	66	138	23.75	4.35	20	
Chlorobenzene	20.090	1.0	20.00	0	100	81	122	20.15	0.298	20	
Chloroethane	21.800	1.0	20.00	0	109	58	133	22.84	4.66	20	
Chloroform	17.800	1.0	20.00	0	89.0	69	128	18.92	6.10	20	
Chloromethane	16.580	1.0	20.00	0	82.9	56	131	17.13	3.26	20	
cis-1,2-Dichloroethene	19.690	1.0	20.00	0	98.4	72	126	18.11	8.36	20	
cis-1,3-Dichloropropene	22.670	1.0	20.00	0	113	69	131	23.10	1.88	20	
Di-isopropyl ether	22.460	1.0	20.00	3.820	93.2	70	130	21.64	3.72	20	
Dibromochloromethane	20.920	1.0	20.00	0	105	66	133	22.53	7.41	20	
Dibromomethane	18.560	1.0	20.00	0	92.8	76	125	20.23	8.61	20	

Qualifiers:

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike/Surrogate outside of limits due to matrix interference
- DO Surrogate Diluted Out
- Calculations are based on raw values

CLIENT: CH2MHill
Work Order: N032715
Project: SFPP Norwalk

ANALYTICAL QC SUMMARY REPORT

TestCode: 8260_WP_SFPP

Sample ID: **N032715-001A-MSD** SampType: **MSD** TestCode: **8260_WP_SF** Units: **ug/L** Prep Date: RunNo: **129661**
Client ID: **ZZZZZZ** Batch ID: **CA18VW037** TestNo: **EPA 8260B** Analysis Date: **10/31/2018** SeqNo: **3190745**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane	14.400	1.0	20.00	0	72.0	53	153	14.45	0.347	20	
Ethyl tert-butyl ether	25.530	1.0	20.00	0	128	70	130	23.40	8.71	20	
Ethylbenzene	18.220	1.0	20.00	0	91.1	73	127	18.58	1.96	20	
Freon-113	17.550	1.0	20.00	0	87.8	75	125	16.95	3.48	20	
Hexachlorobutadiene	18.100	1.0	20.00	0	90.5	67	131	17.72	2.12	20	
Isopropylbenzene	17.040	1.0	20.00	0	85.2	75	127	17.41	2.15	20	
m,p-Xylene	38.470	1.0	40.00	0	96.2	76	128	39.16	1.78	20	
Methylene chloride	20.610	2.0	20.00	0	103	63	137	22.32	7.97	20	
MTBE	23.600	1.0	20.00	2.240	107	65	123	24.33	3.05	20	
n-Butylbenzene	17.970	1.0	20.00	0	89.8	69	137	17.97	0	20	
n-Propylbenzene	18.650	1.0	20.00	0	93.3	72	129	18.88	1.23	20	
Naphthalene	16.680	1.0	20.00	0	83.4	54	138	16.44	1.45	20	
o-Xylene	17.870	1.0	20.00	0	89.4	80	121	18.24	2.05	20	
sec-Butylbenzene	18.600	1.0	20.00	0	93.0	72	127	18.67	0.376	20	
Styrene	18.800	1.0	20.00	0	94.0	65	134	18.97	0.900	20	
Tert-amyl methyl ether	23.060	1.0	20.00	0	115	70	130	23.09	0.130	20	
Tert-Butanol	153.870	5.0	100.0	38.25	116	70	130	158.4	2.93	20	
tert-Butylbenzene	18.620	1.0	20.00	0	93.1	70	129	19.09	2.49	20	
Tetrachloroethene	19.150	1.0	20.00	0	95.8	66	128	19.76	3.14	20	
Toluene	18.060	2.0	20.00	0	90.3	77	122	18.62	3.05	20	
trans-1,2-Dichloroethene	18.300	1.0	20.00	0	91.5	63	137	19.37	5.68	20	
trans-1,3-Dichloropropene	23.120	1.0	20.00	0	116	59	135	23.65	2.27	20	
Trichloroethene	19.370	1.0	20.00	0	96.9	70	127	21.07	8.41	20	
Trichlorofluoromethane	20.220	1.0	20.00	0	101	57	129	21.15	4.50	20	
Vinyl chloride	17.970	0.50	20.00	0	89.8	50	134	18.81	4.57	20	
Xylenes, Total	56.340	2.0	60.00	0	93.9	75	125	57.40	1.86	20	
Surr: 1,2-Dichloroethane-d4	23.320		25.00		93.3	72	119		0		
Surr: 4-Bromofluorobenzene	23.900		25.00		95.6	76	119		0		
Surr: Dibromofluoromethane	26.070		25.00		104	85	115		0		
Surr: Toluene-d8	24.610		25.00		98.4	81	120		0		

Qualifiers:

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike/Surrogate outside of limits due to matrix interference
- DO Surrogate Diluted Out

Calculations are based on raw values

N032715

Asset Laboratories
3151 W. Post Road
Las Vegas, NV 89118
Tel: 702-307-2659 Fax: 702-307-2691
Marion Cartin (marion@assetlaboratories.com)

CHAIN OF CUSTODY RECORD

DATE: 10/23/18
PAGE: 1 of 1

Section A Required Client Information:		Section B Required Project Information:		Section C Invoice Information:		Section D Sampler Information:	
Company:	Kinder Morgan Energy Partners Attention: Steve Deffbaugh	Report To:	Eric Davis	Attention:	Steve Deffbaugh - Ref. AFE# 81195	Sampler Name:	James Dye
Address:	1100 Town & Country Road Orange, CA 92868	Copy To:	Steve Deffbaugh	Company Name:	Kinder Morgan Energy Partners	Sampler Signature:	
Email To:	steve_deffbaugh@kindermorgan.com eric.davis@ch2m.com	Purchase Order No.:		Address:	1100 Town & Country Road Orange, CA 92868	Sample Date:	10/23/18
Phone: 714-560-4802	Fax: 714-560-4801	Project Name:	SFPP Norwalk	ATL Project Manager:	Marion Cartin		

Section E
Required Sample Information

ITEM #	SAMPLE ID	LOCATION/ DESCRIPTION	MATRIX	SAMPLE TYPE (G=GRAB C=COMP)	SAMPLING DATE	SAMPLING TIME	TOTAL # OF CONTAINERS	SAMPLE TEMPERATURE (°F)	Analysis Test: Full VOCs + Oxygenates List (8260B)	TPH-gas (8015B)	TPH-d, TPH-oil, Total TPH (8015B)	Comments
	CONTAINER TYPE								V	V	A	
	# OF CONTAINERS								3	3	3	
	PRESERVATIVE								H	H	–	
	VOLUME (mL)								40	40	1000	
1	INF-10-23	INFLUENT	WW	G	10/23/18	1155	9		X	X	X	N032715-01
2												
3												
4												
5												
6												
7												
8												
9												
10												
11												
12												

Relinquished by [Signature and Printed Name]:	Date/Time	Relinquished by [Signature and Printed Name]:	Date/Time
	10/23/18 1100	Karla Sevilla	10/26/18 11:55
Relinquished by [Signature and Printed Name]:	Date/Time	Relinquished by [Signature and Printed Name]:	Date/Time
Relinquished by [Signature and Printed Name]:	Date/Time	Relinquished by [Signature and Printed Name]:	Date/Time

Turn Around Time (TAT):
- ☐ A = Same Day
- ☐ B = 24 Hours
- ☐ C = 48 Hours
- ☐ D = 72 Hours
- ☐ E = 5 Workdays
- ☐ E = 10 Workdays

TAT Starts at 8 AM the following day if samples received after 3:00 PM.

Special Instructions:
5.2°C
IR#2

Matrix:			Preservatives:			Container Type:			
W = Water	WW = Wastewater		H = HCl	N = HNO3	S = H2SO4	T = Tube	V = VOA	P = Pint	A = Amber
O = Oil	P = Product	S = Soil	Z = Zn(AC)2	O = NaOH	T = Na2S2O3	J = Jar	B = Tedlar	G = Glass	
Others/Specify:			Others/Specify:			M = Metal	P = Plastic	C = Can	

ASSET Laboratories

Please review the checklist below. Any NO signifies non-compliance. Any non-compliance will be noted and must be understood as having an impact on the quality of the data. All tests will be performed as requested regardless of any compliance issues.

If you have any questions or further instruction, please contact our Project Coordinator at (702) 307-2659.

Cooler Received/Opened On:	10/26/2018	Workorder:	N032715
Rep sample Temp (Deg C):	5.2	IR Gun ID:	2
Temp Blank:	☐ Yes ☑ No		
Carrier name:	ASSET		
Last 4 digits of Tracking No.:	NA	Packing Material Used:	None
Cooling process:	☑ Ice ☐ Ice Pack ☐ Dry Ice ☐ Other ☐ None		

Sample Receipt Checklist

1. Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
2. Custody seals intact, signed, dated on shippping container/cooler?	Yes ☐	No ☐	Not Present ☑
3. Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
4. Chain of custody present?	Yes ☑	No ☐	
5. Sampler's name present in COC?	Yes ☑	No ☐	
6. Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
7. Chain of custody agrees with sample labels?	Yes ☑	No ☐	
8. Samples in proper container/bottle?	Yes ☑	No ☐	
9. Sample containers intact?	Yes ☑	No ☐	
10. Sufficient sample volume for indicated test?	Yes ☑	No ☐	
11. All samples received within holding time?	Yes ☑	No ☐	
12. Temperature of rep sample or Temp Blank within acceptable limit?	Yes ☑	No ☐	NA ☐
13. Water - VOA vials have zero headspace?	Yes ☐	No ☑	NA ☐
14. Water - pH acceptable upon receipt? Example: pH > 12 for (CN,S); pH<2 for Metals	Yes ☐	No ☐	NA ☑
15. Did the bottle labels indicate correct preservatives used?	Yes ☑	No ☐	NA ☐
16. Were there Non-Conformance issues at login?	Yes ☑	No ☐	NA ☐
Was Client notified?	Yes ☐	No ☐	NA ☑

Comments: 2 VOAs received with headspace >5mm, but proceeded with analysis with VOAs without headspace

Checklist Completed By: MCS 10/30/18

Reviewed By: 10/30/2018

ASSET Laboratories

WORK ORDER Summary

29-Oct-18

WorkOrder: N032715

Client ID: CH2HI03

Project: SFPP Norwalk **QC Level:** RTNE **Date Received:** 10/26/2018

Comments:

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N032715-001A	INF-10-23	10/23/2018 10:55:00 AM	11/2/2018	Wastewater	EPA 8260B	VOLATILE ORGANIC COMPOUNDS BY GC/MS	☐	☐	☐	VW
N032715-001B			11/2/2018		EPA 3510C	SEPARATORY FUNNEL EXTRACTION: EXTRACTABLE FUELS	☐	☐	☑	SUB
			11/2/2018		EPA 8015B	TPH EXTRACTABLE BY GC/FID	☐	☐	☑	SUB
			11/2/2018		EPA 8015B	Total TPH	☐	☐	☑	SUB
N032715-001C			11/2/2018		EPA 8015B	GASOLINE RANGE ORGANICS BY GC/FID	☐	☐	☑	SUB
N032715-002A	FOLDER	11/2/2018	11/2/2018		Folder	Folder	☐	☐	☐	LAB
			11/2/2018		Folder	Folder	☐	☐	☐	LAB

ASSET LABORATORIES

ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES

SUBCONTRACT TO: BC LABS

CHAIN OF CUSTODY RECORD

Page 1 of 1

Contact us:
Nevada: 3151 W. Post Road, Las Vegas, NV 89118
P: 702.307.2659 F: 702.3072691
Califomia: 11110 Artesia Blvd., Ste B, Cerritos, CA 90703
P: 562.219.7435 F: 562.219.7436
www.assetlaboratories.com

Client: ASSET Laboratories	**Report to:** Molky Brar	**Bill to:** Elvira Allegaert/Accounts Payable
Address: 11110 Artesia Blvd Ste B	**Company:** ASSET Laboratories	**Address:** 11110 Artesia Blvd Ste B
Address: Cerritos, CA 90703	**Email:** molky@assetlaboratories.com; reports@assetlaboratories.com	Cerritos, CA 90703
Phone: 562.219.7435 **Fax:** 562.219.7436	**Address:** 11110 Artesia Blvd Ste B	**Email to:** elvira@assetlaboratories.com **PO#**
Submitted By: Molky Brar	Cerritos, CA 90703	**Phone:** 562.219.7435 **Fax:** 562.219.7436
Title:	**Phone:** 562.219.7435 **Fax:** 562.219.7436	
Signature: **Date:**	**Sampled by:**	
I hereby authorize ASSET Labs to perform the tests indicated below:	*I attest to the validity and authenticity of this sample. I am aware that tampering with or intentionally mislabeling the sample location, date or time of collection is considered fraud and may be grounds for legal action.*	
Project Name: SFPP Norwak	**Signature:**	
Project Number:		

EDD Requirement

Excel EDD	☐
Geotracker	☐
Labspec	☐
Others	☐
Specify:	
Global ID:	

QA/QC

RTNE	☐
RWQCB	☐
CalTrans	☐
Level III	☐
LEVEL IV	☐
Regulatory	☐
Specify State:	

Sampe Receipt Condition

	Y	N
1. Chilled	☐	☐
2. Headspace	☐	☐
3. Container Intact	☐	☐
4. Seal Present	☐	☐
5. IR number		
6. Method of Cooling		
Sample Temp:		

Matrix

Ground	☐	Sediment	☐
Potable	☐	Soil	☐
NPDES	☐	Other Solid	☐
Surface	☐	WW	

Item No.	Laboratory Work Order No.	Sample ID/Location	Date	Time	Water	Solid	Others	THP-gas (8015 B	TPH-D/TPH oil, TOTAL TPH (8015 B)	Turn Around Time	No. of container	Container Type	PRESERVATION	Remarks
1		INF-10-23	10/23/18	10:55	X			X	X	3	6			3X VOAs W/ HCL
2														3X 1L A G
3														
4														
5														
6														
7														
8														
9														
10														
11														
12														

Analyses Requested

Courier:

Tracking No.

Relinquished by (Signature and Printed Name): Karla Sevilla	Date / Time 10/26/18 17:41	Received by (Signature and Printed Name):	Date / Time
Relinquished by (Signature and Printed Name):	Date / Time	Received by (Signature and Printed Name):	Date / Time
Relinquished by (Signature and Printed Name):	Date / Time	Received by (Signature and Printed Name):	Date / Time

Turn Around Time (TAT)

- ☐ A < 24 Hrs or Same Day TAT
- ☐ B = Next Workday
- ☐ C = 2 Workdays
- ☐ D = 3 Workdays
- ☑ E = Routine 5-7 Workdays

TAT Starts at 8 AM the following day if samples received after 3:00 PM.

Special Instruction:

Please Report "J" flagged down to MDL format. EDD requirement "CH2MHill" labspec7.
Please cc Report to Lucille Golosinda at lucille.golosinda@assetlaboratories.com

Terms

1. All samples will be disposed in 45 days upon receipt and records will be destroyed in 5 years upon submission of final report.
2. Regular TAT is 5-7 business days, surcharges will apply for rush analysis
   Less than 24 Hrs = 200% Next Day = 100% 2 Workdays = 50% 3 Workdays = 35% 4 Workdays = 20%
3. Custom EDD formats will be an additional 3% of the total project price.
4. Add 30% surcharge for Level III Data Packages, 15% for Level IV Data Packages. Surcharge applied on total project price.
5. Trip Blanks and Equipment Blanks are billable sample.
6. ASSET Laboratories is not responsible for samples collected using incorrect methodology.
7. Terms are net 30 Days.
8. All reports are submitted in electronic format. Please inform ASSET Laboratories if hard copy of report is needed.
9. For subcontract analysis. TAT and Surcharges will vary.

Preservatives:

H = HCl	N = HNO_3	S = H_2SO_4	C = 4°C
Z = $Zn(AC)_2$	O = NaOH	T = $Na_2S_2O_3$	
Others/Specify:			

Container Type:

T = Tube	V = VOA	P = Pint
J = Jar	B = Tedlar	G = Glass
M = Metal	P = Plastic	C = Can

White = Laboratory Copy

Yellow = Customer's Copy

November 21, 2018

Eric Davis
CH2MHill
1000 Wilshire Blvd.
Los Angeles, CA 90017

TEL:
FAX:

Workorder No.: N032948

RE: SFPP Norwalk

Attention: Eric Davis

Enclosed are the results for sample(s) received on November 12, 2018 by ASSET Laboratories. The sample(s) are tested for the parameters as indicated in the enclosed chain of custody in accordance with the applicable laboratory certifications.

Thank you for the opportunity to service the needs of your company.

Please feel free to call me at (702) 307-2659 if I can be of further assistance to your company.

Sincerely,

Quennie Manimtim
Laboratory Director

CLIENT: CH2MHill
Project: SFPP Norwalk
Lab Order: N032948

CASE NARRATIVE

SAMPLE RECEIVING/GENERAL COMMENTS:

All sample containers were received intact with proper chain of custody documentation.

Information on sample receipt conditions including discrepancies can be found in attached Sample Receipt Checklist Form.

Cooler temperature and sample preservation were verified upon receipt of samples if applicable.

Sample was analyzed within method holding time.

Results were J-Flag. "J" is used to flag those results that are between the PQL (Practical Quantitation Limit) and the calculated MDL (Method Detection Limit). Results that are "J" Flagged are estimated values since it becomes difficult to accurately quantitate the analyte near the MDL.

Subcontracted Analyses:

EPA 8015B for DRO, ORO and GRO was subcontracted to BC Laboratories, Bakersfield, CA. Total TPH was calculated and reported in the lab based on Subcon Lab's result.

Analytical Comment for EPA 8260B:

RPD for Laboratory Control Sample (LCS)/Laboratory Control Sample Duplicate (LCSD) is outside criteria for Acetone, Tert-butanol and 2-Butanone. Analytes recoveries on both met acceptance criteria.

ASSET Laboratories

Date: *21-Nov-18*

CLIENT: CH2MHill
Project: SFPP Norwalk
Lab Order: N032948
Contract No:

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N032948-001A	INF-11-12	Wastewater	11/12/2018 11:15:00 AM	11/12/2018	11/21/2018
N032948-001B	INF-11-12	Wastewater	11/12/2018 11:15:00 AM	11/12/2018	11/21/2018
N032948-001C	INF-11-12	Wastewater	11/12/2018 11:15:00 AM	11/12/2018	11/21/2018

CLIENT: CH2MHill
Lab Order: N032948
Project: SFPP Norwalk
Lab ID: N032948-001

Client Sample ID: INF-11-12
Collection Date: 11/12/2018 11:15:00 AM
Matrix: WASTEWATER

VOLATILE ORGANIC COMPOUNDS BY GC/MS

EPA 8260B

RunID: **CA01638-MS10_181113A** QC Batch: **CA18VW038** PrepDate: Analyst: **GAC**

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
1,1,1,2-Tetrachloroethane	ND	0.38	1.0		ug/L	1	11/13/2018 12:09 PM
1,1,1-Trichloroethane	ND	0.38	1.0		ug/L	1	11/13/2018 12:09 PM
1,1,2,2-Tetrachloroethane	ND	0.34	1.0		ug/L	1	11/13/2018 12:09 PM
1,1,2-Trichloroethane	ND	0.29	1.0		ug/L	1	11/13/2018 12:09 PM
1,1-Dichloroethane	ND	0.45	0.50		ug/L	1	11/13/2018 12:09 PM
1,1-Dichloroethene	ND	0.34	1.0		ug/L	1	11/13/2018 12:09 PM
1,1-Dichloropropene	ND	0.32	1.0		ug/L	1	11/13/2018 12:09 PM
1,2,3-Trichlorobenzene	ND	0.28	1.0		ug/L	1	11/13/2018 12:09 PM
1,2,3-Trichloropropane	ND	0.26	1.0		ug/L	1	11/13/2018 12:09 PM
1,2,4-Trichlorobenzene	ND	0.21	1.0		ug/L	1	11/13/2018 12:09 PM
1,2,4-Trimethylbenzene	ND	0.33	1.0		ug/L	1	11/13/2018 12:09 PM
1,2-Dibromo-3-chloropropane	ND	0.67	2.0		ug/L	1	11/13/2018 12:09 PM
1,2-Dibromoethane	ND	0.31	1.0		ug/L	1	11/13/2018 12:09 PM
1,2-Dichlorobenzene	ND	0.29	1.0		ug/L	1	11/13/2018 12:09 PM
1,2-Dichloroethane	ND	0.29	0.50		ug/L	1	11/13/2018 12:09 PM
1,2-Dichloropropane	ND	0.24	1.0		ug/L	1	11/13/2018 12:09 PM
1,3,5-Trimethylbenzene	ND	0.27	1.0		ug/L	1	11/13/2018 12:09 PM
1,3-Dichlorobenzene	ND	0.28	1.0		ug/L	1	11/13/2018 12:09 PM
1,3-Dichloropropane	ND	0.32	1.0		ug/L	1	11/13/2018 12:09 PM
1,4-Dichlorobenzene	ND	0.32	1.0		ug/L	1	11/13/2018 12:09 PM
2,2-Dichloropropane	ND	0.32	1.0		ug/L	1	11/13/2018 12:09 PM
2-Butanone	ND	4.9	10		ug/L	1	11/13/2018 12:09 PM
2-Chlorotoluene	ND	0.28	1.0		ug/L	1	11/13/2018 12:09 PM
4-Chlorotoluene	ND	0.30	1.0		ug/L	1	11/13/2018 12:09 PM
4-Isopropyltoluene	ND	0.33	1.0		ug/L	1	11/13/2018 12:09 PM
4-Methyl-2-pentanone	ND	3.2	10		ug/L	1	11/13/2018 12:09 PM
Acetone	ND	9.7	10		ug/L	1	11/13/2018 12:09 PM
Benzene	ND	0.34	1.0		ug/L	1	11/13/2018 12:09 PM
Bromobenzene	ND	0.25	1.0		ug/L	1	11/13/2018 12:09 PM
Bromochloromethane	ND	0.41	1.0		ug/L	1	11/13/2018 12:09 PM
Bromodichloromethane	ND	0.38	1.0		ug/L	1	11/13/2018 12:09 PM
Bromoform	ND	0.39	1.0		ug/L	1	11/13/2018 12:09 PM
Bromomethane	ND	0.79	1.0		ug/L	1	11/13/2018 12:09 PM
Carbon disulfide	ND	0.81	1.0		ug/L	1	11/13/2018 12:09 PM
Carbon tetrachloride	ND	0.40	0.50		ug/L	1	11/13/2018 12:09 PM
Chlorobenzene	ND	0.30	1.0		ug/L	1	11/13/2018 12:09 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified
E	Value above quantitation range
J	Analyte detected below quantitation limits
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out

CLIENT: CH2MHill
Lab Order: N032948
Project: SFPP Norwalk
Lab ID: N032948-001

Client Sample ID: INF-11-12
Collection Date: 11/12/2018 11:15:00 AM
Matrix: WASTEWATER

VOLATILE ORGANIC COMPOUNDS BY GC/MS

EPA 8260B

RunID: **CA01638-MS10_181113A** QC Batch: **CA18VW038** PrepDate: Analyst: **GAC**

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
Chloroethane	ND	0.97	1.0		ug/L	1	11/13/2018 12:09 PM
Chloroform	ND	0.27	1.0		ug/L	1	11/13/2018 12:09 PM
Chloromethane	ND	0.36	1.0		ug/L	1	11/13/2018 12:09 PM
cis-1,2-Dichloroethene	ND	0.32	1.0		ug/L	1	11/13/2018 12:09 PM
cis-1,3-Dichloropropene	ND	0.28	1.0		ug/L	1	11/13/2018 12:09 PM
Di-isopropyl ether	4.1	0.079	1.0		ug/L	1	11/13/2018 12:09 PM
Dibromochloromethane	ND	0.41	1.0		ug/L	1	11/13/2018 12:09 PM
Dibromomethane	ND	0.28	1.0		ug/L	1	11/13/2018 12:09 PM
Dichlorodifluoromethane	ND	0.29	1.0		ug/L	1	11/13/2018 12:09 PM
Ethyl tert-butyl ether	ND	0.30	1.0		ug/L	1	11/13/2018 12:09 PM
Ethylbenzene	ND	0.31	1.0		ug/L	1	11/13/2018 12:09 PM
Freon-113	ND	0.35	1.0		ug/L	1	11/13/2018 12:09 PM
Hexachlorobutadiene	ND	0.30	1.0		ug/L	1	11/13/2018 12:09 PM
Isopropylbenzene	ND	0.26	1.0		ug/L	1	11/13/2018 12:09 PM
m,p-Xylene	ND	0.23	1.0		ug/L	1	11/13/2018 12:09 PM
Methylene chloride	ND	1.9	2.0		ug/L	1	11/13/2018 12:09 PM
MTBE	1.4	0.34	1.0		ug/L	1	11/13/2018 12:09 PM
n-Butylbenzene	ND	0.34	1.0		ug/L	1	11/13/2018 12:09 PM
n-Propylbenzene	ND	0.32	1.0		ug/L	1	11/13/2018 12:09 PM
Naphthalene	ND	0.42	1.0		ug/L	1	11/13/2018 12:09 PM
o-Xylene	ND	0.31	1.0		ug/L	1	11/13/2018 12:09 PM
sec-Butylbenzene	ND	0.32	1.0		ug/L	1	11/13/2018 12:09 PM
Styrene	ND	0.21	1.0		ug/L	1	11/13/2018 12:09 PM
Tert-amyl methyl ether	ND	0.26	1.0		ug/L	1	11/13/2018 12:09 PM
Tert-Butanol	120	2.4	5.0		ug/L	1	11/13/2018 12:09 PM
tert-Butylbenzene	ND	0.28	1.0		ug/L	1	11/13/2018 12:09 PM
Tetrachloroethene	ND	0.30	1.0		ug/L	1	11/13/2018 12:09 PM
Toluene	ND	0.46	2.0		ug/L	1	11/13/2018 12:09 PM
trans-1,2-Dichloroethene	ND	0.40	1.0		ug/L	1	11/13/2018 12:09 PM
trans-1,3-Dichloropropene	ND	0.25	1.0		ug/L	1	11/13/2018 12:09 PM
Trichloroethene	ND	0.37	1.0		ug/L	1	11/13/2018 12:09 PM
Trichlorofluoromethane	ND	0.37	1.0		ug/L	1	11/13/2018 12:09 PM
Vinyl chloride	ND	0.29	0.50		ug/L	1	11/13/2018 12:09 PM
Xylenes, Total	ND	1.5	2.0		ug/L	1	11/13/2018 12:09 PM
Surr: 1,2-Dichloroethane-d4	107	0	72-119		%REC	1	11/13/2018 12:09 PM
Surr: 4-Bromofluorobenzene	104	0	76-119		%REC	1	11/13/2018 12:09 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified	DO	Surrogate Diluted Out

CLIENT: CH2MHill
Lab Order: N032948
Project: SFPP Norwalk
Lab ID: N032948-001

Client Sample ID: INF-11-12
Collection Date: 11/12/2018 11:15:00 AM
Matrix: WASTEWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
VOLATILE ORGANIC COMPOUNDS BY GC/MS							
			EPA 8260B				
RunID: **CA01638-MS10_181113A** QC Batch: **CA18VW038**				PrepDate:			Analyst: **GAC**
Surr: Dibromofluoromethane	101	0	85-115		%REC	1	11/13/2018 12:09 PM
Surr: Toluene-d8	100	0	81-120		%REC	1	11/13/2018 12:09 PM
TOTAL TPH							
			EPA 8015B				
RunID: **SUBCONTRACT_181121A** QC Batch: **R130113**				PrepDate:			Analyst: **admin**
Total TPH	120	22	100		ug/L	1	11/21/2018

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified
E	Value above quantitation range
J	Analyte detected below quantitation limits
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out

CLIENT: CH2MHill
Work Order: N032948
Project: SFPP Norwalk

ANALYTICAL QC SUMMARY REPORT

TestCode: 8015_W_SFPPTOT

Sample ID: **MB-R130113** SampType: **MBLK** TestCode: **8015_W_SFP** Units: **ug/L** Prep Date: RunNo: **130113**
Client ID: **PBW** Batch ID: **R130113** TestNo: **EPA 8015B** Analysis Date: **11/21/2018** SeqNo: **3211454**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total TPH	ND	100									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
S	Spike/Surrogate outside of limits due to matrix interference	DO	Surrogate Diluted Out		Calculations are based on raw values

CLIENT: CH2MHill
Work Order: N032948
Project: SFPP Norwalk

ANALYTICAL QC SUMMARY REPORT

TestCode: 8260_WP_SFPP

Sample ID: **CA181113-LCS** SampType: **LCS** TestCode: **8260_WP_SF** Units: **ug/L** Prep Date: RunNo: **129920**
Client ID: **LCSW** Batch ID: **CA18VW038** TestNo: **EPA 8260B** Analysis Date: **11/13/2018** SeqNo: **3203476**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1,1,2-Tetrachloroethane	20.270	1.0	20.00	0	101	81	129				
1,1,1-Trichloroethane	19.690	1.0	20.00	0	98.4	67	132				
1,1,2,2-Tetrachloroethane	18.940	1.0	20.00	0	94.7	63	128				
1,1,2-Trichloroethane	17.410	1.0	20.00	0	87.1	75	125				
1,1-Dichloroethane	18.300	0.50	20.00	0	91.5	69	133				
1,1-Dichloroethene	17.580	1.0	20.00	0	87.9	68	130				
1,1-Dichloropropene	20.160	1.0	20.00	0	101	73	132				
1,2,3-Trichlorobenzene	20.620	1.0	20.00	0	103	67	137				
1,2,3-Trichloropropane	21.590	1.0	20.00	0	108	73	124				
1,2,4-Trichlorobenzene	21.050	1.0	20.00	0	105	66	134				
1,2,4-Trimethylbenzene	20.590	1.0	20.00	0	103	74	132				
1,2-Dibromo-3-chloropropane	20.690	2.0	20.00	0	103	50	132				
1,2-Dibromoethane	17.740	1.0	20.00	0	88.7	80	121				
1,2-Dichlorobenzene	20.900	1.0	20.00	0	104	71	122				
1,2-Dichloroethane	20.090	0.50	20.00	0	100	69	132				
1,2-Dichloropropane	19.420	1.0	20.00	0	97.1	75	125				
1,3,5-Trimethylbenzene	20.540	1.0	20.00	0	103	74	131				
1,3-Dichlorobenzene	21.780	1.0	20.00	0	109	75	124				
1,3-Dichloropropane	21.190	1.0	20.00	0	106	73	126				
1,4-Dichlorobenzene	19.910	1.0	20.00	0	99.6	74	123				
2,2-Dichloropropane	18.850	1.0	20.00	0	94.3	69	137				
2-Butanone	210.230	10	200.0	0	105	49	136				
2-Chlorotoluene	21.560	1.0	20.00	0	108	73	126				
4-Chlorotoluene	23.840	1.0	20.00	0	119	74	128				
4-Isopropyltoluene	21.050	1.0	20.00	0	105	73	130				
4-Methyl-2-pentanone	194.150	10	200.0	0	97.1	58	134				
Acetone	193.850	10	200.0	0	96.9	40	135				
Benzene	18.280	1.0	20.00	0	91.4	81	122				
Bromobenzene	19.750	1.0	20.00	0	98.8	76	124				
Bromochloromethane	18.250	1.0	20.00	0	91.2	65	129				

Qualifiers:

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike/Surrogate outside of limits due to matrix interference
- DO Surrogate Diluted Out
- Calculations are based on raw values

CLIENT: CH2MHill
Work Order: N032948
Project: SFPP Norwalk

ANALYTICAL QC SUMMARY REPORT

TestCode: 8260_WP_SFPP

Sample ID: **CA181113-LCS** SampType: **LCS** TestCode: **8260_WP_SF** Units: **ug/L** Prep Date: RunNo: **129920**
Client ID: **LCSW** Batch ID: **CA18VW038** TestNo: **EPA 8260B** Analysis Date: **11/13/2018** SeqNo: **3203476**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Bromodichloromethane	19.770	1.0	20.00	0	98.8	76	121				
Bromoform	20.460	1.0	20.00	0	102	69	128				
Bromomethane	21.210	1.0	20.00	0	106	53	141				
Carbon disulfide	18.640	1.0	20.00	0	93.2	75	125				
Carbon tetrachloride	18.470	0.50	20.00	0	92.4	66	138				
Chlorobenzene	20.390	1.0	20.00	0	102	81	122				
Chloroethane	20.590	1.0	20.00	0	103	58	133				
Chloroform	18.110	1.0	20.00	0	90.6	69	128				
Chloromethane	19.920	1.0	20.00	0	99.6	56	131				
cis-1,2-Dichloroethene	18.400	1.0	20.00	0	92.0	72	126				
cis-1,3-Dichloropropene	19.310	1.0	20.00	0	96.6	69	131				
Di-isopropyl ether	17.860	1.0	20.00	0	89.3	70	130				
Dibromochloromethane	19.800	1.0	20.00	0	99.0	66	133				
Dibromomethane	18.940	1.0	20.00	0	94.7	76	125				
Dichlorodifluoromethane	24.030	1.0	20.00	0	120	53	153				
Ethyl tert-butyl ether	17.890	1.0	20.00	0	89.4	70	130				
Ethylbenzene	22.240	1.0	20.00	0	111	73	127				
Freon-113	16.710	1.0	20.00	0	83.6	75	125				
Hexachlorobutadiene	20.600	1.0	20.00	0	103	67	131				
Isopropylbenzene	21.690	1.0	20.00	0	108	75	127				
m,p-Xylene	44.990	1.0	40.00	0	112	76	128				
Methylene chloride	20.090	2.0	20.00	0	100	63	137				
MTBE	18.750	1.0	20.00	0	93.8	65	123				
n-Butylbenzene	22.380	1.0	20.00	0	112	69	137				
n-Propylbenzene	23.350	1.0	20.00	0	117	72	129				
Naphthalene	17.620	1.0	20.00	0	88.1	54	138				
o-Xylene	22.370	1.0	20.00	0	112	80	121				
sec-Butylbenzene	23.790	1.0	20.00	0	119	72	127				
Styrene	26.400	1.0	20.00	0	132	65	134				
Tert-amyl methyl ether	19.220	1.0	20.00	0	96.1	70	130				

Qualifiers:

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike/Surrogate outside of limits due to matrix interference
- DO Surrogate Diluted Out
- Calculations are based on raw values

CLIENT: CH2MHill
Work Order: N032948
Project: SFPP Norwalk

ANALYTICAL QC SUMMARY REPORT

TestCode: 8260_WP_SFPP

Sample ID: **CA181113-LCS** SampType: **LCS** TestCode: **8260_WP_SF** Units: **ug/L** Prep Date: RunNo: **129920**
Client ID: **LCSW** Batch ID: **CA18VW038** TestNo: **EPA 8260B** Analysis Date: **11/13/2018** SeqNo: **3203476**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Tert-Butanol	95.250	5.0	100.0	0	95.2	70	130				
tert-Butylbenzene	23.630	1.0	20.00	0	118	70	129				
Tetrachloroethene	20.320	1.0	20.00	0	102	66	128				
Toluene	19.180	2.0	20.00	0	95.9	77	122				
trans-1,2-Dichloroethene	18.790	1.0	20.00	0	94.0	63	137				
trans-1,3-Dichloropropene	20.630	1.0	20.00	0	103	59	135				
Trichloroethene	18.960	1.0	20.00	0	94.8	70	127				
Trichlorofluoromethane	20.540	1.0	20.00	0	103	57	129				
Vinyl chloride	20.540	0.50	20.00	0	103	50	134				
Xylenes, Total	67.360	2.0	60.00	0	112	75	125				
Surr: 1,2-Dichloroethane-d4	23.830		25.00		95.3	72	119				
Surr: 4-Bromofluorobenzene	28.570		25.00		114	76	119				
Surr: Dibromofluoromethane	24.970		25.00		99.9	85	115				
Surr: Toluene-d8	25.640		25.00		103	81	120				

Sample ID: **CA181113-LCSD** SampType: **LCSD** TestCode: **8260_WP_SF** Units: **ug/L** Prep Date: RunNo: **129920**
Client ID: **LCSS02** Batch ID: **CA18VW038** TestNo: **EPA 8260B** Analysis Date: **11/13/2018** SeqNo: **3203477**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1,1,2-Tetrachloroethane	19.070	1.0	20.00	0	95.4	81	129	20.27	6.10	20	
1,1,1-Trichloroethane	18.440	1.0	20.00	0	92.2	67	132	19.69	6.56	20	
1,1,2,2-Tetrachloroethane	17.950	1.0	20.00	0	89.8	63	128	18.94	5.37	20	
1,1,2-Trichloroethane	17.690	1.0	20.00	0	88.4	75	125	17.41	1.60	20	
1,1-Dichloroethane	16.150	0.50	20.00	0	80.8	69	133	18.30	12.5	20	
1,1-Dichloroethene	16.020	1.0	20.00	0	80.1	68	130	17.58	9.29	20	
1,1-Dichloropropene	19.080	1.0	20.00	0	95.4	73	132	20.16	5.50	20	
1,2,3-Trichlorobenzene	18.580	1.0	20.00	0	92.9	67	137	20.62	10.4	20	
1,2,3-Trichloropropane	18.080	1.0	20.00	0	90.4	73	124	21.59	17.7	20	
1,2,4-Trichlorobenzene	18.990	1.0	20.00	0	95.0	66	134	21.05	10.3	20	
1,2,4-Trimethylbenzene	18.480	1.0	20.00	0	92.4	74	132	20.59	10.8	20	

Qualifiers:

B Analyte detected in the associated Method Blank
E Value above quantitation range
H Holding times for preparation or analysis exceeded
J Analyte detected below quantitation limits
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S Spike/Surrogate outside of limits due to matrix interference
DO Surrogate Diluted Out
Calculations are based on raw values

CLIENT: CH2MHill
Work Order: N032948
Project: SFPP Norwalk

ANALYTICAL QC SUMMARY REPORT

TestCode: 8260_WP_SFPP

Sample ID: **CA181113-LCSD** SampType: **LCSD** TestCode: **8260_WP_SF** Units: **ug/L** Prep Date: RunNo: **129920**
Client ID: **LCSS02** Batch ID: **CA18VW038** TestNo: **EPA 8260B** Analysis Date: **11/13/2018** SeqNo: **3203477**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,2-Dibromo-3-chloropropane	19.830	2.0	20.00	0	99.2	50	132	20.69	4.24	20	
1,2-Dibromoethane	16.540	1.0	20.00	0	82.7	80	121	17.74	7.00	20	
1,2-Dichlorobenzene	18.830	1.0	20.00	0	94.2	71	122	20.90	10.4	20	
1,2-Dichloroethane	19.570	0.50	20.00	0	97.9	69	132	20.09	2.62	20	
1,2-Dichloropropane	17.950	1.0	20.00	0	89.8	75	125	19.42	7.87	20	
1,3,5-Trimethylbenzene	18.900	1.0	20.00	0	94.5	74	131	20.54	8.32	20	
1,3-Dichlorobenzene	19.920	1.0	20.00	0	99.6	75	124	21.78	8.92	20	
1,3-Dichloropropane	19.090	1.0	20.00	0	95.4	73	126	21.19	10.4	20	
1,4-Dichlorobenzene	18.470	1.0	20.00	0	92.4	74	123	19.91	7.50	20	
2,2-Dichloropropane	17.010	1.0	20.00	0	85.0	69	137	18.85	10.3	20	
2-Butanone	167.200	10	200.0	0	83.6	49	136	210.2	22.8	20	R
2-Chlorotoluene	19.960	1.0	20.00	0	99.8	73	126	21.56	7.71	20	
4-Chlorotoluene	21.460	1.0	20.00	0	107	74	128	23.84	10.5	20	
4-Isopropyltoluene	19.350	1.0	20.00	0	96.8	73	130	21.05	8.42	20	
4-Methyl-2-pentanone	179.300	10	200.0	0	89.6	58	134	194.2	7.95	20	
Acetone	127.690	10	200.0	0	63.8	40	135	193.8	41.2	20	R
Benzene	17.220	1.0	20.00	0	86.1	81	122	18.28	5.97	20	
Bromobenzene	18.660	1.0	20.00	0	93.3	76	124	19.75	5.68	20	
Bromochloromethane	17.340	1.0	20.00	0	86.7	65	129	18.25	5.11	20	
Bromodichloromethane	17.260	1.0	20.00	0	86.3	76	121	19.77	13.6	20	
Bromoform	18.360	1.0	20.00	0	91.8	69	128	20.46	10.8	20	
Bromomethane	18.950	1.0	20.00	0	94.8	53	141	21.21	11.3	20	
Carbon disulfide	16.640	1.0	20.00	0	83.2	75	125	18.64	11.3	20	
Carbon tetrachloride	17.110	0.50	20.00	0	85.6	66	138	18.47	7.64	20	
Chlorobenzene	18.390	1.0	20.00	0	92.0	81	122	20.39	10.3	20	
Chloroethane	19.400	1.0	20.00	0	97.0	58	133	20.59	5.95	20	
Chloroform	16.460	1.0	20.00	0	82.3	69	128	18.11	9.55	20	
Chloromethane	18.230	1.0	20.00	0	91.2	56	131	19.92	8.86	20	
cis-1,2-Dichloroethene	16.620	1.0	20.00	0	83.1	72	126	18.40	10.2	20	
cis-1,3-Dichloropropene	19.480	1.0	20.00	0	97.4	69	131	19.31	0.877	20	

Qualifiers:

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike/Surrogate outside of limits due to matrix interference
- DO Surrogate Diluted Out
- Calculations are based on raw values

CLIENT: CH2MHill
Work Order: N032948
Project: SFPP Norwalk

ANALYTICAL QC SUMMARY REPORT

TestCode: 8260_WP_SFPP

Sample ID: **CA181113-LCSD** SampType: **LCSD** TestCode: **8260_WP_SF** Units: **ug/L** Prep Date: RunNo: **129920**
Client ID: **LCSS02** Batch ID: **CA18VW038** TestNo: **EPA 8260B** Analysis Date: **11/13/2018** SeqNo: **3203477**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Di-isopropyl ether	15.380	1.0	20.00	0	76.9	70	130	17.86	14.9	20	
Dibromochloromethane	18.070	1.0	20.00	0	90.4	66	133	19.80	9.14	20	
Dibromomethane	18.300	1.0	20.00	0	91.5	76	125	18.94	3.44	20	
Dichlorodifluoromethane	21.480	1.0	20.00	0	107	53	153	24.03	11.2	20	
Ethyl tert-butyl ether	16.830	1.0	20.00	0	84.2	70	130	17.89	6.11	20	
Ethylbenzene	20.780	1.0	20.00	0	104	73	127	22.24	6.79	20	
Freon-113	15.480	1.0	20.00	0	77.4	75	125	16.71	7.64	20	
Hexachlorobutadiene	18.720	1.0	20.00	0	93.6	67	131	20.60	9.56	20	
Isopropylbenzene	20.390	1.0	20.00	0	102	75	127	21.69	6.18	20	
m,p-Xylene	42.650	1.0	40.00	0	107	76	128	44.99	5.34	20	
Methylene chloride	18.740	2.0	20.00	0	93.7	63	137	20.09	6.95	20	
MTBE	16.870	1.0	20.00	0	84.4	65	123	18.75	10.6	20	
n-Butylbenzene	20.860	1.0	20.00	0	104	69	137	22.38	7.03	20	
n-Propylbenzene	22.220	1.0	20.00	0	111	72	129	23.35	4.96	20	
Naphthalene	15.500	1.0	20.00	0	77.5	54	138	17.62	12.8	20	
o-Xylene	20.720	1.0	20.00	0	104	80	121	22.37	7.66	20	
sec-Butylbenzene	21.940	1.0	20.00	0	110	72	127	23.79	8.09	20	
Styrene	24.000	1.0	20.00	0	120	65	134	26.40	9.52	20	
Tert-amyl methyl ether	18.930	1.0	20.00	0	94.6	70	130	19.22	1.52	20	
Tert-Butanol	72.820	5.0	100.0	0	72.8	70	130	95.25	26.7	20	R
tert-Butylbenzene	22.310	1.0	20.00	0	112	70	129	23.63	5.75	20	
Tetrachloroethene	18.310	1.0	20.00	0	91.6	66	128	20.32	10.4	20	
Toluene	18.620	2.0	20.00	0	93.1	77	122	19.18	2.96	20	
trans-1,2-Dichloroethene	16.900	1.0	20.00	0	84.5	63	137	18.79	10.6	20	
trans-1,3-Dichloropropene	19.470	1.0	20.00	0	97.4	59	135	20.63	5.79	20	
Trichloroethene	17.920	1.0	20.00	0	89.6	70	127	18.96	5.64	20	
Trichlorofluoromethane	18.060	1.0	20.00	0	90.3	57	129	20.54	12.8	20	
Vinyl chloride	19.790	0.50	20.00	0	99.0	50	134	20.54	3.72	20	
Xylenes, Total	63.370	2.0	60.00	0	106	75	125	67.36	6.10	20	
Surr: 1,2-Dichloroethane-d4	22.300		25.00		89.2	72	119		0		

Qualifiers:

B Analyte detected in the associated Method Blank
E Value above quantitation range
H Holding times for preparation or analysis exceeded
J Analyte detected below quantitation limits
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S Spike/Surrogate outside of limits due to matrix interference
DO Surrogate Diluted Out
Calculations are based on raw values

CLIENT: CH2MHill
Work Order: N032948
Project: SFPP Norwalk

ANALYTICAL QC SUMMARY REPORT

TestCode: 8260_WP_SFPP

Sample ID: **CA181113-LCSD** SampType: **LCSD** TestCode: **8260_WP_SF** Units: **ug/L** Prep Date: RunNo: **129920**
Client ID: **LCSS02** Batch ID: **CA18VW038** TestNo: **EPA 8260B** Analysis Date: **11/13/2018** SeqNo: **3203477**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Surr: 4-Bromofluorobenzene	26.640		25.00		107	76	119		0		
Surr: Dibromofluoromethane	23.720		25.00		94.9	85	115		0		
Surr: Toluene-d8	25.510		25.00		102	81	120		0		

Sample ID: **CA181113-MB3** SampType: **MBLK** TestCode: **8260_WP_SF** Units: **ug/L** Prep Date: RunNo: **129920**
Client ID: **PBW** Batch ID: **CA18VW038** TestNo: **EPA 8260B** Analysis Date: **11/13/2018** SeqNo: **3203480**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1,1,2-Tetrachloroethane	ND	1.0									
1,1,1-Trichloroethane	ND	1.0									
1,1,2,2-Tetrachloroethane	ND	1.0									
1,1,2-Trichloroethane	ND	1.0									
1,1-Dichloroethane	ND	0.50									
1,1-Dichloroethene	ND	1.0									
1,1-Dichloropropene	ND	1.0									
1,2,3-Trichlorobenzene	ND	1.0									
1,2,3-Trichloropropane	ND	1.0									
1,2,4-Trichlorobenzene	ND	1.0									
1,2,4-Trimethylbenzene	ND	1.0									
1,2-Dibromo-3-chloropropane	ND	2.0									
1,2-Dibromoethane	ND	1.0									
1,2-Dichlorobenzene	ND	1.0									
1,2-Dichloroethane	ND	0.50									
1,2-Dichloropropane	ND	1.0									
1,3,5-Trimethylbenzene	ND	1.0									
1,3-Dichlorobenzene	ND	1.0									
1,3-Dichloropropane	ND	1.0									
1,4-Dichlorobenzene	ND	1.0									
2,2-Dichloropropane	ND	1.0									
2-Butanone	ND	10									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
S	Spike/Surrogate outside of limits due to matrix interference	DO	Surrogate Diluted Out		Calculations are based on raw values

CLIENT: CH2MHill
Work Order: N032948
Project: SFPP Norwalk

ANALYTICAL QC SUMMARY REPORT

TestCode: 8260_WP_SFPP

Sample ID: **CA181113-MB3** SampType: **MBLK** TestCode: **8260_WP_SF** Units: **ug/L** Prep Date: RunNo: **129920**
Client ID: **PBW** Batch ID: **CA18VW038** TestNo: **EPA 8260B** Analysis Date: **11/13/2018** SeqNo: **3203480**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
2-Chlorotoluene	ND	1.0									
4-Chlorotoluene	ND	1.0									
4-Isopropyltoluene	ND	1.0									
4-Methyl-2-pentanone	ND	10									
Acetone	ND	10									
Benzene	ND	1.0									
Bromobenzene	ND	1.0									
Bromochloromethane	ND	1.0									
Bromodichloromethane	ND	1.0									
Bromoform	ND	1.0									
Bromomethane	ND	1.0									
Carbon disulfide	ND	1.0									
Carbon tetrachloride	ND	0.50									
Chlorobenzene	ND	1.0									
Chloroethane	ND	1.0									
Chloroform	ND	1.0									
Chloromethane	ND	1.0									
cis-1,2-Dichloroethene	ND	1.0									
cis-1,3-Dichloropropene	ND	1.0									
Di-isopropyl ether	ND	1.0									
Dibromochloromethane	ND	1.0									
Dibromomethane	ND	1.0									
Dichlorodifluoromethane	ND	1.0									
Ethyl tert-butyl ether	ND	1.0									
Ethylbenzene	ND	1.0									
Freon-113	ND	1.0									
Hexachlorobutadiene	ND	1.0									
Isopropylbenzene	ND	1.0									
m,p-Xylene	ND	1.0									
Methylene chloride	ND	2.0									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
S	Spike/Surrogate outside of limits due to matrix interference	DO	Surrogate Diluted Out		Calculations are based on raw values

CLIENT: CH2MHill
Work Order: N032948
Project: SFPP Norwalk

ANALYTICAL QC SUMMARY REPORT

TestCode: 8260_WP_SFPP

Sample ID: **CA181113-MB3** SampType: **MBLK** TestCode: **8260_WP_SF** Units: **ug/L** Prep Date: RunNo: **129920**
Client ID: **PBW** Batch ID: **CA18VW038** TestNo: **EPA 8260B** Analysis Date: **11/13/2018** SeqNo: **3203480**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
MTBE	ND	1.0									
n-Butylbenzene	ND	1.0									
n-Propylbenzene	ND	1.0									
Naphthalene	ND	1.0									
o-Xylene	ND	1.0									
sec-Butylbenzene	ND	1.0									
Styrene	ND	1.0									
Tert-amyl methyl ether	ND	1.0									
Tert-Butanol	ND	5.0									
tert-Butylbenzene	ND	1.0									
Tetrachloroethene	ND	1.0									
Toluene	ND	2.0									
trans-1,2-Dichloroethene	ND	1.0									
trans-1,3-Dichloropropene	ND	1.0									
Trichloroethene	ND	1.0									
Trichlorofluoromethane	ND	1.0									
Vinyl chloride	ND	0.50									
Xylenes, Total	ND	2.0									
Surr: 1,2-Dichloroethane-d4	24.270		25.00		97.1	72	119				
Surr: 4-Bromofluorobenzene	24.170		25.00		96.7	76	119				
Surr: Dibromofluoromethane	24.640		25.00		98.6	85	115				
Surr: Toluene-d8	26.010		25.00		104	81	120				

Sample ID: **N032948-001A-MS** SampType: **MS** TestCode: **8260_WP_SF** Units: **ug/L** Prep Date: RunNo: **129920**
Client ID: **ZZZZZZ** Batch ID: **CA18VW038** TestNo: **EPA 8260B** Analysis Date: **11/13/2018** SeqNo: **3203486**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1,1,2-Tetrachloroethane	91.600	5.0	100.0	0	91.6	81	129				
1,1,1-Trichloroethane	98.450	5.0	100.0	0	98.4	67	132				
1,1,2,2-Tetrachloroethane	96.000	5.0	100.0	0	96.0	63	128				

Qualifiers:

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike/Surrogate outside of limits due to matrix interference
- DO Surrogate Diluted Out
- Calculations are based on raw values

CLIENT: CH2MHill
Work Order: N032948
Project: SFPP Norwalk

ANALYTICAL QC SUMMARY REPORT

TestCode: 8260_WP_SFPP

Sample ID: **N032948-001A-MS** SampType: **MS** TestCode: **8260_WP_SF** Units: **ug/L** Prep Date: RunNo: **129920**
Client ID: **ZZZZZZ** Batch ID: **CA18VW038** TestNo: **EPA 8260B** Analysis Date: **11/13/2018** SeqNo: **3203486**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1,2-Trichloroethane	92.550	5.0	100.0	0	92.6	75	125				
1,1-Dichloroethane	81.500	2.5	100.0	0	81.5	69	133				
1,1-Dichloroethene	82.550	5.0	100.0	0	82.6	68	130				
1,1-Dichloropropene	98.900	5.0	100.0	0	98.9	73	132				
1,2,3-Trichlorobenzene	100.150	5.0	100.0	0	100	67	137				
1,2,3-Trichloropropane	99.450	5.0	100.0	0	99.4	73	124				
1,2,4-Trichlorobenzene	96.550	5.0	100.0	0	96.6	66	134				
1,2,4-Trimethylbenzene	94.500	5.0	100.0	0	94.5	74	132				
1,2-Dibromo-3-chloropropane	103.200	10	100.0	0	103	50	132				
1,2-Dibromoethane	92.600	5.0	100.0	0	92.6	80	121				
1,2-Dichlorobenzene	97.950	5.0	100.0	0	98.0	71	122				
1,2-Dichloroethane	101.850	2.5	100.0	0	102	69	132				
1,2-Dichloropropane	95.350	5.0	100.0	0	95.4	75	125				
1,3,5-Trimethylbenzene	95.100	5.0	100.0	0	95.1	74	131				
1,3-Dichlorobenzene	99.750	5.0	100.0	0	99.8	75	124				
1,3-Dichloropropane	101.550	5.0	100.0	0	102	73	126				
1,4-Dichlorobenzene	96.150	5.0	100.0	0	96.2	74	123				
2,2-Dichloropropane	96.450	5.0	100.0	0	96.5	69	137				
2-Butanone	901.000	50	1000	0	90.1	49	136				
2-Chlorotoluene	99.700	5.0	100.0	0	99.7	73	126				
4-Chlorotoluene	107.650	5.0	100.0	0	108	74	128				
4-Isopropyltoluene	95.200	5.0	100.0	0	95.2	73	130				
4-Methyl-2-pentanone	1083.600	50	1000	0	108	58	134				
Acetone	535.500	50	1000	0	53.6	40	135				
Benzene	92.600	5.0	100.0	0	92.6	81	122				
Bromobenzene	98.050	5.0	100.0	0	98.0	76	124				
Bromochloromethane	90.800	5.0	100.0	0	90.8	65	129				
Bromodichloromethane	93.200	5.0	100.0	0	93.2	76	121				
Bromoform	99.750	5.0	100.0	0	99.8	69	128				
Bromomethane	89.200	5.0	100.0	0	89.2	53	141				

Qualifiers:

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike/Surrogate outside of limits due to matrix interference
- DO Surrogate Diluted Out
- Calculations are based on raw values

CLIENT: CH2MHill
Work Order: N032948
Project: SFPP Norwalk

ANALYTICAL QC SUMMARY REPORT

TestCode: 8260_WP_SFPP

Sample ID: **N032948-001A-MS** SampType: **MS** TestCode: **8260_WP_SF** Units: **ug/L** Prep Date: RunNo: **129920**
Client ID: **ZZZZZZ** Batch ID: **CA18VW038** TestNo: **EPA 8260B** Analysis Date: **11/13/2018** SeqNo: **3203486**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Carbon disulfide	84.750	5.0	100.0	0	84.8	75	125				
Carbon tetrachloride	96.250	2.5	100.0	0	96.2	66	138				
Chlorobenzene	92.250	5.0	100.0	0	92.2	81	122				
Chloroethane	89.450	5.0	100.0	0	89.4	58	133				
Chloroform	89.000	5.0	100.0	0	89.0	69	128				
Chloromethane	89.350	5.0	100.0	0	89.4	56	131				
cis-1,2-Dichloroethene	81.750	5.0	100.0	0	81.8	72	126				
cis-1,3-Dichloropropene	95.600	5.0	100.0	0	95.6	69	131				
Di-isopropyl ether	89.850	5.0	100.0	3.850	86.0	70	130				
Dibromochloromethane	97.450	5.0	100.0	0	97.5	66	133				
Dibromomethane	97.500	5.0	100.0	0	97.5	76	125				
Dichlorodifluoromethane	107.500	5.0	100.0	0	108	53	153				
Ethyl tert-butyl ether	97.450	5.0	100.0	0	97.5	70	130				
Ethylbenzene	98.600	5.0	100.0	0	98.6	73	127				
Freon-113	81.300	5.0	100.0	0	81.3	75	125				
Hexachlorobutadiene	92.800	5.0	100.0	0	92.8	67	131				
Isopropylbenzene	101.450	5.0	100.0	0	101	75	127				
m,p-Xylene	207.450	5.0	200.0	0	104	76	128				
Methylene chloride	81.700	10	100.0	0	81.7	63	137				
MTBE	92.000	5.0	100.0	0	92.0	65	123				
n-Butylbenzene	102.750	5.0	100.0	0	103	69	137				
n-Propylbenzene	107.600	5.0	100.0	0	108	72	129				
Naphthalene	85.000	5.0	100.0	0	85.0	54	138				
o-Xylene	101.000	5.0	100.0	0	101	80	121				
sec-Butylbenzene	105.650	5.0	100.0	0	106	72	127				
Styrene	121.200	5.0	100.0	0	121	65	134				
Tert-amyl methyl ether	101.400	5.0	100.0	0	101	70	130				
Tert-Butanol	625.150	25	500.0	0	125	70	130				
tert-Butylbenzene	104.650	5.0	100.0	0	105	70	129				
Tetrachloroethene	94.300	5.0	100.0	0	94.3	66	128				

Qualifiers:

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike/Surrogate outside of limits due to matrix interference
- DO Surrogate Diluted Out
- Calculations are based on raw values

CLIENT: CH2MHill
Work Order: N032948
Project: SFPP Norwalk

ANALYTICAL QC SUMMARY REPORT

TestCode: 8260_WP_SFPP

Sample ID: **N032948-001A-MS** SampType: **MS** TestCode: **8260_WP_SF** Units: **ug/L** Prep Date: RunNo: **129920**
Client ID: **ZZZZZZ** Batch ID: **CA18VW038** TestNo: **EPA 8260B** Analysis Date: **11/13/2018** SeqNo: **3203486**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Toluene	94.250	10	100.0	0	94.2	77	122				
trans-1,2-Dichloroethene	80.200	5.0	100.0	0	80.2	63	137				
trans-1,3-Dichloropropene	108.550	5.0	100.0	0	109	59	135				
Trichloroethene	91.550	5.0	100.0	0	91.6	70	127				
Trichlorofluoromethane	91.500	5.0	100.0	0	91.5	57	129				
Vinyl chloride	94.150	2.5	100.0	0	94.2	50	134				
Xylenes, Total	308.450	10	300.0	0	103	75	125				
Surr: 1,2-Dichloroethane-d4	127.650		125.0		102	72	119				
Surr: 4-Bromofluorobenzene	133.600		125.0		107	76	119				
Surr: Dibromofluoromethane	123.400		125.0		98.7	85	115				
Surr: Toluene-d8	129.800		125.0		104	81	120				

Sample ID: **N032948-001A-MSD** SampType: **MSD** TestCode: **8260_WP_SF** Units: **ug/L** Prep Date: RunNo: **129920**
Client ID: **ZZZZZZ** Batch ID: **CA18VW038** TestNo: **EPA 8260B** Analysis Date: **11/13/2018** SeqNo: **3203487**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1,1,2-Tetrachloroethane	94.300	5.0	100.0	0	94.3	81	129	91.60	2.90	20	
1,1,1-Trichloroethane	94.100	5.0	100.0	0	94.1	67	132	98.45	4.52	20	
1,1,2,2-Tetrachloroethane	88.000	5.0	100.0	0	88.0	63	128	96.00	8.70	20	
1,1,2-Trichloroethane	91.700	5.0	100.0	0	91.7	75	125	92.55	0.923	20	
1,1-Dichloroethane	86.200	2.5	100.0	0	86.2	69	133	81.50	5.61	20	
1,1-Dichloroethene	78.700	5.0	100.0	0	78.7	68	130	82.55	4.78	20	
1,1-Dichloropropene	88.900	5.0	100.0	0	88.9	73	132	98.90	10.6	20	
1,2,3-Trichlorobenzene	96.650	5.0	100.0	0	96.7	67	137	100.2	3.56	20	
1,2,3-Trichloropropane	98.650	5.0	100.0	0	98.6	73	124	99.45	0.808	20	
1,2,4-Trichlorobenzene	92.450	5.0	100.0	0	92.5	66	134	96.55	4.34	20	
1,2,4-Trimethylbenzene	92.550	5.0	100.0	0	92.6	74	132	94.50	2.09	20	
1,2-Dibromo-3-chloropropane	93.550	10	100.0	0	93.6	50	132	103.2	9.81	20	
1,2-Dibromoethane	93.450	5.0	100.0	0	93.4	80	121	92.60	0.914	20	
1,2-Dichlorobenzene	95.950	5.0	100.0	0	96.0	71	122	97.95	2.06	20	

Qualifiers:

B Analyte detected in the associated Method Blank
E Value above quantitation range
H Holding times for preparation or analysis exceeded
J Analyte detected below quantitation limits
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S Spike/Surrogate outside of limits due to matrix interference
DO Surrogate Diluted Out
Calculations are based on raw values

CLIENT: CH2MHill
Work Order: N032948
Project: SFPP Norwalk

ANALYTICAL QC SUMMARY REPORT

TestCode: 8260_WP_SFPP

Sample ID: **N032948-001A-MSD** SampType: **MSD** TestCode: **8260_WP_SF** Units: **ug/L** Prep Date: RunNo: **129920**
Client ID: **ZZZZZZ** Batch ID: **CA18VW038** TestNo: **EPA 8260B** Analysis Date: **11/13/2018** SeqNo: **3203487**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,2-Dichloroethane	94.150	2.5	100.0	0	94.2	69	132	101.9	7.86	20	
1,2-Dichloropropane	98.200	5.0	100.0	0	98.2	75	125	95.35	2.94	20	
1,3,5-Trimethylbenzene	91.300	5.0	100.0	0	91.3	74	131	95.10	4.08	20	
1,3-Dichlorobenzene	94.350	5.0	100.0	0	94.4	75	124	99.75	5.56	20	
1,3-Dichloropropane	102.500	5.0	100.0	0	103	73	126	101.6	0.931	20	
1,4-Dichlorobenzene	91.600	5.0	100.0	0	91.6	74	123	96.15	4.85	20	
2,2-Dichloropropane	87.300	5.0	100.0	0	87.3	69	137	96.45	9.96	20	
2-Butanone	750.800	50	1000	0	75.1	49	136	901.0	18.2	20	
2-Chlorotoluene	97.500	5.0	100.0	0	97.5	73	126	99.70	2.23	20	
4-Chlorotoluene	104.050	5.0	100.0	0	104	74	128	107.6	3.40	20	
4-Isopropyltoluene	94.850	5.0	100.0	0	94.8	73	130	95.20	0.368	20	
4-Methyl-2-pentanone	987.650	50	1000	0	98.8	58	134	1084	9.26	20	
Acetone	505.250	50	1000	0	50.5	40	135	535.5	5.81	20	
Benzene	88.150	5.0	100.0	0	88.2	81	122	92.60	4.92	20	
Bromobenzene	94.050	5.0	100.0	0	94.0	76	124	98.05	4.16	20	
Bromochloromethane	85.600	5.0	100.0	0	85.6	65	129	90.80	5.90	20	
Bromodichloromethane	88.250	5.0	100.0	0	88.2	76	121	93.20	5.46	20	
Bromoform	93.550	5.0	100.0	0	93.6	69	128	99.75	6.41	20	
Bromomethane	94.850	5.0	100.0	0	94.8	53	141	89.20	6.14	20	
Carbon disulfide	83.300	5.0	100.0	0	83.3	75	125	84.75	1.73	20	
Carbon tetrachloride	88.700	2.5	100.0	0	88.7	66	138	96.25	8.16	20	
Chlorobenzene	95.050	5.0	100.0	0	95.1	81	122	92.25	2.99	20	
Chloroethane	92.200	5.0	100.0	0	92.2	58	133	89.45	3.03	20	
Chloroform	87.000	5.0	100.0	0	87.0	69	128	89.00	2.27	20	
Chloromethane	89.950	5.0	100.0	0	90.0	56	131	89.35	0.669	20	
cis-1,2-Dichloroethene	81.000	5.0	100.0	0	81.0	72	126	81.75	0.922	20	
cis-1,3-Dichloropropene	95.900	5.0	100.0	0	95.9	69	131	95.60	0.313	20	
Di-isopropyl ether	91.050	5.0	100.0	3.850	87.2	70	130	89.85	1.33	20	
Dibromochloromethane	93.850	5.0	100.0	0	93.8	66	133	97.45	3.76	20	
Dibromomethane	93.750	5.0	100.0	0	93.8	76	125	97.50	3.92	20	

Qualifiers:

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike/Surrogate outside of limits due to matrix interference
- DO Surrogate Diluted Out
- Calculations are based on raw values

CLIENT: CH2MHill
Work Order: N032948
Project: SFPP Norwalk

ANALYTICAL QC SUMMARY REPORT

TestCode: 8260_WP_SFPP

Sample ID: **N032948-001A-MSD** SampType: **MSD** TestCode: **8260_WP_SF** Units: **ug/L** Prep Date: RunNo: **129920**
Client ID: **ZZZZZZ** Batch ID: **CA18VW038** TestNo: **EPA 8260B** Analysis Date: **11/13/2018** SeqNo: **3203487**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane	104.150	5.0	100.0	0	104	53	153	107.5	3.17	20	
Ethyl tert-butyl ether	94.900	5.0	100.0	0	94.9	70	130	97.45	2.65	20	
Ethylbenzene	98.800	5.0	100.0	0	98.8	73	127	98.60	0.203	20	
Freon-113	75.450	5.0	100.0	0	75.4	75	125	81.30	7.46	20	
Hexachlorobutadiene	88.550	5.0	100.0	0	88.6	67	131	92.80	4.69	20	
Isopropylbenzene	98.150	5.0	100.0	0	98.2	75	127	101.5	3.31	20	
m,p-Xylene	206.000	5.0	200.0	0	103	76	128	207.4	0.701	20	
Methylene chloride	91.200	10	100.0	0	91.2	63	137	81.70	11.0	20	
MTBE	89.900	5.0	100.0	0	89.9	65	123	92.00	2.31	20	
n-Butylbenzene	99.800	5.0	100.0	0	99.8	69	137	102.8	2.91	20	
n-Propylbenzene	104.500	5.0	100.0	0	104	72	129	107.6	2.92	20	
Naphthalene	83.200	5.0	100.0	0	83.2	54	138	85.00	2.14	20	
o-Xylene	100.750	5.0	100.0	0	101	80	121	101.0	0.248	20	
sec-Butylbenzene	104.350	5.0	100.0	0	104	72	127	105.6	1.24	20	
Styrene	121.450	5.0	100.0	0	121	65	134	121.2	0.206	20	
Tert-amyl methyl ether	93.550	5.0	100.0	0	93.6	70	130	101.4	8.05	20	
Tert-Butanol	533.850	25	500.0	0	107	70	130	625.2	15.8	20	
tert-Butylbenzene	102.950	5.0	100.0	0	103	70	129	104.6	1.64	20	
Tetrachloroethene	90.200	5.0	100.0	0	90.2	66	128	94.30	4.44	20	
Toluene	91.650	10	100.0	0	91.7	77	122	94.25	2.80	20	
trans-1,2-Dichloroethene	82.700	5.0	100.0	0	82.7	63	137	80.20	3.07	20	
trans-1,3-Dichloropropene	100.950	5.0	100.0	0	101	59	135	108.6	7.26	20	
Trichloroethene	88.400	5.0	100.0	0	88.4	70	127	91.55	3.50	20	
Trichlorofluoromethane	95.200	5.0	100.0	0	95.2	57	129	91.50	3.96	20	
Vinyl chloride	91.950	2.5	100.0	0	92.0	50	134	94.15	2.36	20	
Xylenes, Total	306.750	10	300.0	0	102	75	125	308.5	0.553	20	
Surr: 1,2-Dichloroethane-d4	119.750		125.0		95.8	72	119		0		
Surr: 4-Bromofluorobenzene	134.650		125.0		108	76	119		0		
Surr: Dibromofluoromethane	120.900		125.0		96.7	85	115		0		
Surr: Toluene-d8	125.150		125.0		100	81	120		0		

Qualifiers:

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- H Holding times for preparation or analysis exceeded
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike/Surrogate outside of limits due to matrix interference
- DO Surrogate Diluted Out

Calculations are based on raw values

Asset Laboratories
3151 W. Post Road
Las Vegas, NV 89118
Tel: 702-307-2659 Fax: 702-307-2691
Marlon Cartin (marlon@assetlaboratories.com)

CHAIN OF CUSTODY RECORD

DATE: 11-12-18
PAGE: 1 of 1

Section A Required Client Information:

Company:	Kinder Morgan Energy Partners Attention: Steve Defibaugh
Address:	1100 Town & Country Road Orange, CA 92868
Email To:	steve_defibaugh@kindermorgan.com eric.davis@ch2m.com
Phone: 714-560-4802	Fax: 714-560-4801

Section B Required Project Information:

Report To:	Eric Davis
Copy To:	Steve Defibaugh
Purchase Order No.:	
Project Name:	SFPP Norwalk

Section C Invoice Information:

Attention:	Steve Defibaugh - Ref. AFE# 81195
Company Name:	Kinder Morgan Energy Partners
Address:	1100 Town & Country Road Orange, CA 92868
ATL Project Manager:	Marlon Cartin

Section D Sampler Information:

Sampler Name:	James Dyer Nick Orlowski
Sampler Signature:	
Sample Date:	11-12-18

Section E Required Sample Information

ITEM #	SAMPLE ID	LOCATION/ DESCRIPTION	MATRIX	SAMPLE TYPE (G=GRAB C=COMP)	SAMPLING DATE	SAMPLING TIME	TOTAL # OF CONTAINERS	SAMPLE TEMPERATURE (°F)	Analysis Test	Full VOCs + Oxygenates List (8260B)	TPH-gas (8015B)	TPH-d, TPH-oil, Total TPH (8015B)	Comments
	CONTAINER TYPE									V	V	A	
	# OF CONTAINERS									3	3	3	
	PRESERVATIVE									H	H	–	
	VOLUME (mL)									40	40	1000	
1	INF-11-12	INFLUENT	WW	G	11-12-18	1115	9			X	X	X	N032948-01
2													
3													
4													
5													
6													
7													
8													
9													
10													
11													
12													

11-12-18

Relinquished by (Signature and Printed Name):	Date / Time	Relinquished by (Signature and Printed Name):	Date / Time
	11-12-18 1115	K Sevilla	11/12/18 1115
K Sevilla	11/12/18 1530	M Sanford	11/12/18 1530
M Sanford	11/12/18 16:17		11/13/18 0819

Turn Around Time (TAT):
- ☐ A = Same Day
- ☐ B = 24 Hours
- ☐ C = 48 Hours
- ☐ D = 72 Hours
- ☐ E = 5 Workdays
- ☐ E = 10 Workdays

TAT Starts at 8 AM the following day if samples received after 3:00 PM.

Special Instruction:
Fr #1 1.9°C

Matrix:		
W = Water	WW = Wastewater	
O = Oil	P = Product	S = Soil
Others/Specify:		

Preservatives:		
H = HCl	N = HNO3	S = H2SO4
Z = Zn(AC)2	O = NaOH	T = Na2S2O3
Others/Specify:		

Container Type:			
T = Tube	V = VOA	P = Pint	A = Amber
J = Jar	B = Tedlar	G = Glass	
M = Metal	P = Plastic	C = Can	

ASSET Laboratories

Please review the checklist below. Any NO signifies non-compliance. Any non-compliance will be noted and must be understood as having an impact on the quality of the data. All tests will be performed as requested regardless of any compliance issues.

If you have any questions or further instruction, please contact our Project Coordinator at (702) 307-2659.

Cooler Received/Opened On:	11/12/2018	Workorder:	N032948
Rep sample Temp (Deg C):	1.9	IR Gun ID:	1
Temp Blank:	☑ Yes ☐ No		
Carrier name:	Golden State Overnight		
Last 4 digits of Tracking No.:	2089	Packing Material Used:	Bubble Wrap
Cooling process:	☑ Ice ☐ Ice Pack ☐ Dry Ice ☐ Other ☐ None		

Sample Receipt Checklist

1. Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
2. Custody seals intact, signed, dated on shippping container/cooler?	Yes ☐	No ☐	Not Present ☑
3. Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
4. Chain of custody present?	Yes ☑	No ☐	
5. Sampler's name present in COC?	Yes ☑	No ☐	
6. Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
7. Chain of custody agrees with sample labels?	Yes ☑	No ☐	
8. Samples in proper container/bottle?	Yes ☑	No ☐	
9. Sample containers intact?	Yes ☑	No ☐	
10. Sufficient sample volume for indicated test?	Yes ☑	No ☐	
11. All samples received within holding time?	Yes ☑	No ☐	
12. Temperature of rep sample or Temp Blank within acceptable limit?	Yes ☑	No ☐	NA ☐
13. Water - VOA vials have zero headspace?	Yes ☑	No ☐	NA ☐
14. Water - pH acceptable upon receipt? Example: pH > 12 for (CN,S); pH<2 for Metals	Yes ☐	No ☐	NA ☑
15. Did the bottle labels indicate correct preservatives used?	Yes ☑	No ☐	NA ☐
16. Were there Non-Conformance issues at login?	Yes ☐	No ☐	NA ☑
Was Client notified?	Yes ☐	No ☐	NA ☑

Comments:

For:

Checklist Completed By: RM 11/13/2018

Reviewed By: **11/13/18**

ASSET Laboratories

WORK ORDER Summary

13-Nov-18

WorkOrder: N032948

Client ID: CH2HI03

Project: SFPP Norwalk **QC Level:** RTNE **Date Received:** 11/12/2018

Comments:

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N032948-001A	INF-11-12	11/12/2018 11:15:00 AM	11/19/2018	Wastewater	EPA 8260B	VOLATILE ORGANIC COMPOUNDS BY GC/MS	☐	☐	☐	VW
N032948-001B			11/19/2018		EPA 8015B	GASOLINE RANGE ORGANICS BY GC/FID	☐	☐	☑	SUB
N032948-001C			11/19/2018		EPA 3510C	SEPARATORY FUNNEL EXTRACTION: EXTRACTABLE FUELS	☐	☐	☑	SUB
			11/19/2018		EPA 8015B	TPH EXTRACTABLE BY GC/FID	☐	☐	☑	SUB
			11/19/2018		EPA 8015B	Total TPH	☐	☐	☑	SUB
N032948-002A	FOLDER	11/19/2018	11/19/2018		Folder	Folder	☐	☐	☐	LAB
			11/19/2018		Folder	Folder	☐	☐	☐	LAB

ASSET LABORATORIES
ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES

SUBCONTRACT TO: BC Labs

CHAIN OF CUSTODY RECORD

Contact us:
Nevada: 3151 W. Post Road, Las Vegas, NV 89118
P: 702.307.2659 F: 702.3072691
California: 11110 Artesia Blvd., Ste B, Cerritos, CA 90703
P: 562.219.7435 F: 562.219.7436
www.assetlaboratories.com

Client:	ASSET Laboratories
Address:	11110 Artesia Blvd Ste B
Address:	Cerritos, CA 90703
Phone:	562.219.7435
Fax:	562.219.7436
Submitted By:	Molky Brar
Title:	
Signature:	
Date:	
Project Name:	SFPP NORWALK
Project Number:	

I hereby authorize ASSET Labs to perform the tests indicated below:

Report to:	Marlon Cartin
Company:	ASSET Laboratories
Email:	molky@assetlaboratories.com reports@assetlaboratories.com
Address:	3151 W POST RD LAS VEGAS, NV 89118
Phone:	702.307.2659
Fax:	702.307.2691
Sampled by:	
Signature:	

I attest to the validity and authenticity of this sample. I am aware that tampering with or intentionally mislabeling the sample location, date or time of collection is considered fraud and may be grounds for legal action.

Bill to:	Elvira Allegaert/Accounts Payable
Address:	11110 Artesia Blvd Ste B Cerritos, CA 90703
Email to:	elvira@assetlaboratories.com
PO# / WO#	~~N0921~~ ~~N32049A~~ N32448A
Phone:	562.219.7435
Fax:	562.219.7436

EDD Requirement	
Excel EDD	☐
Geotracker	☐
Labspec	☐
Others	☐
Specify:	
Global ID:	

QA/QC	
RTNE	☐
RWQCB	☐
CalTrans	☐
Level III	☐
LEVEL IV	☐
Regulatory	☐
Specify State:	

Sample Receipt Condition	Y	N
1. Chilled	☐	☐
2. Headspace	☐	☐
3. Container Intact	☐	☐
4. Seal Present	☐	☐
5. IR number		
6. Method of Cooling		
Sample Temp:		

Matrix: Ground ☐ Sediment ☐ Potable ☐ Soil ☐ NPDES ☐ Other Solid ☐ Surface ☐

Courier:
Tracking No.

Item No.	Laboratory Work Order No.	Sample ID/Location	Date	Time	Water	Solid	Others	TPH-gas (8015B)	TPH-d, TPH-oil, Total TPH (8…	Turn Around Time	No. of container	Container Type	PRESERVATION	Remarks
1		INF-11-12	11/12/18	11:15	WW			X	X	B	5	V A	H C	~~DUE 11/14/18~~
2														Normal TAT
3														
4														
5														
6														
7														
8														
9														
10														
11														
12														

Relinquished by (Signature and Printed Name):	Date / Time	Received by (Signature and Printed Name):	Date / Time
[signature]	11/12/18 17:33		

Turn Around Time (TAT)

- ☐ A < 24 Hrs or Same Day TAT
- ☑ B = Next Workday
- ☐ C = 2 Workdays
- ☐ D = 3 Workdays
- ☐ E = Routine 5-7 Workdays

TAT Starts at 8 AM the following day if samples received after 3:00 PM.

Special Instruction:

Please analyze for TPHgas C4-C12, DRO C13-C22, ORO C23+. Please also report Total TPH.
EDD requirement "CH2MHill" labspec 7.
"J " flagged down to MDL format.

Please cc report to Lucille Golosinda at lucille.golosinda@assetlaboratories.com

Terms

1. All samples will be disposed in 45 days upon receipt and records will be destroyed in 5 years upon submission of final report.
2. Regular TAT is 5-7 business days, surcharges will apply for rush analysis
   Less than 24 Hrs = 200% Next Day = 100% 2 Workdays = 50% 3 Workdays = 35% 4 Workdays = 20%
3. Custom EDD formats will be an additional 3% of the total project price.
4. Add 10% surcharge for Level III Data Packages, 15% for Level IV Data Packages. Surcharge applied on total project price.
5. Trip Blanks and Equipment Blanks are billable sample.
6. ASSET Laboratories is not responsible for samples collected using incorrect methodology.
7. Terms are net 30 Days.
8. All reports are submitted in electronic format. Please inform ASSET Laboratories if hard copy of report is needed.
9. For subcontract analysis, TAT and Surcharges will vary.

Preservatives:			
H = HCl	N = HNO_3	S = H_2SO_4	C = 4°C
Z = Zn(AC)$_2$	O = NaOH	T = $Na_2S_2O_3$	
Others/Specify:			

Container Type:		
T = Tube	V = VOA	P = Pint
J = Jar	B = Tedlar	G = Glass
M = Metal	P = Plastic	C = Can

White = Laboratory Copy
Yellow = Customer's Copy

GSO | a GLS company GLS

800-322-5555
www.gso.com

Ship From
ASSET LABORATORIES
MOLKY BRAR
11110 ARTESIA BLVD. SUITE B
CERRITOS, CA 90703

Ship To
ASSET LABORATORIES
MARLON CARTIN
3151 W. POST RD.,
LAS VEGAS, NV 89118

COD: $0.00
Weight: 0 lb(s)
Reference:

Delivery Instructions:
HOLD FOR PICK-UP
Signature Type: STANDARD

Tracking #: 542752089

PDS

LVS A

LAS VEGAS

C89102A

93648993

Print Date: 11/12/2018 6:30 PM

Package 1 of 2

IR #1 1.9°C

LABEL INSTRUCTIONS:

Do not copy or reprint this label for additional shipments - each package must have a unique barcode.
Step 1: Use the "Print Label" button on this page to print the shipping label on a laser or inkjet printer.
Step 2: Fold this page in half.
Step 3: Securely attach this label to your package and do not cover the barcode.

TERMS AND CONDITIONS:

By giving us your shipment to deliver, you agree to all of the GSO service terms & conditions including, but not limited to; limits of liability, declared value conditions, and claim procedures which are available on our website at www.gso.com.

Date of Report: 11/21/2018

Marlon Cartin

ASSET Laboratories- Las Vegas
3151-3153 W. Post Rd
Las Vegas, NV 89118

Client Project:	N032948: SFPP NORWALK
BCL Project:	CH2MHILL
BCL Work Order:	1835569
Invoice ID:	B323068

Enclosed are the results of analyses for samples received by the laboratory on 11/13/2018. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Contact Person: Vanessa Sandoval
Client Service Rep

Stuart Buttram
Technical Director

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Laboratory Control Sample 9
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Chain of Custody and Cooler Receipt Form for 1835569 Page 1 of 2

ASSET LABORATORIES
ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES

SUBCONTRACT TO: BC Labs

CHAIN OF CUSTODY RECORD

18-355569

Page 1 of 1

Contact us:
Nevada: 3151 W. Post Road, Las Vegas, NV 89118
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California: 11110 Artesia Blvd., Ste B, Cerritos, CA 90703
P: 562.219.7435 F: 562.219.7436
www.assetlaboratories.com

Client: ASSET Laboratories	Report to: Marlon Cartin	Bill to: Elvira Allegaert/Accounts Payable	
Address: 11110 Artesia Blvd Ste B	Company: ASSET Laboratories	Address: 11110 Artesia Blvd Ste B	
Address: Cerritos, CA 90703	Email: molky@assetlaboratories.com reports@assetlaboratories.com	Cerritos, CA 90703	
Phone: 562.219.7435 Fax: 562.219.7436	Address: 3151 W POST RD	Email to: elvira@assetlaboratories.com	PO# N32148A
Submitted By: Molky Brar	LAS VEGAS, NV 89118	Phone: 562.219.7435	Fax: 562.219.7436
Title:	Phone: 702.307.2659 Fax: 702.307.2691		
Signature: Date:	Sampled by:		
I hereby authorize ASSET Labs to perform the tests indicated below:	I attest to the validity and authenticity of this sample. I am aware that tampering with or intentionally mislabeling the sample location, date or time of collection is considered fraud and may be grounds for legal action. Signature		
Project Name: SFPP NORWALK			
Project Number:			

EDD Requirement		QA/QC		Sample Receipt Condition	Y	N
Excel EDD	☐	RTNE	☐			
Geotracker	☐	RWQCB	☐	1. Chilled	☐	☐
Labspec	☐	CalTrans	☐	2. Headspace	☐	☐
Others	☐	Level III	☐	3. Container Intact	☐	☐
Specify:		LEVEL IV	☐	4. Seal Present	☐	☐
		Regulatory	☐	5. IR number		
Global ID:		Specify State:		6. Method of Cooling		
				Sample Temp:		

Matrix: Ground ☐ Sediment ☐ Potable ☐ Soil ☐ NPDES ☐ Other Solid ☐ Surface ☐

Courier:
Tracking No.

Item No.	Laboratory Work Order No.	Sample ID/Location	Date	Time	Water	Solid	Others	TPH-gas (8015B)	TPH-d, TPH-oil, Total TPH (8	Turn Around Time	No. of container	Container Type	PRESERVATION	Remarks
1	1	INF-11-12	11/12/18	11:15	WW			X	X	B	5	V A	H C	DUE 11/14/18
2														
3														
4														
5														
6														
7														
8														
9														
10														
11														
12														

CHK BY / DISTRIBUTION / SUB-OUT ☐

RUSH!

Relinquished by (Signature and Printed Name)	Date / Time	Received by (Signature and Printed Name)	Date / Time
[signature]	11/12/18 17:33	[signature]	11-13-18 09:20

Turn Around Time (TAT)
- ☐ A < 24 Hrs or Same Day TAT
- ☑ B = Next Workday
- ☐ C = 2 Workdays
- ☐ D = 3 Workdays
- ☐ E = Routine 5-7 Workdays

TAT Starts at 8 AM the following day if samples received after 3:00 PM.

Special Instruction:
Please analyze for TPHgas C4-C12, DRO C13-C22, ORO C23+. Please also report Total TPH.
EDD requirement "CH2MHill" labspec 7.
"J " flagged down to MDL format.

Please cc report to Lucille Golosinda at lucille.golosinda@assetlaboratories.com

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2. Regular TAT is 5-7 business days, surcharges will apply for rush analysis: Less than 24 Hrs = 200% Next Day = 100% 2 Workdays = 50% 3 Workdays = 25% 4 Workdays = 10%
3. Custom EDD formats will be an additional 3% of the total project price.
4. [illegible]
5. Trip Blanks and Equipment Blanks are billable sample.
6. ASSET Laboratories is not responsible for samples collected using incorrect methodology.
7. Terms are net 30 Days.
8. All reports are submitted in electronic format. Please inform ASSET Laboratories if hard copy of report is needed.
9. For subcontract analysis, TAT and Surcharges will vary.

Preservatives:

H = HCl	N = HNO_3	S = H_2SO_4	C = 4°C
Z = $Zn(AC)_2$	O = NaOH	T = $Na_2S_2O_3$	
Others/Specify:			

Container Type:

T = Tube	V = VOA	P = Pint
J = Jar	B = Tedlar	G = Glass
M = Metal	P = Plastic	C = Can

White = Laboratory Copy Yellow = Customer's Copy

Chain of Custody and Cooler Receipt Form for 1835569 Page 2 of 2

BC LABORATORIES INC. COOLER RECEIPT FORM Page 1 Of 1

Submission #: 18-35569

SHIPPING INFORMATION	SHIPPING CONTAINER	FREE LIQUID
Fed Ex ☐ UPS ☐ Ontrac ☐ Hand Delivery ☐ BC Lab Field Service ☐ Other ☐ (Specify)	Ice Chest ☒ None ☐ Box ☐ Other ☐ (Specify)	YES ☐ NO ☐ W / S

Refrigerant: Ice ☑ Blue Ice ☐ None ☐ Other ☐ Comments:

Custody Seals: Ice Chest ☐ Intact? Yes ☐ No ☐ | Containers ☐ Intact? Yes ☐ No ☐ | None ☒ Comments:

All samples received? Yes ☑ No ☐ All samples containers intact? Yes ☑ No ☐ Description(s) match COC? Yes ☑ No ☐

COC Received ☒ YES ☐ NO

Emissivity: 95 Container: Amber Thermometer ID: 254 Date/Time 11-13-18

Temperature: (A) 4.2 °C / (C) 4.4 °C Analyst Init SD 09:20

SAMPLE CONTAINERS	SAMPLE NUMBERS 1	2	3	4	5	6	7	8	9	10
QT PE UNPRES										
4oz / 8oz / 16oz PE UNPRES										
2oz Cr^{+6}										
QT INORGANIC CHEMICAL METALS										
INORGANIC CHEMICAL METALS 4oz / 8oz / 16oz										
PT CYANIDE										
PT NITROGEN FORMS										
PT TOTAL SULFIDE										
2oz. NITRATE / NITRITE										
PT TOTAL ORGANIC CARBON										
PT CHEMICAL OXYGEN DEMAND										
PtA PHENOLICS										
40ml VOA VIAL TRAVEL BLANK										
40ml VOA VIAL	MB									
QT EPA 1664										
PT ODOR										
RADIOLOGICAL										
BACTERIOLOGICAL										
40 ml VOA VIAL- 504										
QT EPA 508/608/8080										
QT EPA 515.1/8150										
QT EPA 525										
QT EPA 525 TRAVEL BLANK										
40ml EPA 547										
40ml EPA 531.1										
8oz EPA 548										
QT EPA 549										
QT EPA 8015M										
QT EPA 8270										
8oz / 16oz / 32oz AMBER	LCS									
8oz / 16oz / 32oz JAR										
SOIL SLEEVE										
PCB VIAL										
PLASTIC BAG										
TEDLAR BAG										
FERROUS IRON										
ENCORE										
SMART KIT										
SUMMA CANISTER										

Comments:

Sample Numbering Completed By: JM Date/Time: 11/13/18 1011 Rev 21 05/23/2016

ASSET Laboratories- Las Vegas
3151-3153 W. Post Rd
Las Vegas, NV 89118

Reported: 11/21/2018 14:30
Project: CH2MHILL
Project Number: N032948: SFPP NORWALK
Project Manager: Marlon Cartin

Laboratory / Client Sample Cross Reference

Laboratory	Client Sample Information			
1835569-01	**COC Number:**	---	**Receive Date:**	11/13/2018 09:20
	Project Number:	---	**Sampling Date:**	11/12/2018 11:15
	Sampling Location:	---	**Sample Depth:**	---
	Sampling Point:	INF-11-12	**Lab Matrix:**	Water
	Sampled By:	---	**Sample Type:**	Wastewater

ASSET Laboratories- Las Vegas
3151-3153 W. Post Rd
Las Vegas, NV 89118

Reported: 11/21/2018 14:30
Project: CH2MHILL
Project Number: N032948: SFPP NORWALK
Project Manager: Marlon Cartin

Purgeable Aromatics and Total Petroleum Hydrocarbons

BCL Sample ID: 1835569-01 | **Client Sample Name:** INF-11-12, 11/12/2018 11:15:00AM

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Gasoline Range Organics (C4 - C12)	ND	ppm	0.050	0.022	EPA-8015B	ND	U	1
a,a,a-Trifluorotoluene (FID Surrogate)	90.8	%	70 - 130 (LCL - UCL)		EPA-8015B			1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID
1	EPA-8015B	11/13/18 11:33	11/13/18 12:11	JBR	GC-V9	1	B029851

ASSET Laboratories- Las Vegas
3151-3153 W. Post Rd
Las Vegas, NV 89118

Reported: 11/21/2018 14:30
Project: CH2MHILL
Project Number: N032948: SFPP NORWALK
Project Manager: Marlon Cartin

Total Petroleum Hydrocarbons

BCL Sample ID: 1835569-01 | **Client Sample Name:** INF-11-12, 11/12/2018 11:15:00AM

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
TPH - Diesel (C10 - C23)	**120**	**ug/L**	**40**	**6.8**	**EPA-8015CC**	ND		1
TPH - Motor Oil (C23 - C36)	ND	ug/L	100	13	EPA-8015CC	ND	U	1
Tetracosane (Surrogate)	92.7	%	37 - 134 (LCL - UCL)		EPA-8015CC			1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID
1	EPA-8015CC	11/13/18 11:30	11/14/18 02:25	RCC	GC-13	1.064	B029981

ASSET Laboratories- Las Vegas
3151-3153 W. Post Rd
Las Vegas, NV 89118

Reported: 11/21/2018 14:30
Project: CH2MHILL
Project Number: N032948: SFPP NORWALK
Project Manager: Marlon Cartin

Purgeable Aromatics and Total Petroleum Hydrocarbons

Quality Control Report - Method Blank Analysis

Constituent	QC Sample ID	MB Result	Units	PQL	MDL	Lab Quals
QC Batch ID: B029851						
Gasoline Range Organics (C4 - C12)	B029851-BLK1	ND	ppm	0.050	0.022	U
a,a,a-Trifluorotoluene (FID Surrogate)	**B029851-BLK1**	**88.4**	%	**70 - 130 (LCL - UCL)**		

ASSET Laboratories- Las Vegas
3151-3153 W. Post Rd
Las Vegas, NV 89118

Reported: 11/21/2018 14:30
Project: CH2MHILL
Project Number: N032948: SFPP NORWALK
Project Manager: Marlon Cartin

Purgeable Aromatics and Total Petroleum Hydrocarbons

Quality Control Report - Laboratory Control Sample

Constituent	QC Sample ID	Type	Result	Spike Level	Units	Percent Recovery	RPD	Control Limits Percent Recovery	Control Limits RPD	Lab Quals
QC Batch ID: B029851										
Gasoline Range Organics (C4 - C12)	B029851-BS1	LCS	1.1264	1.0000	ppm	113		85 - 115		
a,a,a-Trifluorotoluene (FID Surrogate)	B029851-BS1	LCS	0.034430	0.040000	ppm	86.1		70 - 130		

ASSET Laboratories- Las Vegas
3151-3153 W. Post Rd
Las Vegas, NV 89118

Reported: 11/21/2018 14:30
Project: CH2MHILL
Project Number: N032948: SFPP NORWALK
Project Manager: Marlon Cartin

Purgeable Aromatics and Total Petroleum Hydrocarbons

Quality Control Report - Precision & Accuracy

Constituent	Type	Source Sample ID	Source Result	Result	Spike Added	Units	RPD	Percent Recovery	Control Limits RPD	Control Limits Percent Recovery	Lab Quals
QC Batch ID: B029851	Used client sample: N										
Gasoline Range Organics (C4 - C12)	MS	1833163-59	ND	1.0901	1.0000	ppm		109		70 - 130	
	MSD	1833163-59	ND	1.0407	1.0000	ppm	4.6	104	20	70 - 130	
a,a,a-Trifluorotoluene (FID Surrogate)	MS	1833163-59	ND	0.034914	0.040000	ppm		87.3		70 - 130	
	MSD	1833163-59	ND	0.036765	0.040000	ppm	5.2	91.9		70 - 130	

ASSET Laboratories- Las Vegas
3151-3153 W. Post Rd
Las Vegas, NV 89118

Reported: 11/21/2018 14:30
Project: CH2MHILL
Project Number: N032948: SFPP NORWALK
Project Manager: Marlon Cartin

Total Petroleum Hydrocarbons

Quality Control Report - Method Blank Analysis

Constituent	QC Sample ID	MB Result	Units	PQL	MDL	Lab Quals
QC Batch ID: B029981						
TPH - Diesel (C10 - C23)	B029981-BLK1	ND	ug/L	40	6.8	U
TPH - Motor Oil (C23 - C36)	B029981-BLK1	ND	ug/L	100	13	U
Tetracosane (Surrogate)	**B029981-BLK1**	**99.9**	%	**37 - 134 (LCL - UCL)**		

ASSET Laboratories- Las Vegas
3151-3153 W. Post Rd
Las Vegas, NV 89118

Reported: 11/21/2018 14:30
Project: CH2MHILL
Project Number: N032948: SFPP NORWALK
Project Manager: Marlon Cartin

Total Petroleum Hydrocarbons

Quality Control Report - Laboratory Control Sample

Constituent	QC Sample ID	Type	Result	Spike Level	Units	Percent Recovery	RPD	Control Limits Percent Recovery	Control Limits RPD	Lab Quals
QC Batch ID: B029981										
TPH - Diesel (C10 - C23)	B029981-BS1	LCS	371.14	500.00	ug/L	74.2		52 - 128		
Tetracosane (Surrogate)	B029981-BS1	LCS	17.262	20.000	ug/L	86.3		37 - 134		

ASSET Laboratories- Las Vegas
3151-3153 W. Post Rd
Las Vegas, NV 89118

Reported: 11/21/2018 14:30
Project: CH2MHILL
Project Number: N032948: SFPP NORWALK
Project Manager: Marlon Cartin

Total Petroleum Hydrocarbons

Quality Control Report - Precision & Accuracy

Constituent	Type	Source Sample ID	Source Result	Result	Spike Added	Units	RPD	Percent Recovery	Control Limits RPD	Control Limits Percent Recovery	Lab Quals
QC Batch ID: B029981	Used client sample: N										
TPH - Diesel (C10 - C23)	MS	1833163-40	ND	430.51	500.00	ug/L		86.1		50 - 127	
	MSD	1833163-40	ND	390.09	500.00	ug/L	9.9	78.0	30	50 - 127	
Tetracosane (Surrogate)	MS	1833163-40	ND	19.862	20.000	ug/L		99.3		37 - 134	
	MSD	1833163-40	ND	17.752	20.000	ug/L	11.2	88.8		37 - 134	

ASSET Laboratories- Las Vegas
3151-3153 W. Post Rd
Las Vegas, NV 89118

Reported: 11/21/2018 14:30
Project: CH2MHILL
Project Number: N032948: SFPP NORWALK
Project Manager: Marlon Cartin

Notes And Definitions

MDL	Method Detection Limit
ND	Analyte Not Detected
PQL	Practical Quantitation Limit
U	Analyte Not Detected at or above the reporting limit (CLP Flag)

January 02, 2019

Eric Davis
CH2MHill
1000 Wilshire Blvd.
Los Angeles, CA 90017

TEL:
FAX:

Workorder No.: N033444

RE: SFPP Norwalk

Attention: Eric Davis

Enclosed are the results for sample(s) received on December 14, 2018 by ASSET Laboratories. The sample(s) are tested for the parameters as indicated in the enclosed chain of custody in accordance with the applicable laboratory certifications.

Thank you for the opportunity to service the needs of your company.

Please feel free to call me at (702) 307-2659 if I can be of further assistance to your company.

Sincerely,

Quennie Manimtim
Laboratory Director

CLIENT: CH2MHill
Project: SFPP Norwalk
Lab Order: N033444

CASE NARRATIVE

SAMPLE RECEIVING/GENERAL COMMENTS:

All sample containers were received intact with proper chain of custody documentation.

Information on sample receipt conditions including discrepancies can be found in attached Sample Receipt Checklist Form.

Cooler temperature and sample preservation were verified upon receipt of samples if applicable.

Sample was analyzed within method holding time.

Results were J-Flag. "J" is used to flag those results that are between the PQL (Practical Quantitation Limit) and the calculated MDL (Method Detection Limit). Results that are "J" Flagged are estimated values since it becomes difficult to accurately quantitate the analyte near the MDL.

Subcontracted Analyses:

EPA 8015B for DRO, ORO and GRO was subcontracted to BC Laboratories, Bakersfield, CA. Total TPH was calculated and reported in the lab based on Subcon Lab's result.

ASSET Laboratories

Date: *02-Jan-19*

CLIENT: CH2MHill
Project: SFPP Norwalk
Lab Order: N033444
Contract No:

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N033444-001A	INF-12-14	Wastewater	12/14/2018 12:55:00 PM	12/14/2018	1/2/2019
N033444-001B	INF-12-14	Wastewater	12/14/2018 12:55:00 PM	12/14/2018	1/2/2019
N033444-001C	INF-12-14	Wastewater	12/14/2018 12:55:00 PM	12/14/2018	1/2/2019

CLIENT: CH2MHill
Lab Order: N033444
Project: SFPP Norwalk
Lab ID: N033444-001

Client Sample ID: INF-12-14
Collection Date: 12/14/2018 12:55:00 PM
Matrix: WASTEWATER

VOLATILE ORGANIC COMPOUNDS BY GC/MS

EPA 8260B

RunID: **CA01638-MS10_181218A** QC Batch: **CA18VW044** PrepDate Analyst: **GAC**

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
1,1,1,2-Tetrachloroethane	ND	0.38	1.0		ug/L	1	12/18/2018 07:42 PM
1,1,1-Trichloroethane	ND	0.38	1.0		ug/L	1	12/18/2018 07:42 PM
1,1,2,2-Tetrachloroethane	ND	0.34	1.0		ug/L	1	12/18/2018 07:42 PM
1,1,2-Trichloroethane	ND	0.29	1.0		ug/L	1	12/18/2018 07:42 PM
1,1-Dichloroethane	ND	0.45	0.50		ug/L	1	12/18/2018 07:42 PM
1,1-Dichloroethene	ND	0.34	1.0		ug/L	1	12/18/2018 07:42 PM
1,1-Dichloropropene	ND	0.32	1.0		ug/L	1	12/18/2018 07:42 PM
1,2,3-Trichlorobenzene	ND	0.28	1.0		ug/L	1	12/18/2018 07:42 PM
1,2,3-Trichloropropane	ND	0.26	1.0		ug/L	1	12/18/2018 07:42 PM
1,2,4-Trichlorobenzene	ND	0.21	1.0		ug/L	1	12/18/2018 07:42 PM
1,2,4-Trimethylbenzene	0.44	0.33	1.0	J	ug/L	1	12/18/2018 07:42 PM
1,2-Dibromo-3-chloropropane	ND	0.67	2.0		ug/L	1	12/18/2018 07:42 PM
1,2-Dibromoethane	ND	0.31	1.0		ug/L	1	12/18/2018 07:42 PM
1,2-Dichlorobenzene	ND	0.29	1.0		ug/L	1	12/18/2018 07:42 PM
1,2-Dichloroethane	0.33	0.29	0.50	J	ug/L	1	12/18/2018 07:42 PM
1,2-Dichloropropane	ND	0.24	1.0		ug/L	1	12/18/2018 07:42 PM
1,3,5-Trimethylbenzene	0.60	0.27	1.0	J	ug/L	1	12/18/2018 07:42 PM
1,3-Dichlorobenzene	ND	0.28	1.0		ug/L	1	12/18/2018 07:42 PM
1,3-Dichloropropane	ND	0.32	1.0		ug/L	1	12/18/2018 07:42 PM
1,4-Dichlorobenzene	ND	0.32	1.0		ug/L	1	12/18/2018 07:42 PM
2,2-Dichloropropane	ND	0.32	1.0		ug/L	1	12/18/2018 07:42 PM
2-Butanone	ND	4.9	10		ug/L	1	12/18/2018 07:42 PM
2-Chlorotoluene	ND	0.28	1.0		ug/L	1	12/18/2018 07:42 PM
4-Chlorotoluene	ND	0.30	1.0		ug/L	1	12/18/2018 07:42 PM
4-Isopropyltoluene	ND	0.33	1.0		ug/L	1	12/18/2018 07:42 PM
4-Methyl-2-pentanone	ND	3.2	10		ug/L	1	12/18/2018 07:42 PM
Acetone	ND	9.7	10		ug/L	1	12/18/2018 07:42 PM
Benzene	1.8	0.34	1.0		ug/L	1	12/18/2018 07:42 PM
Bromobenzene	ND	0.25	1.0		ug/L	1	12/18/2018 07:42 PM
Bromochloromethane	ND	0.41	1.0		ug/L	1	12/18/2018 07:42 PM
Bromodichloromethane	ND	0.38	1.0		ug/L	1	12/18/2018 07:42 PM
Bromoform	ND	0.39	1.0		ug/L	1	12/18/2018 07:42 PM
Bromomethane	ND	0.79	1.0		ug/L	1	12/18/2018 07:42 PM
Carbon disulfide	ND	0.81	1.0		ug/L	1	12/18/2018 07:42 PM
Carbon tetrachloride	ND	0.40	0.50		ug/L	1	12/18/2018 07:42 PM
Chlorobenzene	ND	0.30	1.0		ug/L	1	12/18/2018 07:42 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified
E	Value above quantitation range
J	Analyte detected below quantitation limits
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out

CLIENT: CH2MHill
Lab Order: N033444
Project: SFPP Norwalk
Lab ID: N033444-001

Client Sample ID: INF-12-14
Collection Date: 12/14/2018 12:55:00 PM
Matrix: WASTEWATER

VOLATILE ORGANIC COMPOUNDS BY GC/MS

EPA 8260B

RunID: **CA01638-MS10_181218A** QC Batch: **CA18VW044** PrepDate Analyst: **GAC**

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
Chloroethane	ND	0.97	1.0		ug/L	1	12/18/2018 07:42 PM
Chloroform	ND	0.27	1.0		ug/L	1	12/18/2018 07:42 PM
Chloromethane	ND	0.36	1.0		ug/L	1	12/18/2018 07:42 PM
cis-1,2-Dichloroethene	ND	0.32	1.0		ug/L	1	12/18/2018 07:42 PM
cis-1,3-Dichloropropene	ND	0.28	1.0		ug/L	1	12/18/2018 07:42 PM
Di-isopropyl ether	1.4	0.079	1.0		ug/L	1	12/18/2018 07:42 PM
Dibromochloromethane	ND	0.41	1.0		ug/L	1	12/18/2018 07:42 PM
Dibromomethane	ND	0.28	1.0		ug/L	1	12/18/2018 07:42 PM
Dichlorodifluoromethane	ND	0.29	1.0		ug/L	1	12/18/2018 07:42 PM
Ethyl tert-butyl ether	ND	0.30	1.0		ug/L	1	12/18/2018 07:42 PM
Ethylbenzene	0.49	0.31	1.0	J	ug/L	1	12/18/2018 07:42 PM
Freon-113	ND	0.35	1.0		ug/L	1	12/18/2018 07:42 PM
Hexachlorobutadiene	ND	0.30	1.0		ug/L	1	12/18/2018 07:42 PM
Isopropylbenzene	ND	0.26	1.0		ug/L	1	12/18/2018 07:42 PM
m,p-Xylene	3.4	0.23	1.0		ug/L	1	12/18/2018 07:42 PM
Methylene chloride	ND	1.9	2.0		ug/L	1	12/18/2018 07:42 PM
MTBE	14	0.34	1.0		ug/L	1	12/18/2018 07:42 PM
n-Butylbenzene	ND	0.34	1.0		ug/L	1	12/18/2018 07:42 PM
n-Propylbenzene	ND	0.32	1.0		ug/L	1	12/18/2018 07:42 PM
Naphthalene	0.59	0.42	1.0	J	ug/L	1	12/18/2018 07:42 PM
o-Xylene	1.9	0.31	1.0		ug/L	1	12/18/2018 07:42 PM
sec-Butylbenzene	ND	0.32	1.0		ug/L	1	12/18/2018 07:42 PM
Styrene	ND	0.21	1.0		ug/L	1	12/18/2018 07:42 PM
Tert-amyl methyl ether	ND	0.26	1.0		ug/L	1	12/18/2018 07:42 PM
Tert-Butanol	180	2.4	5.0		ug/L	1	12/18/2018 07:42 PM
tert-Butylbenzene	ND	0.28	1.0		ug/L	1	12/18/2018 07:42 PM
Tetrachloroethene	ND	0.30	1.0		ug/L	1	12/18/2018 07:42 PM
Toluene	0.94	0.46	2.0	J	ug/L	1	12/18/2018 07:42 PM
trans-1,2-Dichloroethene	ND	0.40	1.0		ug/L	1	12/18/2018 07:42 PM
trans-1,3-Dichloropropene	ND	0.25	1.0		ug/L	1	12/18/2018 07:42 PM
Trichloroethene	ND	0.37	1.0		ug/L	1	12/18/2018 07:42 PM
Trichlorofluoromethane	ND	0.37	1.0		ug/L	1	12/18/2018 07:42 PM
Vinyl chloride	ND	0.29	0.50		ug/L	1	12/18/2018 07:42 PM
Xylenes, Total	5.3	1.5	2.0		ug/L	1	12/18/2018 07:42 PM
Surr: 1,2-Dichloroethane-d4	94.5	0	72-119		%REC	1	12/18/2018 07:42 PM
Surr: 4-Bromofluorobenzene	92.8	0	76-119		%REC	1	12/18/2018 07:42 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified	DO	Surrogate Diluted Out

CLIENT: CH2MHill
Lab Order: N033444
Project: SFPP Norwalk
Lab ID: N033444-001

Client Sample ID: INF-12-14
Collection Date: 12/14/2018 12:55:00 PM
Matrix: WASTEWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
VOLATILE ORGANIC COMPOUNDS BY GC/MS							
			EPA 8260B				
RunID: **CA01638-MS10_181218A**	QC Batch: **CA18VW044**			PrepDate			Analyst: **GAC**
Surr: Dibromofluoromethane	102	0	85-115		%REC	1	12/18/2018 07:42 PM
Surr: Toluene-d8	94.3	0	81-120		%REC	1	12/18/2018 07:42 PM
TOTAL TPH							
			EPA 8015B				
RunID: **SUBCONTRACT_181228A**	QC Batch: **R130867**			PrepDate			Analyst: **admin**
Total TPH	460	22	100		ug/L	1	12/28/2018

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified	DO	Surrogate Diluted Out

CLIENT: CH2MHill
Work Order: N033444
Project: SFPP Norwalk

ANALYTICAL QC SUMMARY REPORT

TestCode: 8015_W_SFPPTOT

Sample ID **MB-R130867**	SampType: **MBLK**	TestCode: **8015_W_SFP**	Units: **ug/L**	Prep Date:			RunNo: **130867**				
Client ID: **PBW**	Batch ID: **R130867**	TestNo: **EPA 8015B**		Analysis Date: **12/28/2018**			SeqNo: **3245948**				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total TPH	ND	100									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
S	Spike/Surrogate outside of limits due to matrix interference	DO	Surrogate Diluted Out		Calculations are based on raw values

CLIENT: CH2MHill
Work Order: N033444
Project: SFPP Norwalk

ANALYTICAL QC SUMMARY REPORT

TestCode: 8260_WP_SFPP

Sample ID **CA181218-LCS** SampType: **LCS** TestCode: **8260_WP_SF** Units: **ug/L** Prep Date: RunNo: **130657**
Client ID: **LCSW** Batch ID: **CA18VW044** TestNo: **EPA 8260B** Analysis Date: **12/18/2018** SeqNo: **3235468**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1,1,2-Tetrachloroethane	20.580	1.0	20.00	0	103	81	129				
1,1,1-Trichloroethane	20.400	1.0	20.00	0	102	67	132				
1,1,2,2-Tetrachloroethane	21.730	1.0	20.00	0	109	63	128				
1,1,2-Trichloroethane	20.380	1.0	20.00	0	102	75	125				
1,1-Dichloroethane	19.000	0.50	20.00	0	95.0	69	133				
1,1-Dichloroethene	19.680	1.0	20.00	0	98.4	68	130				
1,1-Dichloropropene	20.570	1.0	20.00	0	103	73	132				
1,2,3-Trichlorobenzene	18.100	1.0	20.00	0	90.5	67	137				
1,2,3-Trichloropropane	19.950	1.0	20.00	0	99.8	73	124				
1,2,4-Trichlorobenzene	17.410	1.0	20.00	0	87.1	66	134				
1,2,4-Trimethylbenzene	19.090	1.0	20.00	0	95.4	74	132				
1,2-Dibromo-3-chloropropane	24.060	2.0	20.00	0	120	50	132				
1,2-Dibromoethane	18.770	1.0	20.00	0	93.8	80	121				
1,2-Dichlorobenzene	19.580	1.0	20.00	0	97.9	71	122				
1,2-Dichloroethane	18.710	0.50	20.00	0	93.6	69	132				
1,2-Dichloropropane	19.470	1.0	20.00	0	97.4	75	125				
1,3,5-Trimethylbenzene	18.190	1.0	20.00	0	91.0	74	131				
1,3-Dichlorobenzene	19.290	1.0	20.00	0	96.5	75	124				
1,3-Dichloropropane	19.710	1.0	20.00	0	98.6	73	126				
1,4-Dichlorobenzene	20.230	1.0	20.00	0	101	74	123				
2,2-Dichloropropane	20.690	1.0	20.00	0	103	69	137				
2-Butanone	176.900	10	200.0	0	88.4	49	136				
2-Chlorotoluene	19.310	1.0	20.00	0	96.6	73	126				
4-Chlorotoluene	18.950	1.0	20.00	0	94.8	74	128				
4-Isopropyltoluene	19.240	1.0	20.00	0	96.2	73	130				
4-Methyl-2-pentanone	188.340	10	200.0	0	94.2	58	134				
Acetone	179.120	10	200.0	0	89.6	40	135				
Benzene	18.900	1.0	20.00	0	94.5	81	122				
Bromobenzene	18.260	1.0	20.00	0	91.3	76	124				
Bromochloromethane	18.900	1.0	20.00	0	94.5	65	129				

Qualifiers:

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike/Surrogate outside of limits due to matrix interference
- DO Surrogate Diluted Out
- Calculations are based on raw values

CLIENT: CH2MHill
Work Order: N033444
Project: SFPP Norwalk

ANALYTICAL QC SUMMARY REPORT

TestCode: 8260_WP_SFPP

Sample ID **CA181218-LCS** SampType: **LCS** TestCode: **8260_WP_SF** Units: **ug/L** Prep Date: RunNo: **130657**
Client ID: **LCSW** Batch ID: **CA18VW044** TestNo: **EPA 8260B** Analysis Date: **12/18/2018** SeqNo: **3235468**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Bromodichloromethane	20.880	1.0	20.00	0	104	76	121				
Bromoform	23.400	1.0	20.00	0	117	69	128				
Bromomethane	20.900	1.0	20.00	0	104	53	141				
Carbon disulfide	19.530	1.0	20.00	0	97.6	75	125				
Carbon tetrachloride	23.150	0.50	20.00	0	116	66	138				
Chlorobenzene	17.880	1.0	20.00	0	89.4	81	122				
Chloroethane	21.600	1.0	20.00	0	108	58	133				
Chloroform	20.630	1.0	20.00	0	103	69	128				
Chloromethane	20.060	1.0	20.00	0	100	56	131				
cis-1,2-Dichloroethene	19.330	1.0	20.00	0	96.7	72	126				
cis-1,3-Dichloropropene	21.990	1.0	20.00	0	110	69	131				
Di-isopropyl ether	19.020	1.0	20.00	0	95.1	70	130				
Dibromochloromethane	21.980	1.0	20.00	0	110	66	133				
Dibromomethane	20.390	1.0	20.00	0	102	76	125				
Dichlorodifluoromethane	18.020	1.0	20.00	0	90.1	53	153				
Ethyl tert-butyl ether	18.980	1.0	20.00	0	94.9	70	130				
Ethylbenzene	18.530	1.0	20.00	0	92.6	73	127				
Freon-113	16.560	1.0	20.00	0	82.8	75	125				
Hexachlorobutadiene	19.110	1.0	20.00	0	95.6	67	131				
Isopropylbenzene	18.780	1.0	20.00	0	93.9	75	127				
m,p-Xylene	37.860	1.0	40.00	0	94.6	76	128				
Methylene chloride	21.120	2.0	20.00	0	106	63	137				
MTBE	17.700	1.0	20.00	0	88.5	65	123				
n-Butylbenzene	18.820	1.0	20.00	0	94.1	69	137				
n-Propylbenzene	19.600	1.0	20.00	0	98.0	72	129				
Naphthalene	16.480	1.0	20.00	0	82.4	54	138				
o-Xylene	17.820	1.0	20.00	0	89.1	80	121				
sec-Butylbenzene	20.090	1.0	20.00	0	100	72	127				
Styrene	18.920	1.0	20.00	0	94.6	65	134				
Tert-amyl methyl ether	19.180	1.0	20.00	0	95.9	70	130				

Qualifiers:

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike/Surrogate outside of limits due to matrix interference
- DO Surrogate Diluted Out

Calculations are based on raw values

CLIENT: CH2MHill
Work Order: N033444
Project: SFPP Norwalk

ANALYTICAL QC SUMMARY REPORT

TestCode: 8260_WP_SFPP

Sample ID **CA181218-LCS** SampType: **LCS** TestCode: **8260_WP_SF** Units: **ug/L** Prep Date: RunNo: **130657**
Client ID: **LCSW** Batch ID: **CA18VW044** TestNo: **EPA 8260B** Analysis Date: **12/18/2018** SeqNo: **3235468**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Tert-Butanol	114.130	5.0	100.0	0	114	70	130				
tert-Butylbenzene	19.940	1.0	20.00	0	99.7	70	129				
Tetrachloroethene	17.050	1.0	20.00	0	85.2	66	128				
Toluene	19.090	2.0	20.00	0	95.4	77	122				
trans-1,2-Dichloroethene	19.060	1.0	20.00	0	95.3	63	137				
trans-1,3-Dichloropropene	22.750	1.0	20.00	0	114	59	135				
Trichloroethene	21.190	1.0	20.00	0	106	70	127				
Trichlorofluoromethane	22.970	1.0	20.00	0	115	57	129				
Vinyl chloride	21.530	0.50	20.00	0	108	50	134				
Xylenes, Total	55.680	2.0	60.00	0	92.8	75	125				
Surr: 1,2-Dichloroethane-d4	23.860		25.00		95.4	72	119				
Surr: 4-Bromofluorobenzene	23.060		25.00		92.2	76	119				
Surr: Dibromofluoromethane	25.580		25.00		102	85	115				
Surr: Toluene-d8	23.900		25.00		95.6	81	120				

Sample ID **CA181218-MB3** SampType: **MBLK** TestCode: **8260_WP_SF** Units: **ug/L** Prep Date: RunNo: **130657**
Client ID: **PBW** Batch ID: **CA18VW044** TestNo: **EPA 8260B** Analysis Date: **12/18/2018** SeqNo: **3235471**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1,1,2-Tetrachloroethane	ND	1.0									
1,1,1-Trichloroethane	ND	1.0									
1,1,2,2-Tetrachloroethane	ND	1.0									
1,1,2-Trichloroethane	ND	1.0									
1,1-Dichloroethane	ND	0.50									
1,1-Dichloroethene	ND	1.0									
1,1-Dichloropropene	ND	1.0									
1,2,3-Trichlorobenzene	ND	1.0									
1,2,3-Trichloropropane	ND	1.0									
1,2,4-Trichlorobenzene	ND	1.0									
1,2,4-Trimethylbenzene	ND	1.0									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
S	Spike/Surrogate outside of limits due to matrix interference	DO	Surrogate Diluted Out		Calculations are based on raw values

CLIENT: CH2MHill
Work Order: N033444
Project: SFPP Norwalk

ANALYTICAL QC SUMMARY REPORT

TestCode: 8260_WP_SFPP

Sample ID **CA181218-MB3** SampType: **MBLK** TestCode: **8260_WP_SF** Units: **ug/L** Prep Date: RunNo: **130657**
Client ID: **PBW** Batch ID: **CA18VW044** TestNo: **EPA 8260B** Analysis Date: **12/18/2018** SeqNo: **3235471**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,2-Dibromo-3-chloropropane	ND	2.0									
1,2-Dibromoethane	ND	1.0									
1,2-Dichlorobenzene	ND	1.0									
1,2-Dichloroethane	ND	0.50									
1,2-Dichloropropane	ND	1.0									
1,3,5-Trimethylbenzene	ND	1.0									
1,3-Dichlorobenzene	ND	1.0									
1,3-Dichloropropane	ND	1.0									
1,4-Dichlorobenzene	ND	1.0									
2,2-Dichloropropane	ND	1.0									
2-Butanone	ND	10									
2-Chlorotoluene	ND	1.0									
4-Chlorotoluene	ND	1.0									
4-Isopropyltoluene	ND	1.0									
4-Methyl-2-pentanone	ND	10									
Acetone	ND	10									
Benzene	ND	1.0									
Bromobenzene	ND	1.0									
Bromochloromethane	ND	1.0									
Bromodichloromethane	ND	1.0									
Bromoform	ND	1.0									
Bromomethane	ND	1.0									
Carbon disulfide	ND	1.0									
Carbon tetrachloride	ND	0.50									
Chlorobenzene	ND	1.0									
Chloroethane	ND	1.0									
Chloroform	ND	1.0									
Chloromethane	ND	1.0									
cis-1,2-Dichloroethene	ND	1.0									
cis-1,3-Dichloropropene	ND	1.0									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
S	Spike/Surrogate outside of limits due to matrix interference	DO	Surrogate Diluted Out		Calculations are based on raw values

CLIENT: CH2MHill
Work Order: N033444
Project: SFPP Norwalk

ANALYTICAL QC SUMMARY REPORT

TestCode: 8260_WP_SFPP

Sample ID **CA181218-MB3** SampType: **MBLK** TestCode: **8260_WP_SF** Units: **ug/L** Prep Date: RunNo: **130657**
Client ID: **PBW** Batch ID: **CA18VW044** TestNo: **EPA 8260B** Analysis Date: **12/18/2018** SeqNo: **3235471**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Di-isopropyl ether	ND	1.0									
Dibromochloromethane	ND	1.0									
Dibromomethane	ND	1.0									
Dichlorodifluoromethane	ND	1.0									
Ethyl tert-butyl ether	ND	1.0									
Ethylbenzene	ND	1.0									
Freon-113	ND	1.0									
Hexachlorobutadiene	ND	1.0									
Isopropylbenzene	ND	1.0									
m,p-Xylene	ND	1.0									
Methylene chloride	ND	2.0									
MTBE	ND	1.0									
n-Butylbenzene	ND	1.0									
n-Propylbenzene	ND	1.0									
Naphthalene	ND	1.0									
o-Xylene	ND	1.0									
sec-Butylbenzene	ND	1.0									
Styrene	ND	1.0									
Tert-amyl methyl ether	ND	1.0									
Tert-Butanol	ND	5.0									
tert-Butylbenzene	ND	1.0									
Tetrachloroethene	ND	1.0									
Toluene	ND	2.0									
trans-1,2-Dichloroethene	ND	1.0									
trans-1,3-Dichloropropene	ND	1.0									
Trichloroethene	ND	1.0									
Trichlorofluoromethane	ND	1.0									
Vinyl chloride	ND	0.50									
Xylenes, Total	ND	2.0									
Surr: 1,2-Dichloroethane-d4	25.270		25.00		101	72	119				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
S	Spike/Surrogate outside of limits due to matrix interference	DO	Surrogate Diluted Out		Calculations are based on raw values

CLIENT: CH2MHill
Work Order: N033444
Project: SFPP Norwalk

ANALYTICAL QC SUMMARY REPORT

TestCode: 8260_WP_SFPP

Sample ID **CA181218-MB3** SampType: **MBLK** TestCode: **8260_WP_SF** Units: **ug/L** Prep Date: RunNo: **130657**
Client ID: **PBW** Batch ID: **CA18VW044** TestNo: **EPA 8260B** Analysis Date: **12/18/2018** SeqNo: **3235471**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Surr: 4-Bromofluorobenzene	23.690		25.00		94.8	76	119				
Surr: Dibromofluoromethane	27.350		25.00		109	85	115				
Surr: Toluene-d8	25.510		25.00		102	81	120				

Sample ID **N033443-001A-MS** SampType: **MS** TestCode: **8260_WP_SF** Units: **ug/L** Prep Date: RunNo: **130657**
Client ID: **ZZZZZZ** Batch ID: **CA18VW044** TestNo: **EPA 8260B** Analysis Date: **12/18/2018** SeqNo: **3235484**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1,1,2-Tetrachloroethane	21.150	1.0	20.00	0	106	81	129				
1,1,1-Trichloroethane	19.020	1.0	20.00	0	95.1	67	132				
1,1,2,2-Tetrachloroethane	21.020	1.0	20.00	0	105	63	128				
1,1,2-Trichloroethane	19.820	1.0	20.00	0	99.1	75	125				
1,1-Dichloroethane	19.280	0.50	20.00	0	96.4	69	133				
1,1-Dichloroethene	19.680	1.0	20.00	0	98.4	68	130				
1,1-Dichloropropene	20.440	1.0	20.00	0	102	73	132				
1,2,3-Trichlorobenzene	17.550	1.0	20.00	0	87.8	67	137				
1,2,3-Trichloropropane	19.010	1.0	20.00	0	95.1	73	124				
1,2,4-Trichlorobenzene	17.010	1.0	20.00	0	85.0	66	134				
1,2,4-Trimethylbenzene	18.710	1.0	20.00	0	93.6	74	132				
1,2-Dibromo-3-chloropropane	25.960	2.0	20.00	0	130	50	132				
1,2-Dibromoethane	18.970	1.0	20.00	0	94.8	80	121				
1,2-Dichlorobenzene	19.100	1.0	20.00	0	95.5	71	122				
1,2-Dichloroethane	19.890	0.50	20.00	0	99.4	69	132				
1,2-Dichloropropane	19.070	1.0	20.00	0	95.4	75	125				
1,3,5-Trimethylbenzene	18.390	1.0	20.00	0	92.0	74	131				
1,3-Dichlorobenzene	18.100	1.0	20.00	0	90.5	75	124				
1,3-Dichloropropane	19.710	1.0	20.00	0	98.6	73	126				
1,4-Dichlorobenzene	19.490	1.0	20.00	0	97.5	74	123				
2,2-Dichloropropane	18.490	1.0	20.00	0	92.5	69	137				
2-Butanone	159.740	10	200.0	0	79.9	49	136				

Qualifiers:

B Analyte detected in the associated Method Blank
E Value above quantitation range
H Holding times for preparation or analysis exceeded
J Analyte detected below quantitation limits
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S Spike/Surrogate outside of limits due to matrix interference
DO Surrogate Diluted Out
Calculations are based on raw values

CLIENT: CH2MHill
Work Order: N033444
Project: SFPP Norwalk

ANALYTICAL QC SUMMARY REPORT

TestCode: 8260_WP_SFPP

Sample ID **N033443-001A-MS** SampType: **MS** TestCode: **8260_WP_SF** Units: **ug/L** Prep Date: RunNo: **130657**
Client ID: **ZZZZZZ** Batch ID: **CA18VW044** TestNo: **EPA 8260B** Analysis Date: **12/18/2018** SeqNo: **3235484**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
2-Chlorotoluene	18.910	1.0	20.00	0	94.6	73	126				
4-Chlorotoluene	18.280	1.0	20.00	0	91.4	74	128				
4-Isopropyltoluene	19.140	1.0	20.00	0	95.7	73	130				
4-Methyl-2-pentanone	184.840	10	200.0	0	92.4	58	134				
Acetone	163.590	10	200.0	0	81.8	40	135				
Benzene	19.200	1.0	20.00	0	96.0	81	122				
Bromobenzene	17.770	1.0	20.00	0	88.8	76	124				
Bromochloromethane	19.920	1.0	20.00	0	99.6	65	129				
Bromodichloromethane	21.630	1.0	20.00	0	108	76	121				
Bromoform	23.720	1.0	20.00	0	119	69	128				
Bromomethane	24.340	1.0	20.00	0	122	53	141				
Carbon disulfide	18.710	1.0	20.00	0	93.6	75	125				
Carbon tetrachloride	22.550	0.50	20.00	0	113	66	138				
Chlorobenzene	18.220	1.0	20.00	0	91.1	81	122				
Chloroethane	21.910	1.0	20.00	0	110	58	133				
Chloroform	19.520	1.0	20.00	0	97.6	69	128				
Chloromethane	19.450	1.0	20.00	0	97.3	56	131				
cis-1,2-Dichloroethene	18.320	1.0	20.00	0	91.6	72	126				
cis-1,3-Dichloropropene	19.850	1.0	20.00	0	99.2	69	131				
Di-isopropyl ether	18.370	1.0	20.00	0	91.9	70	130				
Dibromochloromethane	21.380	1.0	20.00	0	107	66	133				
Dibromomethane	19.880	1.0	20.00	0	99.4	76	125				
Dichlorodifluoromethane	18.480	1.0	20.00	0	92.4	53	153				
Ethyl tert-butyl ether	18.140	1.0	20.00	0	90.7	70	130				
Ethylbenzene	18.350	1.0	20.00	0	91.8	73	127				
Freon-113	17.030	1.0	20.00	0	85.2	75	125				
Hexachlorobutadiene	17.790	1.0	20.00	0	89.0	67	131				
Isopropylbenzene	17.650	1.0	20.00	0	88.2	75	127				
m,p-Xylene	37.380	1.0	40.00	0	93.5	76	128				
Methylene chloride	19.380	2.0	20.00	0	96.9	63	137				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
S	Spike/Surrogate outside of limits due to matrix interference	DO	Surrogate Diluted Out		Calculations are based on raw values

CLIENT: CH2MHill
Work Order: N033444
Project: SFPP Norwalk

ANALYTICAL QC SUMMARY REPORT

TestCode: 8260_WP_SFPP

Sample ID **N033443-001A-MS** SampType: **MS** TestCode: **8260_WP_SF** Units: **ug/L** Prep Date: RunNo: **130657**
Client ID: **ZZZZZZ** Batch ID: **CA18VW044** TestNo: **EPA 8260B** Analysis Date: **12/18/2018** SeqNo: **3235484**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
MTBE	17.050	1.0	20.00	0	85.2	65	123				
n-Butylbenzene	18.540	1.0	20.00	0	92.7	69	137				
n-Propylbenzene	19.450	1.0	20.00	0	97.3	72	129				
Naphthalene	15.710	1.0	20.00	0	78.6	54	138				
o-Xylene	17.510	1.0	20.00	0	87.6	80	121				
sec-Butylbenzene	20.280	1.0	20.00	0	101	72	127				
Styrene	18.200	1.0	20.00	0	91.0	65	134				
Tert-amyl methyl ether	18.420	1.0	20.00	0	92.1	70	130				
Tert-Butanol	103.870	5.0	100.0	0	104	70	130				
tert-Butylbenzene	19.550	1.0	20.00	0	97.8	70	129				
Tetrachloroethene	17.090	1.0	20.00	0	85.4	66	128				
Toluene	18.970	2.0	20.00	0	94.8	77	122				
trans-1,2-Dichloroethene	16.820	1.0	20.00	0	84.1	63	137				
trans-1,3-Dichloropropene	23.100	1.0	20.00	0	116	59	135				
Trichloroethene	20.950	1.0	20.00	0	105	70	127				
Trichlorofluoromethane	22.910	1.0	20.00	0	115	57	129				
Vinyl chloride	21.270	0.50	20.00	0	106	50	134				
Xylenes, Total	54.890	2.0	60.00	0	91.5	75	125				
Surr: 1,2-Dichloroethane-d4	23.000		25.00		92.0	72	119				
Surr: 4-Bromofluorobenzene	23.470		25.00		93.9	76	119				
Surr: Dibromofluoromethane	26.540		25.00		106	85	115				
Surr: Toluene-d8	24.830		25.00		99.3	81	120				

Sample ID **N033443-001A-MSD** SampType: **MSD** TestCode: **8260_WP_SF** Units: **ug/L** Prep Date: RunNo: **130657**
Client ID: **ZZZZZZ** Batch ID: **CA18VW044** TestNo: **EPA 8260B** Analysis Date: **12/18/2018** SeqNo: **3235485**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1,1,2-Tetrachloroethane	21.360	1.0	20.00	0	107	81	129	21.15	0.988	20	
1,1,1-Trichloroethane	20.440	1.0	20.00	0	102	67	132	19.02	7.20	20	
1,1,2,2-Tetrachloroethane	19.560	1.0	20.00	0	97.8	63	128	21.02	7.20	20	

Qualifiers:

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike/Surrogate outside of limits due to matrix interference
- DO Surrogate Diluted Out

Calculations are based on raw values

CLIENT: CH2MHill
Work Order: N033444
Project: SFPP Norwalk

ANALYTICAL QC SUMMARY REPORT

TestCode: 8260_WP_SFPP

Sample ID **N033443-001A-MSD** SampType: **MSD** TestCode: **8260_WP_SF** Units: **ug/L** Prep Date: RunNo: **130657**
Client ID: **ZZZZZZ** Batch ID: **CA18VW044** TestNo: **EPA 8260B** Analysis Date: **12/18/2018** SeqNo: **3235485**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1,2-Trichloroethane	20.850	1.0	20.00	0	104	75	125	19.82	5.07	20	
1,1-Dichloroethane	18.930	0.50	20.00	0	94.6	69	133	19.28	1.83	20	
1,1-Dichloroethene	19.730	1.0	20.00	0	98.6	68	130	19.68	0.254	20	
1,1-Dichloropropene	20.760	1.0	20.00	0	104	73	132	20.44	1.55	20	
1,2,3-Trichlorobenzene	17.120	1.0	20.00	0	85.6	67	137	17.55	2.48	20	
1,2,3-Trichloropropane	18.720	1.0	20.00	0	93.6	73	124	19.01	1.54	20	
1,2,4-Trichlorobenzene	16.890	1.0	20.00	0	84.4	66	134	17.01	0.708	20	
1,2,4-Trimethylbenzene	18.230	1.0	20.00	0	91.2	74	132	18.71	2.60	20	
1,2-Dibromo-3-chloropropane	22.980	2.0	20.00	0	115	50	132	25.96	12.2	20	
1,2-Dibromoethane	19.170	1.0	20.00	0	95.9	80	121	18.97	1.05	20	
1,2-Dichlorobenzene	18.820	1.0	20.00	0	94.1	71	122	19.10	1.48	20	
1,2-Dichloroethane	19.910	0.50	20.00	0	99.6	69	132	19.89	0.101	20	
1,2-Dichloropropane	18.420	1.0	20.00	0	92.1	75	125	19.07	3.47	20	
1,3,5-Trimethylbenzene	18.330	1.0	20.00	0	91.7	74	131	18.39	0.327	20	
1,3-Dichlorobenzene	18.800	1.0	20.00	0	94.0	75	124	18.10	3.79	20	
1,3-Dichloropropane	20.020	1.0	20.00	0	100	73	126	19.71	1.56	20	
1,4-Dichlorobenzene	18.620	1.0	20.00	0	93.1	74	123	19.49	4.57	20	
2,2-Dichloropropane	17.820	1.0	20.00	0	89.1	69	137	18.49	3.69	20	
2-Butanone	154.140	10	200.0	0	77.1	49	136	159.7	3.57	20	
2-Chlorotoluene	18.190	1.0	20.00	0	91.0	73	126	18.91	3.88	20	
4-Chlorotoluene	18.070	1.0	20.00	0	90.4	74	128	18.28	1.16	20	
4-Isopropyltoluene	18.250	1.0	20.00	0	91.2	73	130	19.14	4.76	20	
4-Methyl-2-pentanone	179.960	10	200.0	0	90.0	58	134	184.8	2.68	20	
Acetone	150.280	10	200.0	0	75.1	40	135	163.6	8.48	20	
Benzene	19.190	1.0	20.00	0	96.0	81	122	19.20	0.0521	20	
Bromobenzene	17.380	1.0	20.00	0	86.9	76	124	17.77	2.22	20	
Bromochloromethane	19.150	1.0	20.00	0	95.8	65	129	19.92	3.94	20	
Bromodichloromethane	21.820	1.0	20.00	0	109	76	121	21.63	0.875	20	
Bromoform	22.520	1.0	20.00	0	113	69	128	23.72	5.19	20	
Bromomethane	23.790	1.0	20.00	0	119	53	141	24.34	2.29	20	

Qualifiers:

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike/Surrogate outside of limits due to matrix interference
- DO Surrogate Diluted Out
- Calculations are based on raw values

CLIENT: CH2MHill
Work Order: N033444
Project: SFPP Norwalk

ANALYTICAL QC SUMMARY REPORT

TestCode: 8260_WP_SFPP

Sample ID **N033443-001A-MSD** SampType: **MSD** TestCode: **8260_WP_SF** Units: **ug/L** Prep Date: RunNo: **130657**
Client ID: **ZZZZZZ** Batch ID: **CA18VW044** TestNo: **EPA 8260B** Analysis Date: **12/18/2018** SeqNo: **3235485**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Carbon disulfide	18.670	1.0	20.00	0	93.4	75	125	18.71	0.214	20	
Carbon tetrachloride	24.500	0.50	20.00	0	123	66	138	22.55	8.29	20	
Chlorobenzene	18.580	1.0	20.00	0	92.9	81	122	18.22	1.96	20	
Chloroethane	21.370	1.0	20.00	0	107	58	133	21.91	2.50	20	
Chloroform	18.810	1.0	20.00	0	94.1	69	128	19.52	3.70	20	
Chloromethane	19.470	1.0	20.00	0	97.4	56	131	19.45	0.103	20	
cis-1,2-Dichloroethene	19.740	1.0	20.00	0	98.7	72	126	18.32	7.46	20	
cis-1,3-Dichloropropene	21.630	1.0	20.00	0	108	69	131	19.85	8.58	20	
Di-isopropyl ether	18.750	1.0	20.00	0	93.8	70	130	18.37	2.05	20	
Dibromochloromethane	20.870	1.0	20.00	0	104	66	133	21.38	2.41	20	
Dibromomethane	19.010	1.0	20.00	0	95.1	76	125	19.88	4.47	20	
Dichlorodifluoromethane	17.930	1.0	20.00	0	89.7	53	153	18.48	3.02	20	
Ethyl tert-butyl ether	18.410	1.0	20.00	0	92.0	70	130	18.14	1.48	20	
Ethylbenzene	18.550	1.0	20.00	0	92.8	73	127	18.35	1.08	20	
Freon-113	17.030	1.0	20.00	0	85.2	75	125	17.03	0	20	
Hexachlorobutadiene	17.820	1.0	20.00	0	89.1	67	131	17.79	0.168	20	
Isopropylbenzene	17.960	1.0	20.00	0	89.8	75	127	17.65	1.74	20	
m,p-Xylene	38.410	1.0	40.00	0	96.0	76	128	37.38	2.72	20	
Methylene chloride	19.230	2.0	20.00	0	96.2	63	137	19.38	0.777	20	
MTBE	17.540	1.0	20.00	0	87.7	65	123	17.05	2.83	20	
n-Butylbenzene	18.120	1.0	20.00	0	90.6	69	137	18.54	2.29	20	
n-Propylbenzene	19.110	1.0	20.00	0	95.6	72	129	19.45	1.76	20	
Naphthalene	15.250	1.0	20.00	0	76.2	54	138	15.71	2.97	20	
o-Xylene	18.440	1.0	20.00	0	92.2	80	121	17.51	5.17	20	
sec-Butylbenzene	19.890	1.0	20.00	0	99.4	72	127	20.28	1.94	20	
Styrene	18.770	1.0	20.00	0	93.8	65	134	18.20	3.08	20	
Tert-amyl methyl ether	19.140	1.0	20.00	0	95.7	70	130	18.42	3.83	20	
Tert-Butanol	114.030	5.0	100.0	0	114	70	130	103.9	9.33	20	
tert-Butylbenzene	18.800	1.0	20.00	0	94.0	70	129	19.55	3.91	20	
Tetrachloroethene	17.550	1.0	20.00	0	87.8	66	128	17.09	2.66	20	

Qualifiers:

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike/Surrogate outside of limits due to matrix interference
- DO Surrogate Diluted Out

Calculations are based on raw values

CLIENT: CH2MHill
Work Order: N033444
Project: SFPP Norwalk

ANALYTICAL QC SUMMARY REPORT

TestCode: 8260_WP_SFPP

Sample ID **N033443-001A-MSD** SampType: **MSD** TestCode: **8260_WP_SF** Units: **ug/L** Prep Date: RunNo: **130657**
Client ID: **ZZZZZZ** Batch ID: **CA18VW044** TestNo: **EPA 8260B** Analysis Date: **12/18/2018** SeqNo: **3235485**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Toluene	19.190	2.0	20.00	0	96.0	77	122	18.97	1.15	20	
trans-1,2-Dichloroethene	17.850	1.0	20.00	0	89.2	63	137	16.82	5.94	20	
trans-1,3-Dichloropropene	23.580	1.0	20.00	0	118	59	135	23.10	2.06	20	
Trichloroethene	20.290	1.0	20.00	0	101	70	127	20.95	3.20	20	
Trichlorofluoromethane	22.870	1.0	20.00	0	114	57	129	22.91	0.175	20	
Vinyl chloride	20.710	0.50	20.00	0	104	50	134	21.27	2.67	20	
Xylenes, Total	56.850	2.0	60.00	0	94.8	75	125	54.89	3.51	20	
Surr: 1,2-Dichloroethane-d4	22.740		25.00		91.0	72	119		0		
Surr: 4-Bromofluorobenzene	23.410		25.00		93.6	76	119		0		
Surr: Dibromofluoromethane	24.760		25.00		99.0	85	115		0		
Surr: Toluene-d8	23.920		25.00		95.7	81	120		0		

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
S	Spike/Surrogate outside of limits due to matrix interference	DO	Surrogate Diluted Out		Calculations are based on raw values

Alpha Laboratories
3151 W. Post Road
Las Vegas, NV 89118
Tel: 702-307-2659 Fax: 702-307-2691
Marion Cartin (marion@[illegible]laboratories.com)

CHAIN OF CUSTODY RECORD

DATE: 12/14/18
PAGE: 1 of 1

Section A		Section B		Section C		Section D	
Company:	Kinder Morgan Energy Partners [illegible]	Report To:	Eric Davis	Attn:	Steve Defibaugh - Ref. AFE# [illegible]	Sampler Name:	James Dye
Address:	1100 Town & Country Road, Orange, CA 92868	Copy To:	Steve Defibaugh	Company Name:	Kinder Morgan Energy Partners	Sampler Signature:	[signature]
Email To:	[illegible]@kindermorgan.com; eric.davis@[illegible]	Purchase Order No.:		Address:	1100 Town & Country Road, Orange, CA 92868	Sample Date:	12/14/18
Phone: 714-560-4802	Fax: 714-560-4[illegible]	Project Name:	SFPP Norwalk	ATL Project Manager:	Marion Cartin		

Section E

							CONTAINER TYPE		V	V	A
							# OF CONTAINERS		3	3	2
							PRESERVATIVE		H	H	–
							VOLUME (mL)		40	40	1000
ITEM #	SAMPLE ID	LOCATION/ DESCRIPTION	MATRIX	SAMPLE TYPE (G=GRAB C=COMP)	SAMPLING DATE	SAMPLING TIME	TOTAL # OF CONTAINERS	SAMPLE TEMPERATURE (°F)	Full VOCs + Oxygenates [illegible]	TPH-gas [illegible]	TPH-d, TPH-mo, Total TPH [illegible]
1	INF-12.18	INFLUENT	WW	G	12/14/18	1235	8		X	X	X
2											
3											
4											
5											
6											
7											
8											
9											
10											
11											
12											

Comments: 3.0°C [illegible] #2

N033444-01

Relinquished by (Signature and Printed Name)	Date / Time	Received by (Signature and Printed Name)	Date / Time
[signature]	12/14/18 1400	K Sevilla	12/14/18 1400
K Sevilla	12/14/18 1729	K Sevilla	12/14/18 1729

Turn Around Time (TAT):
- ☐ A = Same Day
- ☐ B = 24 Hours
- ☐ C = 48 Hours
- ☐ D = 72 Hours
- ☐ E = 5 Workdays
- ☐ E = 10 Workdays

TAT starts at 8 AM the following day if samples received after 4:00 PM.

Special Instructions:

Matrix:		
W = Water	WW = Wastewater	
O = Oil	P = Product	S = Soil
Others/Specify:		

Preservatives:		
H = HCl	N = HNO3	S = H2SO4
Z = Zn(AC)2	O = NaOH	T = Na2S2O3
Others/Specify:		

Container Types:			
T = Tube	V = VOA	P = Pint	A = Amber
J = Jar	B = Tedlar	G = Glass	
M = Metal	P = Plastic	C = Can	

ASSET Laboratories

Please review the checklist below. Any NO signifies non-compliance. Any non-compliance will be noted and must be understood as having an impact on the quality of the data. All tests will be performed as requested regardless of any compliance issues.

If you have any questions or further instruction, please contact our Project Coordinator at (702) 307-2659.

Cooler Received/Opened On:	12/14/2018	Workorder:	N033444
Rep sample Temp (Deg C):	3.0	IR Gun ID:	2
Temp Blank:	☑ Yes ☐ No		
Carrier name:	ASSET		
Last 4 digits of Tracking No.:	NA	Packing Material Used:	Bubble Wrap
Cooling process:	☑ Ice ☐ Ice Pack ☐ Dry Ice ☐ Other ☐ None		

Sample Receipt Checklist

1. Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
2. Custody seals intact, signed, dated on shippping container/cooler?	Yes ☐	No ☐	Not Present ☑
3. Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
4. Chain of custody present?	Yes ☑	No ☐	
5. Sampler's name present in COC?	Yes ☑	No ☐	
6. Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
7. Chain of custody agrees with sample labels?	Yes ☑	No ☐	
8. Samples in proper container/bottle?	Yes ☑	No ☐	
9. Sample containers intact?	Yes ☑	No ☐	
10. Sufficient sample volume for indicated test?	Yes ☑	No ☐	
11. All samples received within holding time?	Yes ☑	No ☐	
12. Temperature of rep sample or Temp Blank within acceptable limit?	Yes ☑	No ☐	NA ☐
13. Water - VOA vials have zero headspace?	Yes ☑	No ☐	NA ☐
14. Water - pH acceptable upon receipt? Example: pH > 12 for (CN,S); pH<2 for Metals	Yes ☐	No ☐	NA ☑
15. Did the bottle labels indicate correct preservatives used?	Yes ☑	No ☐	NA ☐
16. Were there Non-Conformance issues at login?	Yes ☐	No ☐	NA ☑
Was Client notified?	Yes ☐	No ☐	NA ☑

Comments:

Checklist Completed By: MCS 12/17/18

Reviewed By: 12/17/2018

ASSET Laboratories

WORK ORDER Summary

17-Dec-18

WorkOrder: N033444

Client ID: CH2HI03

Project: SFPP Norwalk **QC Level:** RTNE **Date Received:** 12/14/2018

Comments:

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N033444-001A	INF-12-14	12/14/2018 12:55:00 PM	12/21/2018	Wastewater	EPA 8260B	VOLATILE ORGANIC COMPOUNDS BY GC/MS	☐	☐	☐	VW
N033444-001B			12/21/2018		EPA 3510C	SEPARATORY FUNNEL EXTRACTION: EXTRACTABLE FUELS	☐	☐	☑	SUB
			12/21/2018		EPA 8015B	TPH EXTRACTABLE BY GC/FID	☐	☐	☑	SUB
			12/21/2018		EPA 8015B	Total TPH	☐	☐	☑	SUB
N033444-001C			12/21/2018		EPA 8015B	GASOLINE RANGE ORGANICS BY GC/FID	☐	☐	☑	SUB
N033444-002A	FOLDER	12/21/2018	12/21/2018		Folder	Folder	☐	☐	☐	LAB
			12/21/2018		Folder	Folder	☐	☐	☐	LAB

ASSET Laboratories
3151-3153 W Post Rd., Las Vegas, NV 89118
www.atl-labs.com
TEL: 7023072659 *FAX: 7023072691*

CHAIN-OF-CUSTODY RECORD

QC Level: RTNE

Subcontractor:

BC Labs
4100 Atlas Court
Bakersfield, CA 93308

TEL: (661) 327-4911
FAX: (661) 327-1918
Acct #:

Field Sampler: James Dye

17-Dec-18

Sample ID	Matrix	Date Collected	Bottle Type	Requested Tests		
				EPA 3510C	EPA 8015B	
N033444-001B / INF-12-14	Wastewater	12/14/2018 12:55:00 PM	32OZA	1	2	
N033444-001C / INF-12-14	Wastewater	12/14/2018 12:55:00 PM	VOA		1	

Please cc Report to Lucille Golosinda at lucille.golosinda@assetlaboratories.com

General Comments: Please email sample receipt acknowledgement to the PM.

Please use PO#:N33444A Please email Invoices and Account Receivable Statements to elvira@assetlaboratories.com. For questions, call Marlon at (702)-307-2659. Please e-mail results to reports.lv@assetlaboratories.com by: 12/21/2018

Please analyze for TPH-gas (8015B), TPH-d, TPH-o, Total TPH (8015B). EDD Requirement CH2MHill Labspec7 edata. Please report "J" flagged down to MDL format.

		Date/Time		Date/Time
Relinquished by:		12/17/18 17:04	**Received by:**	
Relinquished by:			**Received by:**	

Date of Report: 12/24/2018

Marlon Cartin

ASSET Laboratories- Las Vegas
3151-3153 W. Post Rd
Las Vegas, NV 89118

Client Project:	N033444
BCL Project:	CH2MHILL
BCL Work Order:	1839332
Invoice ID:	B326242

Enclosed are the results of analyses for samples received by the laboratory on 12/18/2018. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Contact Person: Vanessa Sandoval
Client Service Rep

Stuart Buttram
Technical Director

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Sample Results

1839332-01 - INF-12-14

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Quality Control Reports

Purgeable Aromatics and Total Petroleum Hydrocarbons

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Total Petroleum Hydrocarbons

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ASSET Laboratories
3151-3153 W Post Rd., Las Vegas, NV 89118
www.atl-labs.com
TEL: 7023072659 *FAX: 7023072691*

CHAIN-OF-CUSTODY RECORD

Page 1 of 1

18-304332

QC Level: RTNE

Subcontractor:
BC Labs
4100 Atlas Court
Bakersfield, CA 93308

TEL: (661) 327-4911
FAX: (661) 327-1918
Acct #:

Field Sampler: James Dye

17-Dec-18

Sample ID	Matrix	Date Collected	Bottle Type	Requested Tests		
				EPA 3510C	EPA 8015B	
N033444-001B / INF-12-14	Wastewater	12/14/2018 12:55:00 PM	32OZA	1	2	
N033444-001C / INF-12-14	Wastewater	12/14/2018 12:55:00 PM	VOA		1	

RUSH!

Please cc Report to Lucille Golosinda at lucille.golosinda@assetlaboratories.com

CHK BY DISTRIBUTION SUB-OUT

General Comments: Please email sample receipt acknowledgement to the PM.

Please use PO#:N33444A Please email Invoices and Account Receivable Statements to elvira@assetlaboratories.com. For questions, call Marlon at (702)-307-2659. Please e-mail results to reports.lv@assetlaboratories.com by: 12/21/2018

Please analyze for TPH-gas (8015B), TPH-d, TPH-o, Total TPH (8015B). EDD Requirement CH2MHill Labspec7 edata. Please report "J" flagged down to MDL format.

	Date/Time		Date/Time
Relinquished by:	12/17/18 17:04	Received by:	12.18.18 09:00
Relinquished by:		Received by:	

Chain of Custody and Cooler Receipt Form for 1839332 Page 2 of 2

BC LABORATORIES INC. COOLER RECEIPT FORM Page 1 Of 1

Submission #: 17-39332

SHIPPING INFORMATION
Fed Ex ☐ UPS ☐ Ontrac ☐ Hand Delivery ☐
BC Lab Field Service ☐ Other ☐ (Specify) GSO

SHIPPING CONTAINER
Ice Chest ☐ None ☐ Box ☒
Other ☐ (Specify)

FREE LIQUID
YES ☐ NO ☐
W / S

Refrigerant: Ice ☒ Blue Ice ☐ None ☐ Other ☐ Comments:

Custody Seals Ice Chest ☐ Intact? Yes ☐ No ☐ Containers ☐ Intact? Yes ☐ No ☐ None ☒ Comments:

All samples received? Yes ☒ No ☐ All samples containers intact? Yes ☒ No ☐ Description(s) match COC? Yes ☒ No ☐

COC Received ☒ YES ☐ NO

Emissivity: 95 Container: VOA Thermometer ID: 274

Temperature: (A) 4.3 °C / (C) 4.1 °C

Date/Time 12.18.18 0900

Analyst Init

SAMPLE CONTAINERS	SAMPLE NUMBERS 1	2	3	4	5	6	7	8	9	10
QT PE UNPRES										
4oz / 8oz / 16oz PE UNPRES										
2oz Cr+6										
QT INORGANIC CHEMICAL METALS										
INORGANIC CHEMICAL METALS 4oz / 8oz / 16oz										
PT CYANIDE										
PT NITROGEN FORMS										
PT TOTAL SULFIDE										
2oz. NITRATE / NITRITE										
PT TOTAL ORGANIC CARBON										
PT CHEMICAL OXYGEN DEMAND										
PtA PHENOLICS										
40ml VOA VIAL TRAVEL BLANK										
40ml VOA VIAL	CAN	DW								
QT EPA 1664										
PT ODOR										
RADIOLOGICAL										
BACTERIOLOGICAL										
40 ml VOA VIAL- 504										
QT EPA 508/608/8080										
QT EPA 515.1/8150										
QT EPA 525										
QT EPA 525 TRAVEL BLANK										
40ml EPA 547										
40ml EPA 531.1										
8oz EPA 548										
QT EPA 549										
QT EPA 8015M										
QT EPA 8270										
8oz / 16oz / 32oz AMBER	CO A									
8oz / 16oz / 32oz JAR										
SOIL SLEEVE										
PCB VIAL										
PLASTIC BAG										
TEDLAR BAG										
FERROUS IRON										
ENCORE										
SMART KIT										
SUMMA CANISTER										

Comments:

Sample Numbering Completed By: JPL Date/Time: 12/19/18 1115

A = Actual / C = Corrected

Rev 21 05/23/2016

I:\WPDocs\WordPerfect\LAB_DOCS\FORMS\SAMREC rev 20)

ASSET Laboratories- Las Vegas
3151-3153 W. Post Rd
Las Vegas, NV 89118

Reported: 12/24/2018 12:54
Project: CH2MHILL
Project Number: N033444
Project Manager: Marlon Cartin

Laboratory / Client Sample Cross Reference

Laboratory	Client Sample Information			
1839332-01	**COC Number:**	---	**Receive Date:**	12/18/2018 09:00
	Project Number:	---	**Sampling Date:**	12/14/2018 12:55
	Sampling Location:	---	**Sample Depth:**	---
	Sampling Point:	INF-12-14	**Lab Matrix:**	Water
	Sampled By:	---	**Sample Type:**	Water

ASSET Laboratories- Las Vegas
3151-3153 W. Post Rd
Las Vegas, NV 89118

Reported: 12/24/2018 12:54
Project: CH2MHILL
Project Number: N033444
Project Manager: Marlon Cartin

Purgeable Aromatics and Total Petroleum Hydrocarbons

BCL Sample ID: 1839332-01 | **Client Sample Name:** INF-12-14, 12/14/2018 12:55:00PM

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Gasoline Range Organics (C4 - C12)	**0.17**	**ppm**	**0.050**	**0.022**	**EPA-8015B**	ND		1
a,a,a-Trifluorotoluene (FID Surrogate)	91.9	%	70 - 130 (LCL - UCL)		EPA-8015B			1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID
1	EPA-8015B	12/18/18 15:14	12/19/18 21:03	JBR	GC-V9	1	B033258

ASSET Laboratories- Las Vegas
3151-3153 W. Post Rd
Las Vegas, NV 89118

Reported: 12/24/2018 12:54
Project: CH2MHILL
Project Number: N033444
Project Manager: Marlon Cartin

Total Petroleum Hydrocarbons

BCL Sample ID: 1839332-01 | **Client Sample Name:** INF-12-14, 12/14/2018 12:55:00PM

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
TPH - Diesel (C13 - C22)	**210**	**ug/L**	**40**	**6.8**	**EPA-8015CC**	ND		1
TPH - Motor Oil (C23 - C36)	**77**	**ug/L**	**100**	**13**	**EPA-8015CC**	ND	**J**	1
Tetracosane (Surrogate)	91.5	%	37 - 134 (LCL - UCL)		EPA-8015CC			1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID
1	EPA-8015CC	12/18/18 19:37	12/19/18 09:51	RSM	GC-13	1.021	B033349

ASSET Laboratories- Las Vegas
3151-3153 W. Post Rd
Las Vegas, NV 89118

Reported: 12/24/2018 12:54
Project: CH2MHILL
Project Number: N033444
Project Manager: Marlon Cartin

Purgeable Aromatics and Total Petroleum Hydrocarbons

Quality Control Report - Method Blank Analysis

Constituent	QC Sample ID	MB Result	Units	PQL	MDL	Lab Quals
QC Batch ID: B033258						
Gasoline Range Organics (C4 - C12)	B033258-BLK1	ND	ppm	0.050	0.022	U
a,a,a-Trifluorotoluene (FID Surrogate)	**B033258-BLK1**	**86.2**	%	**70 - 130 (LCL - UCL)**		

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Purgeable Aromatics and Total Petroleum Hydrocarbons

Quality Control Report - Laboratory Control Sample

Constituent	QC Sample ID	Type	Result	Spike Level	Units	Percent Recovery	RPD	Control Limits Percent Recovery	Control Limits RPD	Lab Quals
QC Batch ID: B033258										
Gasoline Range Organics (C4 - C12)	B033258-BS1	LCS	1.0977	1.0000	ppm	110		85 - 115		
a,a,a-Trifluorotoluene (FID Surrogate)	B033258-BS1	LCS	0.036029	0.040000	ppm	90.1		70 - 130		

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Reported: 12/24/2018 12:54
Project: CH2MHILL
Project Number: N033444
Project Manager: Marlon Cartin

Purgeable Aromatics and Total Petroleum Hydrocarbons

Quality Control Report - Precision & Accuracy

Constituent	Type	Source Sample ID	Source Result	Result	Spike Added	Units	RPD	Percent Recovery	Control Limits RPD	Control Limits Percent Recovery	Lab Quals
QC Batch ID: B033258	Used client sample: N										
Gasoline Range Organics (C4 - C12)	MS	1836707-66	ND	1.0697	1.0000	ppm		107		70 - 130	
	MSD	1836707-66	ND	0.96830	1.0000	ppm	10.0	96.8	20	70 - 130	
a,a,a-Trifluorotoluene (FID Surrogate)	MS	1836707-66	ND	0.035130	0.040000	ppm		87.8		70 - 130	
	MSD	1836707-66	ND	0.035432	0.040000	ppm	0.9	88.6		70 - 130	

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Reported: 12/24/2018 12:54
Project: CH2MHILL
Project Number: N033444
Project Manager: Marlon Cartin

Total Petroleum Hydrocarbons

Quality Control Report - Method Blank Analysis

Constituent	QC Sample ID	MB Result	Units	PQL	MDL	Lab Quals
QC Batch ID: B033349						
TPH - Diesel (C13 - C22)	B033349-BLK1	ND	ug/L	40	6.8	U
TPH - Motor Oil (C23 - C36)	B033349-BLK1	ND	ug/L	100	13	U
Tetracosane (Surrogate)	**B033349-BLK1**	**97.3**	%	**37 - 134 (LCL - UCL)**		

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Reported: 12/24/2018 12:54
Project: CH2MHILL
Project Number: N033444
Project Manager: Marlon Cartin

Total Petroleum Hydrocarbons

Quality Control Report - Laboratory Control Sample

Constituent	QC Sample ID	Type	Result	Spike Level	Units	Percent Recovery	RPD	Control Limits Percent Recovery	Control Limits RPD	Lab Quals
QC Batch ID: B033349										
TPH - Diesel (C13 - C22)	B033349-BS1	LCS	407.55	500.00	ug/L	81.5		52 - 128		
Tetracosane (Surrogate)	B033349-BS1	LCS	20.585	20.000	ug/L	103		37 - 134		

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Project Manager: Marlon Cartin

Total Petroleum Hydrocarbons

Quality Control Report - Precision & Accuracy

Constituent	Type	Source Sample ID	Source Result	Result	Spike Added	Units	RPD	Percent Recovery	Control Limits RPD	Control Limits Percent Recovery	Lab Quals
QC Batch ID: B033349	Used client sample: N										
TPH - Diesel (C13 - C22)	MS	1836707-60	ND	351.26	500.00	ug/L		70.3		50 - 127	
	MSD	1836707-60	ND	358.48	500.00	ug/L	2.0	71.7	30	50 - 127	
Tetracosane (Surrogate)	MS	1836707-60	ND	17.670	20.000	ug/L		88.4		37 - 134	
	MSD	1836707-60	ND	18.906	20.000	ug/L	6.8	94.5		37 - 134	

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Reported: 12/24/2018 12:54
Project: CH2MHILL
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Notes And Definitions

J	Estimated Value (CLP Flag)
MDL	Method Detection Limit
ND	Analyte Not Detected
PQL	Practical Quantitation Limit
U	Analyte Not Detected at or above the reporting limit (CLP Flag)

AMERICAN ANALYTICS

9765 Eton Avenue
Chatsworth
California 91311
Tel: (818) 998-5547
Fax: (818) 998-7258

November 28, 2018

Vladimir Carino

CH2M Hill, Inc.

P.O. Box 241329

Denver, CO 80224

Re : KMEP Norwalk Biosparge Startup / 693142

MB187323 / 8K19015

Enclosed is an analytical report for the above-referenced project. The samples included in this report were received on 11/16/18 16:00 and analyzed in accordance with the attached chain-of-custody.

Unless otherwise noted, all analytical testing was accomplished in accordance with the guidelines established in our Quality Assurance Program Manual, applicable standard operating procedures, and other related documentation. The results in this analytical report are limited to the samples tested and any reproduction thereof must be made in its entirety.

If you have any questions regarding this report or require additional information please call me at American Analytics.

Sincerely,

Allen Aminian

QA/QC Manager

LABORATORY ANALYSIS RESULTS

Client: CH2M Hill, Inc.
Project No: 693142
Project Name: KMEP Norwalk Biosparge Startup

AA Project No: MB187323
Date Received: 11/16/18
Date Reported: 11/28/18

Sample ID	Laboratory ID	Matrix	TAT	Date Sampled	Date Received
Fixed Gases - Field					
SVM-1-5	8K19015-01	Vapor	10	11/12/18 07:54	11/16/18 16:00
SVM-1-15	8K19015-02	Vapor	10	11/12/18 07:55	11/16/18 16:00
SVM-2-5	8K19015-03	Vapor	10	11/12/18 08:40	11/16/18 16:00
SVM-15-7	8K19015-04	Vapor	10	11/12/18 09:10	11/16/18 16:00
SVM-15-15	8K19015-05	Vapor	10	11/12/18 09:12	11/16/18 16:00
SVM-15-22	8K19015-06	Vapor	10	11/12/18 09:14	11/16/18 16:00
SVM-6-7	8K19015-07	Vapor	10	11/12/18 09:57	11/16/18 16:00
SVM-6-13	8K19015-08	Vapor	10	11/12/18 09:59	11/16/18 16:00
SVM-7-7	8K19015-09	Vapor	10	11/12/18 10:50	11/16/18 16:00
SVM-7-13	8K19015-10	Vapor	10	11/12/18 10:52	11/16/18 16:00
SVM-7-13 DUP	8K19015-11	Vapor	10	11/12/18 10:52	11/16/18 16:00
SVM-10-15	8K19015-13	Vapor	10	11/12/18 11:48	11/16/18 16:00
SVM-5-5	8K19015-14	Vapor	10	11/13/18 08:03	11/16/18 16:00
SVM-5-15	8K19015-15	Vapor	10	11/13/18 08:05	11/16/18 16:00
SVM-8-5	8K19015-16	Vapor	10	11/13/18 08:46	11/16/18 16:00
SVM-8-15	8K19015-17	Vapor	10	11/13/18 08:48	11/16/18 16:00
SVM-16-7	8K19015-18	Vapor	10	11/13/18 09:27	11/16/18 16:00
SVM-16-16	8K19015-19	Vapor	10	11/13/18 09:29	11/16/18 16:00
SVM-16-22	8K19015-20	Vapor	10	11/13/18 09:31	11/16/18 16:00

Allen Aminian
QA/QC Manager

LABORATORY ANALYSIS RESULTS

Client: CH2M Hill, Inc.
Project No: 693142
Project Name: KMEP Norwalk Biosparge Startup

AA Project No: MB187323
Date Received: 11/16/18
Date Reported: 11/28/18

Sample ID	Laboratory ID	Matrix	TAT	Date Sampled	Date Received
SVM-3-5	8K19015-21	Vapor	10	11/13/18 10:11	11/16/18 16:00
SVM-3-15	8K19015-22	Vapor	10	11/13/18 10:13	11/16/18 16:00
SVM-12-7	8K19015-24	Vapor	10	11/13/18 11:26	11/16/18 16:00
SVM-12-15	8K19015-25	Vapor	10	11/13/18 11:28	11/16/18 16:00
SVM-12-22	8K19015-26	Vapor	10	11/13/18 11:30	11/16/18 16:00
SVM-12-22 DUP	8K19015-27	Vapor	10	11/13/18 11:30	11/16/18 16:00
SVM-11-7	8K19015-28	Vapor	10	11/14/18 08:25	11/16/18 16:00
SVM-11-15	8K19015-29	Vapor	10	11/14/18 08:27	11/16/18 16:00
SVM-11-22	8K19015-30	Vapor	10	11/14/18 08:29	11/16/18 16:00
SVM-14R-8	8K19015-31	Vapor	10	11/14/18 09:20	11/16/18 16:00
SVM-14R-16	8K19015-32	Vapor	10	11/14/18 09:22	11/16/18 16:00
SVM-14R-22	8K19015-33	Vapor	10	11/14/18 09:24	11/16/18 16:00
SVM-14R-22 DUP	8K19015-34	Vapor	10	11/14/18 09:24	11/16/18 16:00
SVM-13-7	8K19015-35	Vapor	10	11/14/18 10:33	11/16/18 16:00
SVM-13-15	8K19015-36	Vapor	10	11/14/18 10:35	11/16/18 16:00
SVM-13-22	8K19015-37	Vapor	10	11/14/18 10:37	11/16/18 16:00
TO-15 (Mid Level)					
SVM-1-5	8K19015-01	Vapor	10	11/12/18 07:54	11/16/18 16:00
SVM-1-15	8K19015-02	Vapor	10	11/12/18 07:55	11/16/18 16:00
SVM-2-5	8K19015-03	Vapor	10	11/12/18 08:40	11/16/18 16:00

Allen Aminian
QA/QC Manager

LABORATORY ANALYSIS RESULTS

Client: CH2M Hill, Inc.
Project No: 693142
Project Name: KMEP Norwalk Biosparge Startup

AA Project No: MB187323
Date Received: 11/16/18
Date Reported: 11/28/18

Sample ID	Laboratory ID	Matrix	TAT	Date Sampled	Date Received
SVM-15-7	8K19015-04	Vapor	10	11/12/18 09:10	11/16/18 16:00
SVM-15-15	8K19015-05	Vapor	10	11/12/18 09:12	11/16/18 16:00
SVM-15-22	8K19015-06	Vapor	10	11/12/18 09:14	11/16/18 16:00
SVM-6-7	8K19015-07	Vapor	10	11/12/18 09:57	11/16/18 16:00
SVM-6-13	8K19015-08	Vapor	10	11/12/18 09:59	11/16/18 16:00
SVM-7-7	8K19015-09	Vapor	10	11/12/18 10:50	11/16/18 16:00
SVM-7-13	8K19015-10	Vapor	10	11/12/18 10:52	11/16/18 16:00
SVM-7-13 DUP	8K19015-11	Vapor	10	11/12/18 10:52	11/16/18 16:00
Ambient Air	8K19015-12	Vapor	10	11/12/18 11:30	11/16/18 16:00
SVM-10-15	8K19015-13	Vapor	10	11/12/18 11:48	11/16/18 16:00
SVM-5-5	8K19015-14	Vapor	10	11/13/18 08:03	11/16/18 16:00
SVM-5-15	8K19015-15	Vapor	10	11/13/18 08:05	11/16/18 16:00
SVM-8-5	8K19015-16	Vapor	10	11/13/18 08:46	11/16/18 16:00
SVM-8-15	8K19015-17	Vapor	10	11/13/18 08:48	11/16/18 16:00
SVM-16-7	8K19015-18	Vapor	10	11/13/18 09:27	11/16/18 16:00
SVM-16-16	8K19015-19	Vapor	10	11/13/18 09:29	11/16/18 16:00
SVM-16-22	8K19015-20	Vapor	10	11/13/18 09:31	11/16/18 16:00
SVM-3-5	8K19015-21	Vapor	10	11/13/18 10:11	11/16/18 16:00
SVM-3-15	8K19015-22	Vapor	10	11/13/18 10:13	11/16/18 16:00
Ambient Air	8K19015-23	Vapor	10	11/13/18 11:20	11/16/18 16:00

Allen Aminian
QA/QC Manager

LABORATORY ANALYSIS RESULTS

Client: CH2M Hill, Inc.
Project No: 693142
Project Name: KMEP Norwalk Biosparge Startup

AA Project No: MB187323
Date Received: 11/16/18
Date Reported: 11/28/18

Sample ID	Laboratory ID	Matrix	TAT	Date Sampled	Date Received
SVM-12-7	8K19015-24	Vapor	10	11/13/18 11:26	11/16/18 16:00
SVM-12-15	8K19015-25	Vapor	10	11/13/18 11:28	11/16/18 16:00
SVM-12-22	8K19015-26	Vapor	10	11/13/18 11:30	11/16/18 16:00
SVM-12-22 DUP	8K19015-27	Vapor	10	11/13/18 11:30	11/16/18 16:00
SVM-11-7	8K19015-28	Vapor	10	11/14/18 08:25	11/16/18 16:00
SVM-11-15	8K19015-29	Vapor	10	11/14/18 08:27	11/16/18 16:00
SVM-11-22	8K19015-30	Vapor	10	11/14/18 08:29	11/16/18 16:00
SVM-14R-8	8K19015-31	Vapor	10	11/14/18 09:20	11/16/18 16:00
SVM-14R-16	8K19015-32	Vapor	10	11/14/18 09:22	11/16/18 16:00
SVM-14R-22	8K19015-33	Vapor	10	11/14/18 09:24	11/16/18 16:00
SVM-14R-22 DUP	8K19015-34	Vapor	10	11/14/18 09:24	11/16/18 16:00
SVM-13-7	8K19015-35	Vapor	10	11/14/18 10:33	11/16/18 16:00
SVM-13-15	8K19015-36	Vapor	10	11/14/18 10:35	11/16/18 16:00
SVM-13-22	8K19015-37	Vapor	10	11/14/18 10:37	11/16/18 16:00
Ambient Air	8K19015-38	Vapor	10	11/14/18 10:45	11/16/18 16:00
TO-3					
SVM-1-5	8K19015-01	Vapor	10	11/12/18 07:54	11/16/18 16:00
SVM-1-15	8K19015-02	Vapor	10	11/12/18 07:55	11/16/18 16:00
SVM-2-5	8K19015-03	Vapor	10	11/12/18 08:40	11/16/18 16:00
SVM-15-7	8K19015-04	Vapor	10	11/12/18 09:10	11/16/18 16:00

Allen Aminian
QA/QC Manager

LABORATORY ANALYSIS RESULTS

Client: CH2M Hill, Inc.
Project No: 693142
Project Name: KMEP Norwalk Biosparge Startup

AA Project No: MB187323
Date Received: 11/16/18
Date Reported: 11/28/18

Sample ID	Laboratory ID	Matrix	TAT	Date Sampled	Date Received
SVM-15-15	8K19015-05	Vapor	10	11/12/18 09:12	11/16/18 16:00
SVM-15-22	8K19015-06	Vapor	10	11/12/18 09:14	11/16/18 16:00
SVM-6-7	8K19015-07	Vapor	10	11/12/18 09:57	11/16/18 16:00
SVM-6-13	8K19015-08	Vapor	10	11/12/18 09:59	11/16/18 16:00
SVM-7-7	8K19015-09	Vapor	10	11/12/18 10:50	11/16/18 16:00
SVM-7-13	8K19015-10	Vapor	10	11/12/18 10:52	11/16/18 16:00
SVM-7-13 DUP	8K19015-11	Vapor	10	11/12/18 10:52	11/16/18 16:00
Ambient Air	8K19015-12	Vapor	10	11/12/18 11:30	11/16/18 16:00
SVM-10-15	8K19015-13	Vapor	10	11/12/18 11:48	11/16/18 16:00
SVM-5-5	8K19015-14	Vapor	10	11/13/18 08:03	11/16/18 16:00
SVM-5-15	8K19015-15	Vapor	10	11/13/18 08:05	11/16/18 16:00
SVM-8-5	8K19015-16	Vapor	10	11/13/18 08:46	11/16/18 16:00
SVM-8-15	8K19015-17	Vapor	10	11/13/18 08:48	11/16/18 16:00
SVM-16-7	8K19015-18	Vapor	10	11/13/18 09:27	11/16/18 16:00
SVM-16-16	8K19015-19	Vapor	10	11/13/18 09:29	11/16/18 16:00
SVM-16-22	8K19015-20	Vapor	10	11/13/18 09:31	11/16/18 16:00
SVM-3-5	8K19015-21	Vapor	10	11/13/18 10:11	11/16/18 16:00
SVM-3-15	8K19015-22	Vapor	10	11/13/18 10:13	11/16/18 16:00
Ambient Air	8K19015-23	Vapor	10	11/13/18 11:20	11/16/18 16:00
SVM-12-7	8K19015-24	Vapor	10	11/13/18 11:26	11/16/18 16:00

Allen Aminian
QA/QC Manager

LABORATORY ANALYSIS RESULTS

Client: CH2M Hill, Inc.
Project No: 693142
Project Name: KMEP Norwalk Biosparge Startup

AA Project No: MB187323
Date Received: 11/16/18
Date Reported: 11/28/18

Sample ID	Laboratory ID	Matrix	TAT	Date Sampled	Date Received
SVM-12-15	8K19015-25	Vapor	10	11/13/18 11:28	11/16/18 16:00
SVM-12-22	8K19015-26	Vapor	10	11/13/18 11:30	11/16/18 16:00
SVM-12-22 DUP	8K19015-27	Vapor	10	11/13/18 11:30	11/16/18 16:00
SVM-11-7	8K19015-28	Vapor	10	11/14/18 08:25	11/16/18 16:00
SVM-11-15	8K19015-29	Vapor	10	11/14/18 08:27	11/16/18 16:00
SVM-11-22	8K19015-30	Vapor	10	11/14/18 08:29	11/16/18 16:00
SVM-14R-8	8K19015-31	Vapor	10	11/14/18 09:20	11/16/18 16:00
SVM-14R-16	8K19015-32	Vapor	10	11/14/18 09:22	11/16/18 16:00
SVM-14R-22	8K19015-33	Vapor	10	11/14/18 09:24	11/16/18 16:00
SVM-14R-22 DUP	8K19015-34	Vapor	10	11/14/18 09:24	11/16/18 16:00
SVM-13-7	8K19015-35	Vapor	10	11/14/18 10:33	11/16/18 16:00
SVM-13-15	8K19015-36	Vapor	10	11/14/18 10:35	11/16/18 16:00
SVM-13-22	8K19015-37	Vapor	10	11/14/18 10:37	11/16/18 16:00
Ambient Air	8K19015-38	Vapor	10	11/14/18 10:45	11/16/18 16:00

Allen Aminian
QA/QC Manager

LABORATORY ANALYSIS RESULTS

Client: CH2M Hill, Inc.
Project No: 693142
Project Name: KMEP Norwalk Biosparge Startup

AA Project No: MB187323
Date Received: 11/16/18
Date Reported: 11/28/18

ANALYTICAL DATA SUMMARY

Analyte	Sample Name	Result	MRL	Units	Dilution	Prepared	Analyzed	Method
		Fixed Gases by TCD						
Oxygen	SVM-1-5	**20**	0.10	% by Volume	1	11/12/18	11/12/18	EPA 3CM
Oxygen	SVM-1-15	**19**	0.10	% by Volume	1	11/12/18	11/12/18	EPA 3CM
Oxygen	SVM-2-5	**19**	0.10	% by Volume	1	11/12/18	11/12/18	EPA 3CM
Oxygen	SVM-15-7	**19**	0.10	% by Volume	1	11/12/18	11/12/18	EPA 3CM
Carbon Dioxide	SVM-15-7	**0.17**	0.10	% by Volume	1	11/12/18	11/12/18	EPA 3CM
Oxygen	SVM-15-15	**19**	0.10	% by Volume	1	11/12/18	11/12/18	EPA 3CM
Carbon Dioxide	SVM-15-15	**0.24**	0.10	% by Volume	1	11/12/18	11/12/18	EPA 3CM
Oxygen	SVM-15-22	**18**	0.10	% by Volume	1	11/12/18	11/12/18	EPA 3CM
Carbon Dioxide	SVM-15-22	**0.30**	0.10	% by Volume	1	11/12/18	11/12/18	EPA 3CM
Oxygen	SVM-6-7	**19**	0.10	% by Volume	1	11/12/18	11/12/18	EPA 3CM

Allen Aminian
QA/QC Manager

LABORATORY ANALYSIS RESULTS

Client: CH2M Hill, Inc.
Project No: 693142
Project Name: KMEP Norwalk Biosparge Startup

AA Project No: MB187323
Date Received: 11/16/18
Date Reported: 11/28/18

ANALYTICAL DATA SUMMARY

Analyte	Sample Name	Result	MRL	Units	Dilution	Prepared	Analyzed	Method
Oxygen	SVM-6-13	**17**	0.10	% by Volume	1	11/12/18	11/12/18	EPA 3CM
Carbon Dioxide	SVM-6-13	**0.27**	0.10	% by Volume	1	11/12/18	11/12/18	EPA 3CM
Oxygen	SVM-7-7	**19**	0.10	% by Volume	1	11/12/18	11/12/18	EPA 3CM
Carbon Dioxide	SVM-7-7	**0.45**	0.10	% by Volume	1	11/12/18	11/12/18	EPA 3CM
Oxygen	SVM-7-13	**19**	0.10	% by Volume	1	11/12/18	11/12/18	EPA 3CM
Carbon Dioxide	SVM-7-13	**0.73**	0.10	% by Volume	1	11/12/18	11/12/18	EPA 3CM
Oxygen	SVM-7-13 DUP	**19**	0.10	% by Volume	1	11/12/18	11/12/18	EPA 3CM
Carbon Dioxide	SVM-7-13 DUP	**0.69**	0.10	% by Volume	1	11/12/18	11/12/18	EPA 3CM
Oxygen	SVM-10-15	**15**	0.10	% by Volume	1	11/12/18	11/12/18	EPA 3CM
Carbon Dioxide	SVM-10-15	**4.0**	0.10	% by Volume	1	11/12/18	11/12/18	EPA 3CM
Oxygen	SVM-5-5	**18**	0.10	% by Volume	1	11/13/18	11/13/18	EPA 3CM

Allen Aminian
QA/QC Manager

LABORATORY ANALYSIS RESULTS

Client: CH2M Hill, Inc.
Project No: 693142
Project Name: KMEP Norwalk Biosparge Startup

AA Project No: MB187323
Date Received: 11/16/18
Date Reported: 11/28/18

ANALYTICAL DATA SUMMARY

Analyte	Sample Name	Result	MRL	Units	Dilution	Prepared	Analyzed	Method
Oxygen	SVM-5-15	**19**	0.10	% by Volume	1	11/13/18	11/13/18	EPA 3CM
Carbon Dioxide	SVM-5-15	**0.13**	0.10	% by Volume	1	11/13/18	11/13/18	EPA 3CM
Oxygen	SVM-8-5	**19**	0.10	% by Volume	1	11/13/18	11/13/18	EPA 3CM
Carbon Dioxide	SVM-8-5	**0.13**	0.10	% by Volume	1	11/13/18	11/13/18	EPA 3CM
Oxygen	SVM-8-15	**19**	0.10	% by Volume	1	11/13/18	11/13/18	EPA 3CM
Carbon Dioxide	SVM-8-15	**0.18**	0.10	% by Volume	1	11/13/18	11/13/18	EPA 3CM
Oxygen	SVM-16-7	**19**	0.10	% by Volume	1	11/13/18	11/13/18	EPA 3CM
Carbon Dioxide	SVM-16-7	**0.39**	0.10	% by Volume	1	11/13/18	11/13/18	EPA 3CM
Oxygen	SVM-16-16	**17**	0.10	% by Volume	1	11/13/18	11/13/18	EPA 3CM
Carbon Dioxide	SVM-16-16	**0.75**	0.10	% by Volume	1	11/13/18	11/13/18	EPA 3CM
Oxygen	SVM-16-22	**6.1**	0.10	% by Volume	1	11/13/18	11/13/18	EPA 3CM

Allen Aminian
QA/QC Manager

LABORATORY ANALYSIS RESULTS

Client: CH2M Hill, Inc.
Project No: 693142
Project Name: KMEP Norwalk Biosparge Startup

AA Project No: MB187323
Date Received: 11/16/18
Date Reported: 11/28/18

ANALYTICAL DATA SUMMARY

Analyte	Sample Name	Result	MRL	Units	Dilution	Prepared	Analyzed	Method
Carbon Dioxide	SVM-16-22	**8.8**	0.10	% by Volume	1	11/13/18	11/13/18	EPA 3CM
Oxygen	SVM-3-5	**19**	0.10	% by Volume	1	11/13/18	11/13/18	EPA 3CM
Carbon Dioxide	SVM-3-5	**0.13**	0.10	% by Volume	1	11/13/18	11/13/18	EPA 3CM
Oxygen	SVM-3-15	**18**	0.10	% by Volume	1	11/13/18	11/13/18	EPA 3CM
Carbon Dioxide	SVM-3-15	**0.28**	0.10	% by Volume	1	11/13/18	11/13/18	EPA 3CM
Oxygen	SVM-12-7	**19**	0.10	% by Volume	1	11/13/18	11/13/18	EPA 3CM
Carbon Dioxide	SVM-12-7	**1.1**	0.10	% by Volume	1	11/13/18	11/13/18	EPA 3CM
Oxygen	SVM-12-15	**16**	0.10	% by Volume	1	11/13/18	11/13/18	EPA 3CM
Carbon Dioxide	SVM-12-15	**3.0**	0.10	% by Volume	1	11/13/18	11/13/18	EPA 3CM
Oxygen	SVM-12-22	**8.2**	0.10	% by Volume	1	11/13/18	11/13/18	EPA 3CM
Carbon Dioxide	SVM-12-22	**8.0**	0.10	% by Volume	1	11/13/18	11/13/18	EPA 3CM

Allen Aminian
QA/QC Manager

LABORATORY ANALYSIS RESULTS

Client: CH2M Hill, Inc.
Project No: 693142
Project Name: KMEP Norwalk Biosparge Startup

AA Project No: MB187323
Date Received: 11/16/18
Date Reported: 11/28/18

ANALYTICAL DATA SUMMARY

Analyte	Sample Name	Result	MRL	Units	Dilution	Prepared	Analyzed	Method
Oxygen	SVM-12-22 DUP	**8.4**	0.10	% by Volume	1	11/13/18	11/13/18	EPA 3CM
Carbon Dioxide	SVM-12-22 DUP	**7.4**	0.10	% by Volume	1	11/13/18	11/13/18	EPA 3CM
Oxygen	SVM-11-7	**19**	0.10	% by Volume	1	11/14/18	11/14/18	EPA 3CM
Carbon Dioxide	SVM-11-7	**0.47**	0.10	% by Volume	1	11/14/18	11/14/18	EPA 3CM
Oxygen	SVM-11-15	**18**	0.10	% by Volume	1	11/14/18	11/14/18	EPA 3CM
Carbon Dioxide	SVM-11-15	**1.2**	0.10	% by Volume	1	11/14/18	11/14/18	EPA 3CM
Oxygen	SVM-11-22	**7.7**	0.10	% by Volume	1	11/14/18	11/14/18	EPA 3CM
Carbon Dioxide	SVM-11-22	**8.2**	0.10	% by Volume	1	11/14/18	11/14/18	EPA 3CM
Oxygen	SVM-14R-8	**15**	0.10	% by Volume	1	11/14/18	11/14/18	EPA 3CM
Carbon Dioxide	SVM-14R-8	**1.7**	0.10	% by Volume	1	11/14/18	11/14/18	EPA 3CM
Oxygen	SVM-14R-16	**14**	0.10	% by Volume	1	11/14/18	11/14/18	EPA 3CM

Allen Aminian
QA/QC Manager

LABORATORY ANALYSIS RESULTS

Client: CH2M Hill, Inc.
Project No: 693142
Project Name: KMEP Norwalk Biosparge Startup

AA Project No: MB187323
Date Received: 11/16/18
Date Reported: 11/28/18

ANALYTICAL DATA SUMMARY

Analyte	Sample Name	Result	MRL	Units	Dilution	Prepared	Analyzed	Method
Carbon Dioxide	SVM-14R-16	**1.8**	0.10	% by Volume	1	11/14/18	11/14/18	EPA 3CM
Oxygen	SVM-14R-22	**1.9**	0.10	% by Volume	1	11/14/18	11/14/18	EPA 3CM
Carbon Dioxide	SVM-14R-22	**5.9**	0.10	% by Volume	1	11/14/18	11/14/18	EPA 3CM
Oxygen	SVM-14R-22 DUP	**2.2**	0.10	% by Volume	1	11/14/18	11/14/18	EPA 3CM
Carbon Dioxide	SVM-14R-22 DUP	**5.7**	0.10	% by Volume	1	11/14/18	11/14/18	EPA 3CM
Oxygen	SVM-13-7	**19**	0.10	% by Volume	1	11/14/18	11/14/18	EPA 3CM
Oxygen	SVM-13-15	**19**	0.10	% by Volume	1	11/14/18	11/14/18	EPA 3CM
Oxygen	SVM-13-22	**16**	0.10	% by Volume	1	11/14/18	11/14/18	EPA 3CM
Carbon Dioxide	SVM-13-22	**1.2**	0.10	% by Volume	1	11/14/18	11/14/18	EPA 3CM
		VOCs by EPA TO-3						
Gasoline Range Organics (GRO)	SVM-14R-22	**47**	20	ug/L	1	11/16/18	11/16/18	TO-3
Gasoline Range Organics (GRO)	SVM-14R-22 DUP	**51**	20	ug/L	1	11/16/18	11/16/18	TO-3

Allen Aminian
QA/QC Manager

LABORATORY ANALYSIS RESULTS

Client: CH2M Hill, Inc.
Project No: 693142
Project Name: KMEP Norwalk Biosparge Startup

AA Project No: MB187323
Date Received: 11/16/18
Date Reported: 11/28/18

ANALYTICAL DATA SUMMARY

Analyte	Sample Name	Result	MRL	Units	Dilution	Prepared	Analyzed	Method
VOCs by GCMS EPA TO-15 (Mid Level)								
Ethanol	SVM-6-13	**0.027**	0.020	ug/L	1	11/12/18	11/12/18	TO-15
Ethanol	SVM-7-7	**0.075**	0.020	ug/L	1	11/12/18	11/12/18	TO-15
Tetrachloroethylene (PCE)	SVM-11-22	**0.061**	0.020	ug/L	1	11/14/18	11/14/18	TO-15
Acetone	SVM-14R-22	**0.53**	0.40	ug/L	20	11/16/18	11/16/18	TO-15
Acetone	SVM-14R-22 DUP	**0.48**	0.40	ug/L	20	11/16/18	11/16/18	TO-15
Tetrachloroethylene (PCE)	SVM-13-22	**0.023**	0.020	ug/L	1	11/14/18	11/14/18	TO-15

Allen Aminian
QA/QC Manager

LABORATORY ANALYSIS RESULTS

Client: CH2M Hill, Inc.
Project No: 693142
Project Name: KMEP Norwalk Biosparge Startup
Method: VOCs by EPA TO-3

AA Project No: MB187323
Date Received: 11/16/18
Date Reported: 11/28/18
Units: ug/L

Date Sampled:	11/12/18	11/12/18	11/12/18	11/12/18	
Date Prepared:	11/12/18	11/12/18	11/12/18	11/12/18	
Date Analyzed:	11/12/18	11/12/18	11/12/18	11/12/18	
AA ID No:	8K19015-01	8K19015-02	8K19015-03	8K19015-04	
Client ID No:	SVM-1-5	SVM-1-15	SVM-2-5	SVM-15-7	
Matrix:	Vapor	Vapor	Vapor	Vapor	
Dilution Factor:	1	1	1	1	MRL
TO-3 (TO-3)					
Gasoline Range Organics (GRO)	<20	<20	<20	<20	20
Surrogates					**%REC Limits**
4-Bromofluorobenzene	87%	87%	89%	90%	70-130

Allen Aminian
QA/QC Manager

LABORATORY ANALYSIS RESULTS

Client:	CH2M Hill, Inc.	**AA Project No:**	MB187323
Project No:	693142	**Date Received:**	11/16/18
Project Name:	KMEP Norwalk Biosparge Startup	**Date Reported:**	11/28/18
Method:	VOCs by EPA TO-3	**Units:**	ug/L

Date Sampled:	11/12/18	11/12/18	11/12/18	11/12/18	
Date Prepared:	11/12/18	11/12/18	11/13/18	11/12/18	
Date Analyzed:	11/12/18	11/12/18	11/13/18	11/12/18	
AA ID No:	8K19015-05	8K19015-06	8K19015-07	8K19015-08	
Client ID No:	SVM-15-15	SVM-15-22	SVM-6-7	SVM-6-13	
Matrix:	Vapor	Vapor	Vapor	Vapor	
Dilution Factor:	1	1	1	1	MRL
TO-3 (TO-3)					
Gasoline Range Organics (GRO)	<20	<20	<20	<20	20
Surrogates					**%REC Limits**
4-Bromofluorobenzene	90%	92%	87%	93%	70-130

Allen Aminian
QA/QC Manager

LABORATORY ANALYSIS RESULTS

Client: CH2M Hill, Inc.
Project No: 693142
Project Name: KMEP Norwalk Biosparge Startup
Method: VOCs by EPA TO-3

AA Project No: MB187323
Date Received: 11/16/18
Date Reported: 11/28/18
Units: ug/L

Date Sampled:	11/12/18	11/12/18	11/12/18	11/12/18	
Date Prepared:	11/12/18	11/12/18	11/12/18	11/12/18	
Date Analyzed:	11/12/18	11/12/18	11/12/18	11/12/18	
AA ID No:	8K19015-09	8K19015-10	8K19015-11	8K19015-12	
Client ID No:	SVM-7-7	SVM-7-13	SVM-7-13 DUP	Ambient Air	
Matrix:	Vapor	Vapor	Vapor	Vapor	
Dilution Factor:	1	1	1	1	MRL
TO-3 (TO-3)					
Gasoline Range Organics (GRO)	<20	<20	<20	<20	20
Surrogates					**%REC Limits**
4-Bromofluorobenzene	91%	91%	91%	93%	70-130

Allen Aminian
QA/QC Manager

LABORATORY ANALYSIS RESULTS

Client: CH2M Hill, Inc.
Project No: 693142
Project Name: KMEP Norwalk Biosparge Startup
Method: VOCs by EPA TO-3

AA Project No: MB187323
Date Received: 11/16/18
Date Reported: 11/28/18
Units: ug/L

Date Sampled:	11/12/18	11/13/18	11/13/18	11/13/18	
Date Prepared:	11/12/18	11/13/18	11/13/18	11/13/18	
Date Analyzed:	11/12/18	11/13/18	11/13/18	11/13/18	
AA ID No:	8K19015-13	8K19015-14	8K19015-15	8K19015-16	
Client ID No:	SVM-10-15	SVM-5-5	SVM-5-15	SVM-8-5	
Matrix:	Vapor	Vapor	Vapor	Vapor	
Dilution Factor:	1	1	1	1	MRL
TO-3 (TO-3)					
Gasoline Range Organics (GRO)	<20	<20	<20	<20	20
Surrogates					**%REC Limits**
4-Bromofluorobenzene	94%	88%	91%	92%	70-130

Allen Aminian
QA/QC Manager

LABORATORY ANALYSIS RESULTS

Client: CH2M Hill, Inc.
Project No: 693142
Project Name: KMEP Norwalk Biosparge Startup
Method: VOCs by EPA TO-3

AA Project No: MB187323
Date Received: 11/16/18
Date Reported: 11/28/18
Units: ug/L

Date Sampled:	11/13/2018	11/13/2018	11/13/2018	11/13/2018	
Date Prepared:	11/13/18	11/13/18	11/13/18	11/13/18	
Date Analyzed:	11/13/18	11/13/18	11/13/18	11/13/18	
AA ID No:	8K19015-17	8K19015-18	8K19015-19	8K19015-20	
Client ID No:	SVM-8-15	SVM-16-7	SVM-16-16	SVM-16-22	
Matrix:	Vapor	Vapor	Vapor	Vapor	
Dilution Factor:	1	1	1	1	MRL
TO-3 (TO-3)					
Gasoline Range Organics (GRO)	<20	<20	<20	<20	20
Surrogates					**%REC Limits**
4-Bromofluorobenzene	93%	92%	92%	81%	70-130

Allen Aminian
QA/QC Manager

LABORATORY ANALYSIS RESULTS

Client:	CH2M Hill, Inc.	**AA Project No:**	MB187323
Project No:	693142	**Date Received:**	11/16/18
Project Name:	KMEP Norwalk Biosparge Startup	**Date Reported:**	11/28/18
Method:	VOCs by EPA TO-3	**Units:**	ug/L

Date Sampled:	11/13/18	11/13/18	11/13/18	11/13/18	
Date Prepared:	11/13/18	11/13/18	11/13/18	11/14/18	
Date Analyzed:	11/13/18	11/13/18	11/13/18	11/14/18	
AA ID No:	8K19015-21	8K19015-22	8K19015-23	8K19015-24	
Client ID No:	SVM-3-5	SVM-3-15	Ambient Air	SVM-12-7	
Matrix:	Vapor	Vapor	Vapor	Vapor	
Dilution Factor:	1	1	1	1	MRL
TO-3 (TO-3)					
Gasoline Range Organics (GRO)	<20	<20	<20	<20	20
Surrogates					**%REC Limits**
4-Bromofluorobenzene	83%	83%	84%	83%	70-130

Allen Aminian
QA/QC Manager

LABORATORY ANALYSIS RESULTS

Client: CH2M Hill, Inc.
Project No: 693142
Project Name: KMEP Norwalk Biosparge Startup
Method: VOCs by EPA TO-3

AA Project No: MB187323
Date Received: 11/16/18
Date Reported: 11/28/18
Units: ug/L

Date Sampled:	11/13/18	11/13/18	11/13/18	11/14/18	
Date Prepared:	11/13/18	11/13/18	11/13/18	11/14/18	
Date Analyzed:	11/13/18	11/13/18	11/13/18	11/14/18	
AA ID No:	8K19015-25	8K19015-26	8K19015-27	8K19015-28	
Client ID No:	SVM-12-15	SVM-12-22	SVM-12-22 DUP	SVM-11-7	
Matrix:	Vapor	Vapor	Vapor	Vapor	
Dilution Factor:	1	1	1	1	MRL
TO-3 (TO-3)					
Gasoline Range Organics (GRO)	<20	<20	<20	<20	20
Surrogates					**%REC Limits**
4-Bromofluorobenzene	83%	87%	86%	86%	70-130

Allen Aminian
QA/QC Manager

LABORATORY ANALYSIS RESULTS

Client: CH2M Hill, Inc.
Project No: 693142
Project Name: KMEP Norwalk Biosparge Startup
Method: VOCs by EPA TO-3

AA Project No: MB187323
Date Received: 11/16/18
Date Reported: 11/28/18
Units: ug/L

Date Sampled:	11/14/18	11/14/18	11/14/18	11/14/18	
Date Prepared:	11/14/18	11/14/18	11/14/18	11/14/18	
Date Analyzed:	11/14/18	11/14/18	11/14/18	11/14/18	
AA ID No:	8K19015-29	8K19015-30	8K19015-31	8K19015-32	
Client ID No:	SVM-11-15	SVM-11-22	SVM-14R-8	SVM-14R-16	
Matrix:	Vapor	Vapor	Vapor	Vapor	
Dilution Factor:	1	1	1	1	MRL
TO-3 (TO-3)					
Gasoline Range Organics (GRO)	<20	<20	<20	<20	20
Surrogates					**%REC Limits**
4-Bromofluorobenzene	89%	90%	83%	83%	70-130

Allen Aminian
QA/QC Manager

LABORATORY ANALYSIS RESULTS

Client:	CH2M Hill, Inc.	**AA Project No:**	MB187323
Project No:	693142	**Date Received:**	11/16/18
Project Name:	KMEP Norwalk Biosparge Startup	**Date Reported:**	11/28/18
Method:	VOCs by EPA TO-3	**Units:**	ug/L

Date Sampled:	11/14/18	11/14/18	11/14/18	11/14/18	
Date Prepared:	11/16/18	11/16/18	11/14/18	11/14/18	
Date Analyzed:	11/16/18	11/16/18	11/14/18	11/14/18	
AA ID No:	8K19015-33	8K19015-34	8K19015-35	8K19015-36	
Client ID No:	SVM-14R-22	SVM-14R-22 DUP	SVM-13-7	SVM-13-15	
Matrix:	Vapor	Vapor	Vapor	Vapor	
Dilution Factor:	1	1	1	1	MRL
TO-3 (TO-3)					
Gasoline Range Organics (GRO)	**47**	**51**	<20	<20	20
Surrogates					**%REC Limits**
4-Bromofluorobenzene	86%	85%	83%	83%	70-130

Allen Aminian
QA/QC Manager

LABORATORY ANALYSIS RESULTS

Client:	CH2M Hill, Inc.	**AA Project No:**	MB187323
Project No:	693142	**Date Received:**	11/16/18
Project Name:	KMEP Norwalk Biosparge Startup	**Date Reported:**	11/28/18
Method:	VOCs by EPA TO-3	**Units:**	ug/L

Date Sampled:	11/14/18	11/14/18	
Date Prepared:	11/14/18	11/14/18	
Date Analyzed:	11/14/18	11/14/18	
AA ID No:	8K19015-37	8K19015-38	
Client ID No:	SVM-13-22	Ambient Air	
Matrix:	Vapor	Vapor	
Dilution Factor:	1	1	MRL
TO-3 (TO-3)			
Gasoline Range Organics (GRO)	<20	<20	20
Surrogates			**%REC Limits**
4-Bromofluorobenzene	85%	86%	70-130

Allen Aminian
QA/QC Manager

LABORATORY ANALYSIS RESULTS

Client: CH2M Hill, Inc.
Project No: 693142
Project Name: KMEP Norwalk Biosparge Startup
Method: VOCs by GCMS EPA TO-15 (Mid Level)

AA Project No: MB187323
Date Received: 11/16/18
Date Reported: 11/28/18
Units: ug/L

Date Sampled:	11/12/18	11/12/18	11/12/18	11/12/18	
Date Prepared:	11/12/18	11/12/18	11/12/18	11/12/18	
Date Analyzed:	11/12/18	11/12/18	11/12/18	11/12/18	
AA ID No:	8K19015-01	8K19015-02	8K19015-03	8K19015-04	
Client ID No:	SVM-1-5	SVM-1-15	SVM-2-5	SVM-15-7	
Matrix:	Vapor	Vapor	Vapor	Vapor	
Dilution Factor:	1	1	1	1	MRL
TO-15 (Mid Level) (TO-15)					
Acetone	<0.020	<0.020	<0.020	<0.020	0.020
Allyl chloride	<0.020	<0.020	<0.020	<0.020	0.020
tert-Amyl Methyl Ether (TAME)	<0.020	<0.020	<0.020	<0.020	0.020
Benzene	<0.020	<0.020	<0.020	<0.020	0.020
Benzyl chloride	<0.020	<0.020	<0.020	<0.020	0.020
Bromodichloromethane	<0.020	<0.020	<0.020	<0.020	0.020
Bromoform	<0.020	<0.020	<0.020	<0.020	0.020
Bromomethane	<0.020	<0.020	<0.020	<0.020	0.020
1,3-Butadiene	<0.020	<0.020	<0.020	<0.020	0.020
2-Butanone (MEK)	<0.020	<0.020	<0.020	<0.020	0.020
tert-Butyl alcohol (TBA)	<20	<20	<20	<20	20
Carbon Disulfide	<0.020	<0.020	<0.020	<0.020	0.020
Carbon Tetrachloride	<0.020	<0.020	<0.020	<0.020	0.020
Chlorobenzene	<0.020	<0.020	<0.020	<0.020	0.020
Chloroethane	<0.020	<0.020	<0.020	<0.020	0.020
Chloroform	<0.020	<0.020	<0.020	<0.020	0.020
Chloromethane	<0.020	<0.020	<0.020	<0.020	0.020
Cyclohexane	<0.020	<0.020	<0.020	<0.020	0.020
Dibromochloromethane	<0.020	<0.020	<0.020	<0.020	0.020
1,2-Dibromoethane (EDB)	<0.020	<0.020	<0.020	<0.020	0.020
1,2-Dichlorobenzene	<0.020	<0.020	<0.020	<0.020	0.020
1,3-Dichlorobenzene	<0.020	<0.020	<0.020	<0.020	0.020
1,4-Dichlorobenzene	<0.020	<0.020	<0.020	<0.020	0.020
Dichlorodifluoromethane (R12)	<0.020	<0.020	<0.020	<0.020	0.020
1,1-Dichloroethane	<0.020	<0.020	<0.020	<0.020	0.020
1,2-Dichloroethane (EDC)	<0.020	<0.020	<0.020	<0.020	0.020
cis-1,2-Dichloroethylene	<0.020	<0.020	<0.020	<0.020	0.020

Allen Aminian
QA/QC Manager

LABORATORY ANALYSIS RESULTS

Client: CH2M Hill, Inc.
Project No: 693142
Project Name: KMEP Norwalk Biosparge Startup
Method: VOCs by GCMS EPA TO-15 (Mid Level)

AA Project No: MB187323
Date Received: 11/16/18
Date Reported: 11/28/18
Units: ug/L

Date Sampled:	11/12/18	11/12/18	11/12/18	11/12/18	
Date Prepared:	11/12/18	11/12/18	11/12/18	11/12/18	
Date Analyzed:	11/12/18	11/12/18	11/12/18	11/12/18	
AA ID No:	8K19015-01	8K19015-02	8K19015-03	8K19015-04	
Client ID No:	SVM-1-5	SVM-1-15	SVM-2-5	SVM-15-7	
Matrix:	Vapor	Vapor	Vapor	Vapor	
Dilution Factor:	1	1	1	1	MRL
TO-15 (Mid Level) (TO-15) (continued)					
1,1-Dichloroethylene	<0.020	<0.020	<0.020	<0.020	0.020
trans-1,2-Dichloroethylene	<0.020	<0.020	<0.020	<0.020	0.020
1,2-Dichloropropane	<0.020	<0.020	<0.020	<0.020	0.020
trans-1,3-Dichloropropylene	<0.020	<0.020	<0.020	<0.020	0.020
cis-1,3-Dichloropropylene	<0.020	<0.020	<0.020	<0.020	0.020
Dichlorotetrafluoroethane	<0.020	<0.020	<0.020	<0.020	0.020
Diisopropyl ether (DIPE)	<0.020	<0.020	<0.020	<0.020	0.020
1,4-Dioxane	<0.020	<0.020	<0.020	<0.020	0.020
Ethanol	<0.020	<0.020	<0.020	<0.020	0.020
Ethyl Acetate	<0.020	<0.020	<0.020	<0.020	0.020
Ethylbenzene	<0.020	<0.020	<0.020	<0.020	0.020
Ethyl-tert-Butyl Ether (ETBE)	<0.020	<0.020	<0.020	<0.020	0.020
4-Ethyltoluene	<0.020	<0.020	<0.020	<0.020	0.020
Heptane	<0.020	<0.020	<0.020	<0.020	0.020
Hexachlorobutadiene	<0.020	<0.020	<0.020	<0.020	0.020
n-Hexane	<0.020	<0.020	<0.020	<0.020	0.020
2-Hexanone (MBK)	<0.020	<0.020	<0.020	<0.020	0.020
Isopropanol (IPA)	<0.20	<0.20	<0.20	<0.20	0.20
Methyl-tert-Butyl Ether (MTBE)	<0.020	<0.020	<0.020	<0.020	0.020
Methylene Chloride	<0.020	<0.020	<0.020	<0.020	0.020
4-Methyl-2-pentanone (MIBK)	<0.020	<0.020	<0.020	<0.020	0.020
Naphthalene	<0.020	<0.020	<0.020	<0.020	0.020
Propylene	<0.020	<0.020	<0.020	<0.020	0.020
Styrene	<0.020	<0.020	<0.020	<0.020	0.020
1,1,2,2-Tetrachloroethane	<0.020	<0.020	<0.020	<0.020	0.020
Tetrachloroethylene (PCE)	<0.020	<0.020	<0.020	<0.020	0.020
Tetrahydrofuran (THF)	<0.020	<0.020	<0.020	<0.020	0.020

Allen Aminian
QA/QC Manager

LABORATORY ANALYSIS RESULTS

Client: CH2M Hill, Inc.
Project No: 693142
Project Name: KMEP Norwalk Biosparge Startup
Method: VOCs by GCMS EPA TO-15 (Mid Level)

AA Project No: MB187323
Date Received: 11/16/18
Date Reported: 11/28/18
Units: ug/L

Date Sampled:	11/12/18	11/12/18	11/12/18	11/12/18	
Date Prepared:	11/12/18	11/12/18	11/12/18	11/12/18	
Date Analyzed:	11/12/18	11/12/18	11/12/18	11/12/18	
AA ID No:	8K19015-01	8K19015-02	8K19015-03	8K19015-04	
Client ID No:	SVM-1-5	SVM-1-15	SVM-2-5	SVM-15-7	
Matrix:	Vapor	Vapor	Vapor	Vapor	
Dilution Factor:	1	1	1	1	MRL
TO-15 (Mid Level) (TO-15) (continued)					
Toluene	<0.020	<0.020	<0.020	<0.020	0.020
1,2,4-Trichlorobenzene	<0.020	<0.020	<0.020	<0.020	0.020
1,1,2-Trichloroethane	<0.020	<0.020	<0.020	<0.020	0.020
1,1,1-Trichloroethane	<0.020	<0.020	<0.020	<0.020	0.020
Trichloroethylene (TCE)	<0.020	<0.020	<0.020	<0.020	0.020
Trichlorofluoromethane (R11)	<0.020	<0.020	<0.020	<0.020	0.020
1,1,2-Trichloro-1,2,2-trifluoroethane (R113)	<0.020	<0.020	<0.020	<0.020	0.020
1,3,5-Trimethylbenzene	<0.020	<0.020	<0.020	<0.020	0.020
1,2,4-Trimethylbenzene	<0.020	<0.020	<0.020	<0.020	0.020
2,2,4-Trimethylpentane	<0.020	<0.020	<0.020	<0.020	0.020
Vinyl acetate	<0.020	<0.020	<0.020	<0.020	0.020
Vinyl bromide	<0.020	<0.020	<0.020	<0.020	0.020
Vinyl chloride	<0.020	<0.020	<0.020	<0.020	0.020
o-Xylene	<0.020	<0.020	<0.020	<0.020	0.020
m,p-Xylenes	<0.020	<0.020	<0.020	<0.020	0.020
1,2,3-Trichloropropane	<0.020	<0.020	<0.020	<0.020	0.020
sec-Butylbenzene	<0.020	<0.020	<0.020	<0.020	0.020
Isopropylbenzene	<0.020	<0.020	<0.020	<0.020	0.020
n-Propylbenzene	<0.020	<0.020	<0.020	<0.020	0.020
4-Isopropyltoluene	<0.020	<0.020	<0.020	<0.020	0.020
n-Butylbenzene	<0.020	<0.020	<0.020	<0.020	0.020
Surrogates					**%REC Limits**
4-Bromofluorobenzene	89%	90%	91%	92%	70-130

Allen Aminian
QA/QC Manager

LABORATORY ANALYSIS RESULTS

Client: CH2M Hill, Inc.
Project No: 693142
Project Name: KMEP Norwalk Biosparge Startup
Method: VOCs by GCMS EPA TO-15 (Mid Level)

AA Project No: MB187323
Date Received: 11/16/18
Date Reported: 11/28/18
Units: ug/L

Date Sampled:	11/12/18	11/12/18	11/12/18	11/12/18	
Date Prepared:	11/12/18	11/12/18	11/13/18	11/12/18	
Date Analyzed:	11/12/18	11/12/18	11/13/18	11/12/18	
AA ID No:	8K19015-05	8K19015-06	8K19015-07	8K19015-08	
Client ID No:	SVM-15-15	SVM-15-22	SVM-6-7	SVM-6-13	
Matrix:	Vapor	Vapor	Vapor	Vapor	
Dilution Factor:	1	1	1	1	MRL
TO-15 (Mid Level) (TO-15)					
Acetone	<0.020	<0.020	<0.020	<0.020	0.020
Allyl chloride	<0.020	<0.020	<0.020	<0.020	0.020
tert-Amyl Methyl Ether (TAME)	<0.020	<0.020	<0.020	<0.020	0.020
Benzene	<0.020	<0.020	<0.020	<0.020	0.020
Benzyl chloride	<0.020	<0.020	<0.020	<0.020	0.020
Bromodichloromethane	<0.020	<0.020	<0.020	<0.020	0.020
Bromoform	<0.020	<0.020	<0.020	<0.020	0.020
Bromomethane	<0.020	<0.020	<0.020	<0.020	0.020
1,3-Butadiene	<0.020	<0.020	<0.020	<0.020	0.020
2-Butanone (MEK)	<0.020	<0.020	<0.020	<0.020	0.020
tert-Butyl alcohol (TBA)	<20	<20	<20	<20	20
Carbon Disulfide	<0.020	<0.020	<0.020	<0.020	0.020
Carbon Tetrachloride	<0.020	<0.020	<0.020	<0.020	0.020
Chlorobenzene	<0.020	<0.020	<0.020	<0.020	0.020
Chloroethane	<0.020	<0.020	<0.020	<0.020	0.020
Chloroform	<0.020	<0.020	<0.020	<0.020	0.020
Chloromethane	<0.020	<0.020	<0.020	<0.020	0.020
Cyclohexane	<0.020	<0.020	<0.020	<0.020	0.020
Dibromochloromethane	<0.020	<0.020	<0.020	<0.020	0.020
1,2-Dibromoethane (EDB)	<0.020	<0.020	<0.020	<0.020	0.020
1,2-Dichlorobenzene	<0.020	<0.020	<0.020	<0.020	0.020
1,3-Dichlorobenzene	<0.020	<0.020	<0.020	<0.020	0.020
1,4-Dichlorobenzene	<0.020	<0.020	<0.020	<0.020	0.020
Dichlorodifluoromethane (R12)	<0.020	<0.020	<0.020	<0.020	0.020
1,1-Dichloroethane	<0.020	<0.020	<0.020	<0.020	0.020
1,2-Dichloroethane (EDC)	<0.020	<0.020	<0.020	<0.020	0.020
cis-1,2-Dichloroethylene	<0.020	<0.020	<0.020	<0.020	0.020

Allen Aminian
QA/QC Manager

LABORATORY ANALYSIS RESULTS

Client: CH2M Hill, Inc.
Project No: 693142
Project Name: KMEP Norwalk Biosparge Startup
Method: VOCs by GCMS EPA TO-15 (Mid Level)

AA Project No: MB187323
Date Received: 11/16/18
Date Reported: 11/28/18
Units: ug/L

Date Sampled:	11/12/18	11/12/18	11/12/18	11/12/18	
Date Prepared:	11/12/18	11/12/18	11/13/18	11/12/18	
Date Analyzed:	11/12/18	11/12/18	11/13/18	11/12/18	
AA ID No:	8K19015-05	8K19015-06	8K19015-07	8K19015-08	
Client ID No:	SVM-15-15	SVM-15-22	SVM-6-7	SVM-6-13	
Matrix:	Vapor	Vapor	Vapor	Vapor	
Dilution Factor:	1	1	1	1	MRL
TO-15 (Mid Level) (TO-15) (continued)					
1,1-Dichloroethylene	<0.020	<0.020	<0.020	<0.020	0.020
trans-1,2-Dichloroethylene	<0.020	<0.020	<0.020	<0.020	0.020
1,2-Dichloropropane	<0.020	<0.020	<0.020	<0.020	0.020
trans-1,3-Dichloropropylene	<0.020	<0.020	<0.020	<0.020	0.020
cis-1,3-Dichloropropylene	<0.020	<0.020	<0.020	<0.020	0.020
Dichlorotetrafluoroethane	<0.020	<0.020	<0.020	<0.020	0.020
Diisopropyl ether (DIPE)	<0.020	<0.020	<0.020	<0.020	0.020
1,4-Dioxane	<0.020	<0.020	<0.020	<0.020	0.020
Ethanol	<0.020	<0.020	<0.020	**0.027**	0.020
Ethyl Acetate	<0.020	<0.020	<0.020	<0.020	0.020
Ethylbenzene	<0.020	<0.020	<0.020	<0.020	0.020
Ethyl-tert-Butyl Ether (ETBE)	<0.020	<0.020	<0.020	<0.020	0.020
4-Ethyltoluene	<0.020	<0.020	<0.020	<0.020	0.020
Heptane	<0.020	<0.020	<0.020	<0.020	0.020
Hexachlorobutadiene	<0.020	<0.020	<0.020	<0.020	0.020
n-Hexane	<0.020	<0.020	<0.020	<0.020	0.020
2-Hexanone (MBK)	<0.020	<0.020	<0.020	<0.020	0.020
Isopropanol (IPA)	<0.20	<0.20	<0.20	<0.20	0.20
Methyl-tert-Butyl Ether (MTBE)	<0.020	<0.020	<0.020	<0.020	0.020
Methylene Chloride	<0.020	<0.020	<0.020	<0.020	0.020
4-Methyl-2-pentanone (MIBK)	<0.020	<0.020	<0.020	<0.020	0.020
Naphthalene	<0.020	<0.020	<0.020	<0.020	0.020
Propylene	<0.020	<0.020	<0.020	<0.020	0.020
Styrene	<0.020	<0.020	<0.020	<0.020	0.020
1,1,2,2-Tetrachloroethane	<0.020	<0.020	<0.020	<0.020	0.020
Tetrachloroethylene (PCE)	<0.020	<0.020	<0.020	<0.020	0.020
Tetrahydrofuran (THF)	<0.020	<0.020	<0.020	<0.020	0.020

Allen Aminian
QA/QC Manager

LABORATORY ANALYSIS RESULTS

Client: CH2M Hill, Inc.
Project No: 693142
Project Name: KMEP Norwalk Biosparge Startup
Method: VOCs by GCMS EPA TO-15 (Mid Level)

AA Project No: MB187323
Date Received: 11/16/18
Date Reported: 11/28/18
Units: ug/L

Date Sampled:	11/12/18	11/12/18	11/12/18	11/12/18	
Date Prepared:	11/12/18	11/12/18	11/13/18	11/12/18	
Date Analyzed:	11/12/18	11/12/18	11/13/18	11/12/18	
AA ID No:	8K19015-05	8K19015-06	8K19015-07	8K19015-08	
Client ID No:	SVM-15-15	SVM-15-22	SVM-6-7	SVM-6-13	
Matrix:	Vapor	Vapor	Vapor	Vapor	
Dilution Factor:	1	1	1	1	MRL
TO-15 (Mid Level) (TO-15) (continued)					
Toluene	<0.020	<0.020	<0.020	<0.020	0.020
1,2,4-Trichlorobenzene	<0.020	<0.020	<0.020	<0.020	0.020
1,1,2-Trichloroethane	<0.020	<0.020	<0.020	<0.020	0.020
1,1,1-Trichloroethane	<0.020	<0.020	<0.020	<0.020	0.020
Trichloroethylene (TCE)	<0.020	<0.020	<0.020	<0.020	0.020
Trichlorofluoromethane (R11)	<0.020	<0.020	<0.020	<0.020	0.020
1,1,2-Trichloro-1,2,2-trifluoroethane (R113)	<0.020	<0.020	<0.020	<0.020	0.020
1,3,5-Trimethylbenzene	<0.020	<0.020	<0.020	<0.020	0.020
1,2,4-Trimethylbenzene	<0.020	<0.020	<0.020	<0.020	0.020
2,2,4-Trimethylpentane	<0.020	<0.020	<0.020	<0.020	0.020
Vinyl acetate	<0.020	<0.020	<0.020	<0.020	0.020
Vinyl bromide	<0.020	<0.020	<0.020	<0.020	0.020
Vinyl chloride	<0.020	<0.020	<0.020	<0.020	0.020
o-Xylene	<0.020	<0.020	<0.020	<0.020	0.020
m,p-Xylenes	<0.020	<0.020	<0.020	<0.020	0.020
1,2,3-Trichloropropane	<0.020	<0.020	<0.020	<0.020	0.020
sec-Butylbenzene	<0.020	<0.020	<0.020	<0.020	0.020
Isopropylbenzene	<0.020	<0.020	<0.020	<0.020	0.020
n-Propylbenzene	<0.020	<0.020	<0.020	<0.020	0.020
4-Isopropyltoluene	<0.020	<0.020	<0.020	<0.020	0.020
n-Butylbenzene	<0.020	<0.020	<0.020	<0.020	0.020
Surrogates					**%REC Limits**
4-Bromofluorobenzene	93%	95%	90%	96%	70-130

Allen Aminian
QA/QC Manager

LABORATORY ANALYSIS RESULTS

Client: CH2M Hill, Inc.
Project No: 693142
Project Name: KMEP Norwalk Biosparge Startup
Method: VOCs by GCMS EPA TO-15 (Mid Level)

AA Project No: MB187323
Date Received: 11/16/18
Date Reported: 11/28/18
Units: ug/L

Date Sampled:	11/12/18	11/12/18	11/12/18	11/12/18	
Date Prepared:	11/12/18	11/12/18	11/12/18	11/12/18	
Date Analyzed:	11/12/18	11/12/18	11/12/18	11/12/18	
AA ID No:	8K19015-09	8K19015-10	8K19015-11	8K19015-12	
Client ID No:	SVM-7-7	SVM-7-13	SVM-7-13 DUP	Ambient Air	
Matrix:	Vapor	Vapor	Vapor	Vapor	
Dilution Factor:	1	1	1	1	MRL
TO-15 (Mid Level) (TO-15)					
Acetone	<0.020	<0.020	<0.020	<0.020	0.020
Allyl chloride	<0.020	<0.020	<0.020	<0.020	0.020
tert-Amyl Methyl Ether (TAME)	<0.020	<0.020	<0.020	<0.020	0.020
Benzene	<0.020	<0.020	<0.020	<0.020	0.020
Benzyl chloride	<0.020	<0.020	<0.020	<0.020	0.020
Bromodichloromethane	<0.020	<0.020	<0.020	<0.020	0.020
Bromoform	<0.020	<0.020	<0.020	<0.020	0.020
Bromomethane	<0.020	<0.020	<0.020	<0.020	0.020
1,3-Butadiene	<0.020	<0.020	<0.020	<0.020	0.020
2-Butanone (MEK)	<0.020	<0.020	<0.020	<0.020	0.020
tert-Butyl alcohol (TBA)	<20	<20	<20	<20	20
Carbon Disulfide	<0.020	<0.020	<0.020	<0.020	0.020
Carbon Tetrachloride	<0.020	<0.020	<0.020	<0.020	0.020
Chlorobenzene	<0.020	<0.020	<0.020	<0.020	0.020
Chloroethane	<0.020	<0.020	<0.020	<0.020	0.020
Chloroform	<0.020	<0.020	<0.020	<0.020	0.020
Chloromethane	<0.020	<0.020	<0.020	<0.020	0.020
Cyclohexane	<0.020	<0.020	<0.020	<0.020	0.020
Dibromochloromethane	<0.020	<0.020	<0.020	<0.020	0.020
1,2-Dibromoethane (EDB)	<0.020	<0.020	<0.020	<0.020	0.020
1,2-Dichlorobenzene	<0.020	<0.020	<0.020	<0.020	0.020
1,3-Dichlorobenzene	<0.020	<0.020	<0.020	<0.020	0.020
1,4-Dichlorobenzene	<0.020	<0.020	<0.020	<0.020	0.020
Dichlorodifluoromethane (R12)	<0.020	<0.020	<0.020	<0.020	0.020
1,1-Dichloroethane	<0.020	<0.020	<0.020	<0.020	0.020
1,2-Dichloroethane (EDC)	<0.020	<0.020	<0.020	<0.020	0.020
cis-1,2-Dichloroethylene	<0.020	<0.020	<0.020	<0.020	0.020

Allen Aminian
QA/QC Manager

LABORATORY ANALYSIS RESULTS

Client: CH2M Hill, Inc.
Project No: 693142
Project Name: KMEP Norwalk Biosparge Startup
Method: VOCs by GCMS EPA TO-15 (Mid Level)

AA Project No: MB187323
Date Received: 11/16/18
Date Reported: 11/28/18
Units: ug/L

Date Sampled:	11/12/18	11/12/18	11/12/18	11/12/18	
Date Prepared:	11/12/18	11/12/18	11/12/18	11/12/18	
Date Analyzed:	11/12/18	11/12/18	11/12/18	11/12/18	
AA ID No:	8K19015-09	8K19015-10	8K19015-11	8K19015-12	
Client ID No:	SVM-7-7	SVM-7-13	SVM-7-13 DUP	Ambient Air	
Matrix:	Vapor	Vapor	Vapor	Vapor	
Dilution Factor:	1	1	1	1	MRL
TO-15 (Mid Level) (TO-15) (continued)					
1,1-Dichloroethylene	<0.020	<0.020	<0.020	<0.020	0.020
trans-1,2-Dichloroethylene	<0.020	<0.020	<0.020	<0.020	0.020
1,2-Dichloropropane	<0.020	<0.020	<0.020	<0.020	0.020
trans-1,3-Dichloropropylene	<0.020	<0.020	<0.020	<0.020	0.020
cis-1,3-Dichloropropylene	<0.020	<0.020	<0.020	<0.020	0.020
Dichlorotetrafluoroethane	<0.020	<0.020	<0.020	<0.020	0.020
Diisopropyl ether (DIPE)	<0.020	<0.020	<0.020	<0.020	0.020
1,4-Dioxane	<0.020	<0.020	<0.020	<0.020	0.020
Ethanol	**0.075**	<0.020	<0.020	<0.020	0.020
Ethyl Acetate	<0.020	<0.020	<0.020	<0.020	0.020
Ethylbenzene	<0.020	<0.020	<0.020	<0.020	0.020
Ethyl-tert-Butyl Ether (ETBE)	<0.020	<0.020	<0.020	<0.020	0.020
4-Ethyltoluene	<0.020	<0.020	<0.020	<0.020	0.020
Heptane	<0.020	<0.020	<0.020	<0.020	0.020
Hexachlorobutadiene	<0.020	<0.020	<0.020	<0.020	0.020
n-Hexane	<0.020	<0.020	<0.020	<0.020	0.020
2-Hexanone (MBK)	<0.020	<0.020	<0.020	<0.020	0.020
Isopropanol (IPA)	<0.20	<0.20	<0.20	<0.20	0.20
Methyl-tert-Butyl Ether (MTBE)	<0.020	<0.020	<0.020	<0.020	0.020
Methylene Chloride	<0.020	<0.020	<0.020	<0.020	0.020
4-Methyl-2-pentanone (MIBK)	<0.020	<0.020	<0.020	<0.020	0.020
Naphthalene	<0.020	<0.020	<0.020	<0.020	0.020
Propylene	<0.020	<0.020	<0.020	<0.020	0.020
Styrene	<0.020	<0.020	<0.020	<0.020	0.020
1,1,2,2-Tetrachloroethane	<0.020	<0.020	<0.020	<0.020	0.020
Tetrachloroethylene (PCE)	<0.020	<0.020	<0.020	<0.020	0.020
Tetrahydrofuran (THF)	<0.020	<0.020	<0.020	<0.020	0.020

Allen Aminian
QA/QC Manager

LABORATORY ANALYSIS RESULTS

Client: CH2M Hill, Inc.
Project No: 693142
Project Name: KMEP Norwalk Biosparge Startup
Method: VOCs by GCMS EPA TO-15 (Mid Level)

AA Project No: MB187323
Date Received: 11/16/18
Date Reported: 11/28/18
Units: ug/L

Date Sampled:	11/12/18	11/12/18	11/12/18	11/12/18	
Date Prepared:	11/12/18	11/12/18	11/12/18	11/12/18	
Date Analyzed:	11/12/18	11/12/18	11/12/18	11/12/18	
AA ID No:	8K19015-09	8K19015-10	8K19015-11	8K19015-12	
Client ID No:	SVM-7-7	SVM-7-13	SVM-7-13 DUP	Ambient Air	
Matrix:	Vapor	Vapor	Vapor	Vapor	
Dilution Factor:	1	1	1	1	MRL
TO-15 (Mid Level) (TO-15) (continued)					
Toluene	<0.020	<0.020	<0.020	<0.020	0.020
1,2,4-Trichlorobenzene	<0.020	<0.020	<0.020	<0.020	0.020
1,1,2-Trichloroethane	<0.020	<0.020	<0.020	<0.020	0.020
1,1,1-Trichloroethane	<0.020	<0.020	<0.020	<0.020	0.020
Trichloroethylene (TCE)	<0.020	<0.020	<0.020	<0.020	0.020
Trichlorofluoromethane (R11)	<0.020	<0.020	<0.020	<0.020	0.020
1,1,2-Trichloro-1,2,2-trifluoroethane (R113)	<0.020	<0.020	<0.020	<0.020	0.020
1,3,5-Trimethylbenzene	<0.020	<0.020	<0.020	<0.020	0.020
1,2,4-Trimethylbenzene	<0.020	<0.020	<0.020	<0.020	0.020
2,2,4-Trimethylpentane	<0.020	<0.020	<0.020	<0.020	0.020
Vinyl acetate	<0.020	<0.020	<0.020	<0.020	0.020
Vinyl bromide	<0.020	<0.020	<0.020	<0.020	0.020
Vinyl chloride	<0.020	<0.020	<0.020	<0.020	0.020
o-Xylene	<0.020	<0.020	<0.020	<0.020	0.020
m,p-Xylenes	<0.020	<0.020	<0.020	<0.020	0.020
1,2,3-Trichloropropane	<0.020	<0.020	<0.020	<0.020	0.020
sec-Butylbenzene	<0.020	<0.020	<0.020	<0.020	0.020
Isopropylbenzene	<0.020	<0.020	<0.020	<0.020	0.020
n-Propylbenzene	<0.020	<0.020	<0.020	<0.020	0.020
4-Isopropyltoluene	<0.020	<0.020	<0.020	<0.020	0.020
n-Butylbenzene	<0.020	<0.020	<0.020	<0.020	0.020
Surrogates					**%REC Limits**
4-Bromofluorobenzene	94%	94%	94%	96%	70-130

Allen Aminian
QA/QC Manager

LABORATORY ANALYSIS RESULTS

Client: CH2M Hill, Inc.
Project No: 693142
Project Name: KMEP Norwalk Biosparge Startup
Method: VOCs by GCMS EPA TO-15 (Mid Level)

AA Project No: MB187323
Date Received: 11/16/18
Date Reported: 11/28/18
Units: ug/L

Date Sampled:	11/12/18	11/13/18	11/13/18	11/13/18	
Date Prepared:	11/12/18	11/13/18	11/13/18	11/13/18	
Date Analyzed:	11/12/18	11/13/18	11/13/18	11/13/18	
AA ID No:	8K19015-13	8K19015-14	8K19015-15	8K19015-16	
Client ID No:	SVM-10-15	SVM-5-5	SVM-5-15	SVM-8-5	
Matrix:	Vapor	Vapor	Vapor	Vapor	
Dilution Factor:	1	1	1	1	MRL
TO-15 (Mid Level) (TO-15)					
Acetone	<0.020	<0.020	<0.020	<0.020	0.020
Allyl chloride	<0.020	<0.020	<0.020	<0.020	0.020
tert-Amyl Methyl Ether (TAME)	<0.020	<0.020	<0.020	<0.020	0.020
Benzene	<0.020	<0.020	<0.020	<0.020	0.020
Benzyl chloride	<0.020	<0.020	<0.020	<0.020	0.020
Bromodichloromethane	<0.020	<0.020	<0.020	<0.020	0.020
Bromoform	<0.020	<0.020	<0.020	<0.020	0.020
Bromomethane	<0.020	<0.020	<0.020	<0.020	0.020
1,3-Butadiene	<0.020	<0.020	<0.020	<0.020	0.020
2-Butanone (MEK)	<0.020	<0.020	<0.020	<0.020	0.020
tert-Butyl alcohol (TBA)	<20	<20	<20	<20	20
Carbon Disulfide	<0.020	<0.020	<0.020	<0.020	0.020
Carbon Tetrachloride	<0.020	<0.020	<0.020	<0.020	0.020
Chlorobenzene	<0.020	<0.020	<0.020	<0.020	0.020
Chloroethane	<0.020	<0.020	<0.020	<0.020	0.020
Chloroform	<0.020	<0.020	<0.020	<0.020	0.020
Chloromethane	<0.020	<0.020	<0.020	<0.020	0.020
Cyclohexane	<0.020	<0.020	<0.020	<0.020	0.020
Dibromochloromethane	<0.020	<0.020	<0.020	<0.020	0.020
1,2-Dibromoethane (EDB)	<0.020	<0.020	<0.020	<0.020	0.020
1,2-Dichlorobenzene	<0.020	<0.020	<0.020	<0.020	0.020
1,3-Dichlorobenzene	<0.020	<0.020	<0.020	<0.020	0.020
1,4-Dichlorobenzene	<0.020	<0.020	<0.020	<0.020	0.020
Dichlorodifluoromethane (R12)	<0.020	<0.020	<0.020	<0.020	0.020
1,1-Dichloroethane	<0.020	<0.020	<0.020	<0.020	0.020
1,2-Dichloroethane (EDC)	<0.020	<0.020	<0.020	<0.020	0.020
cis-1,2-Dichloroethylene	<0.020	<0.020	<0.020	<0.020	0.020

Allen Aminian
QA/QC Manager

LABORATORY ANALYSIS RESULTS

Client: CH2M Hill, Inc.
Project No: 693142
Project Name: KMEP Norwalk Biosparge Startup
Method: VOCs by GCMS EPA TO-15 (Mid Level)

AA Project No: MB187323
Date Received: 11/16/18
Date Reported: 11/28/18
Units: ug/L

Date Sampled:	11/12/18	11/13/18	11/13/18	11/13/18	
Date Prepared:	11/12/18	11/13/18	11/13/18	11/13/18	
Date Analyzed:	11/12/18	11/13/18	11/13/18	11/13/18	
AA ID No:	8K19015-13	8K19015-14	8K19015-15	8K19015-16	
Client ID No:	SVM-10-15	SVM-5-5	SVM-5-15	SVM-8-5	
Matrix:	Vapor	Vapor	Vapor	Vapor	
Dilution Factor:	1	1	1	1	MRL
TO-15 (Mid Level) (TO-15) (continued)					
1,1-Dichloroethylene	<0.020	<0.020	<0.020	<0.020	0.020
trans-1,2-Dichloroethylene	<0.020	<0.020	<0.020	<0.020	0.020
1,2-Dichloropropane	<0.020	<0.020	<0.020	<0.020	0.020
trans-1,3-Dichloropropylene	<0.020	<0.020	<0.020	<0.020	0.020
cis-1,3-Dichloropropylene	<0.020	<0.020	<0.020	<0.020	0.020
Dichlorotetrafluoroethane	<0.020	<0.020	<0.020	<0.020	0.020
Diisopropyl ether (DIPE)	<0.020	<0.020	<0.020	<0.020	0.020
1,4-Dioxane	<0.020	<0.020	<0.020	<0.020	0.020
Ethanol	<0.020	<0.020	<0.020	<0.020	0.020
Ethyl Acetate	<0.020	<0.020	<0.020	<0.020	0.020
Ethylbenzene	<0.020	<0.020	<0.020	<0.020	0.020
Ethyl-tert-Butyl Ether (ETBE)	<0.020	<0.020	<0.020	<0.020	0.020
4-Ethyltoluene	<0.020	<0.020	<0.020	<0.020	0.020
Heptane	<0.020	<0.020	<0.020	<0.020	0.020
Hexachlorobutadiene	<0.020	<0.020	<0.020	<0.020	0.020
n-Hexane	<0.020	<0.020	<0.020	<0.020	0.020
2-Hexanone (MBK)	<0.020	<0.020	<0.020	<0.020	0.020
Isopropanol (IPA)	<0.20	<0.20	<0.20	<0.20	0.20
Methyl-tert-Butyl Ether (MTBE)	<0.020	<0.020	<0.020	<0.020	0.020
Methylene Chloride	<0.020	<0.020	<0.020	<0.020	0.020
4-Methyl-2-pentanone (MIBK)	<0.020	<0.020	<0.020	<0.020	0.020
Naphthalene	<0.020	<0.020	<0.020	<0.020	0.020
Propylene	<0.020	<0.020	<0.020	<0.020	0.020
Styrene	<0.020	<0.020	<0.020	<0.020	0.020
1,1,2,2-Tetrachloroethane	<0.020	<0.020	<0.020	<0.020	0.020
Tetrachloroethylene (PCE)	<0.020	<0.020	<0.020	<0.020	0.020
Tetrahydrofuran (THF)	<0.020	<0.020	<0.020	<0.020	0.020

Allen Aminian
QA/QC Manager

LABORATORY ANALYSIS RESULTS

Client:	CH2M Hill, Inc.	**AA Project No:**	MB187323
Project No:	693142	**Date Received:**	11/16/18
Project Name:	KMEP Norwalk Biosparge Startup	**Date Reported:**	11/28/18
Method:	VOCs by GCMS EPA TO-15 (Mid Level)	**Units:**	ug/L

Date Sampled:	11/12/18	11/13/18	11/13/18	11/13/18	
Date Prepared:	11/12/18	11/13/18	11/13/18	11/13/18	
Date Analyzed:	11/12/18	11/13/18	11/13/18	11/13/18	
AA ID No:	8K19015-13	8K19015-14	8K19015-15	8K19015-16	
Client ID No:	SVM-10-15	SVM-5-5	SVM-5-15	SVM-8-5	
Matrix:	Vapor	Vapor	Vapor	Vapor	
Dilution Factor:	1	1	1	1	MRL
TO-15 (Mid Level) (TO-15) (continued)					
Toluene	<0.020	<0.020	<0.020	<0.020	0.020
1,2,4-Trichlorobenzene	<0.020	<0.020	<0.020	<0.020	0.020
1,1,2-Trichloroethane	<0.020	<0.020	<0.020	<0.020	0.020
1,1,1-Trichloroethane	<0.020	<0.020	<0.020	<0.020	0.020
Trichloroethylene (TCE)	<0.020	<0.020	<0.020	<0.020	0.020
Trichlorofluoromethane (R11)	<0.020	<0.020	<0.020	<0.020	0.020
1,1,2-Trichloro-1,2,2-trifluoroethane (R113)	<0.020	<0.020	<0.020	<0.020	0.020
1,3,5-Trimethylbenzene	<0.020	<0.020	<0.020	<0.020	0.020
1,2,4-Trimethylbenzene	<0.020	<0.020	<0.020	<0.020	0.020
2,2,4-Trimethylpentane	<0.020	<0.020	<0.020	<0.020	0.020
Vinyl acetate	<0.020	<0.020	<0.020	<0.020	0.020
Vinyl bromide	<0.020	<0.020	<0.020	<0.020	0.020
Vinyl chloride	<0.020	<0.020	<0.020	<0.020	0.020
o-Xylene	<0.020	<0.020	<0.020	<0.020	0.020
m,p-Xylenes	<0.020	<0.020	<0.020	<0.020	0.020
1,2,3-Trichloropropane	<0.020	<0.020	<0.020	<0.020	0.020
sec-Butylbenzene	<0.020	<0.020	<0.020	<0.020	0.020
Isopropylbenzene	<0.020	<0.020	<0.020	<0.020	0.020
n-Propylbenzene	<0.020	<0.020	<0.020	<0.020	0.020
4-Isopropyltoluene	<0.020	<0.020	<0.020	<0.020	0.020
n-Butylbenzene	<0.020	<0.020	<0.020	<0.020	0.020
Surrogates					**%REC Limits**
4-Bromofluorobenzene	97%	90%	94%	94%	70-130

Allen Aminian
QA/QC Manager

LABORATORY ANALYSIS RESULTS

Client: CH2M Hill, Inc.
Project No: 693142
Project Name: KMEP Norwalk Biosparge Startup
Method: VOCs by GCMS EPA TO-15 (Mid Level)

AA Project No: MB187323
Date Received: 11/16/18
Date Reported: 11/28/18
Units: ug/L

Date Sampled:	11/13/2018	11/13/2018	11/13/2018	11/13/2018	
Date Prepared:	11/13/18	11/13/18	11/13/18	11/13/18	
Date Analyzed:	11/13/18	11/13/18	11/13/18	11/13/18	
AA ID No:	8K19015-17	8K19015-18	8K19015-19	8K19015-20	
Client ID No:	SVM-8-15	SVM-16-7	SVM-16-16	SVM-16-22	
Matrix:	Vapor	Vapor	Vapor	Vapor	
Dilution Factor:	1	1	1	1	MRL
TO-15 (Mid Level) (TO-15)					
Acetone	<0.020	<0.020	<0.020	<0.020	0.020
Allyl chloride	<0.020	<0.020	<0.020	<0.020	0.020
tert-Amyl Methyl Ether (TAME)	<0.020	<0.020	<0.020	<0.020	0.020
Benzene	<0.020	<0.020	<0.020	<0.020	0.020
Benzyl chloride	<0.020	<0.020	<0.020	<0.020	0.020
Bromodichloromethane	<0.020	<0.020	<0.020	<0.020	0.020
Bromoform	<0.020	<0.020	<0.020	<0.020	0.020
Bromomethane	<0.020	<0.020	<0.020	<0.020	0.020
1,3-Butadiene	<0.020	<0.020	<0.020	<0.020	0.020
2-Butanone (MEK)	<0.020	<0.020	<0.020	<0.020	0.020
tert-Butyl alcohol (TBA)	<20	<20	<20	<20	20
Carbon Disulfide	<0.020	<0.020	<0.020	<0.020	0.020
Carbon Tetrachloride	<0.020	<0.020	<0.020	<0.020	0.020
Chlorobenzene	<0.020	<0.020	<0.020	<0.020	0.020
Chloroethane	<0.020	<0.020	<0.020	<0.020	0.020
Chloroform	<0.020	<0.020	<0.020	<0.020	0.020
Chloromethane	<0.020	<0.020	<0.020	<0.020	0.020
Cyclohexane	<0.020	<0.020	<0.020	<0.020	0.020
Dibromochloromethane	<0.020	<0.020	<0.020	<0.020	0.020
1,2-Dibromoethane (EDB)	<0.020	<0.020	<0.020	<0.020	0.020
1,2-Dichlorobenzene	<0.020	<0.020	<0.020	<0.020	0.020
1,3-Dichlorobenzene	<0.020	<0.020	<0.020	<0.020	0.020
1,4-Dichlorobenzene	<0.020	<0.020	<0.020	<0.020	0.020
Dichlorodifluoromethane (R12)	<0.020	<0.020	<0.020	<0.020	0.020
1,1-Dichloroethane	<0.020	<0.020	<0.020	<0.020	0.020
1,2-Dichloroethane (EDC)	<0.020	<0.020	<0.020	<0.020	0.020
cis-1,2-Dichloroethylene	<0.020	<0.020	<0.020	<0.020	0.020

Allen Aminian
QA/QC Manager

LABORATORY ANALYSIS RESULTS

Client: CH2M Hill, Inc.
Project No: 693142
Project Name: KMEP Norwalk Biosparge Startup
Method: VOCs by GCMS EPA TO-15 (Mid Level)

AA Project No: MB187323
Date Received: 11/16/18
Date Reported: 11/28/18
Units: ug/L

Date Sampled:	11/13/2018	11/13/2018	11/13/2018	11/13/2018	
Date Prepared:	11/13/18	11/13/18	11/13/18	11/13/18	
Date Analyzed:	11/13/18	11/13/18	11/13/18	11/13/18	
AA ID No:	8K19015-17	8K19015-18	8K19015-19	8K19015-20	
Client ID No:	SVM-8-15	SVM-16-7	SVM-16-16	SVM-16-22	
Matrix:	Vapor	Vapor	Vapor	Vapor	
Dilution Factor:	1	1	1	1	MRL
TO-15 (Mid Level) (TO-15) (continued)					
1,1-Dichloroethylene	<0.020	<0.020	<0.020	<0.020	0.020
trans-1,2-Dichloroethylene	<0.020	<0.020	<0.020	<0.020	0.020
1,2-Dichloropropane	<0.020	<0.020	<0.020	<0.020	0.020
trans-1,3-Dichloropropylene	<0.020	<0.020	<0.020	<0.020	0.020
cis-1,3-Dichloropropylene	<0.020	<0.020	<0.020	<0.020	0.020
Dichlorotetrafluoroethane	<0.020	<0.020	<0.020	<0.020	0.020
Diisopropyl ether (DIPE)	<0.020	<0.020	<0.020	<0.020	0.020
1,4-Dioxane	<0.020	<0.020	<0.020	<0.020	0.020
Ethanol	<0.020	<0.020	<0.020	<0.020	0.020
Ethyl Acetate	<0.020	<0.020	<0.020	<0.020	0.020
Ethylbenzene	<0.020	<0.020	<0.020	<0.020	0.020
Ethyl-tert-Butyl Ether (ETBE)	<0.020	<0.020	<0.020	<0.020	0.020
4-Ethyltoluene	<0.020	<0.020	<0.020	<0.020	0.020
Heptane	<0.020	<0.020	<0.020	<0.020	0.020
Hexachlorobutadiene	<0.020	<0.020	<0.020	<0.020	0.020
n-Hexane	<0.020	<0.020	<0.020	<0.020	0.020
2-Hexanone (MBK)	<0.020	<0.020	<0.020	<0.020	0.020
Isopropanol (IPA)	<0.20	<0.20	<0.20	<0.20	0.20
Methyl-tert-Butyl Ether (MTBE)	<0.020	<0.020	<0.020	<0.020	0.020
Methylene Chloride	<0.020	<0.020	<0.020	<0.020	0.020
4-Methyl-2-pentanone (MIBK)	<0.020	<0.020	<0.020	<0.020	0.020
Naphthalene	<0.020	<0.020	<0.020	<0.020	0.020
Propylene	<0.020	<0.020	<0.020	<0.020	0.020
Styrene	<0.020	<0.020	<0.020	<0.020	0.020
1,1,2,2-Tetrachloroethane	<0.020	<0.020	<0.020	<0.020	0.020
Tetrachloroethylene (PCE)	<0.020	<0.020	<0.020	<0.020	0.020
Tetrahydrofuran (THF)	<0.020	<0.020	<0.020	<0.020	0.020

Allen Aminian
QA/QC Manager

LABORATORY ANALYSIS RESULTS

Client:	CH2M Hill, Inc.	**AA Project No:**	MB187323
Project No:	693142	**Date Received:**	11/16/18
Project Name:	KMEP Norwalk Biosparge Startup	**Date Reported:**	11/28/18
Method:	VOCs by GCMS EPA TO-15 (Mid Level)	**Units:**	ug/L

Date Sampled:	11/13/2018	11/13/2018	11/13/2018	11/13/2018	
Date Prepared:	11/13/18	11/13/18	11/13/18	11/13/18	
Date Analyzed:	11/13/18	11/13/18	11/13/18	11/13/18	
AA ID No:	8K19015-17	8K19015-18	8K19015-19	8K19015-20	
Client ID No:	SVM-8-15	SVM-16-7	SVM-16-16	SVM-16-22	
Matrix:	Vapor	Vapor	Vapor	Vapor	
Dilution Factor:	1	1	1	1	MRL
TO-15 (Mid Level) (TO-15) (continued)					
Toluene	<0.020	<0.020	<0.020	<0.020	0.020
1,2,4-Trichlorobenzene	<0.020	<0.020	<0.020	<0.020	0.020
1,1,2-Trichloroethane	<0.020	<0.020	<0.020	<0.020	0.020
1,1,1-Trichloroethane	<0.020	<0.020	<0.020	<0.020	0.020
Trichloroethylene (TCE)	<0.020	<0.020	<0.020	<0.020	0.020
Trichlorofluoromethane (R11)	<0.020	<0.020	<0.020	<0.020	0.020
1,1,2-Trichloro-1,2,2-trifluoroethane (R113)	<0.020	<0.020	<0.020	<0.020	0.020
1,3,5-Trimethylbenzene	<0.020	<0.020	<0.020	<0.020	0.020
1,2,4-Trimethylbenzene	<0.020	<0.020	<0.020	<0.020	0.020
2,2,4-Trimethylpentane	<0.020	<0.020	<0.020	<0.020	0.020
Vinyl acetate	<0.020	<0.020	<0.020	<0.020	0.020
Vinyl bromide	<0.020	<0.020	<0.020	<0.020	0.020
Vinyl chloride	<0.020	<0.020	<0.020	<0.020	0.020
o-Xylene	<0.020	<0.020	<0.020	<0.020	0.020
m,p-Xylenes	<0.020	<0.020	<0.020	<0.020	0.020
1,2,3-Trichloropropane	<0.020	<0.020	<0.020	<0.020	0.020
sec-Butylbenzene	<0.020	<0.020	<0.020	<0.020	0.020
Isopropylbenzene	<0.020	<0.020	<0.020	<0.020	0.020
n-Propylbenzene	<0.020	<0.020	<0.020	<0.020	0.020
4-Isopropyltoluene	<0.020	<0.020	<0.020	<0.020	0.020
n-Butylbenzene	<0.020	<0.020	<0.020	<0.020	0.020
Surrogates					**%REC Limits**
4-Bromofluorobenzene	95%	95%	94%	83%	70-130

Allen Aminian
QA/QC Manager

LABORATORY ANALYSIS RESULTS

Client: CH2M Hill, Inc.
Project No: 693142
Project Name: KMEP Norwalk Biosparge Startup
Method: VOCs by GCMS EPA TO-15 (Mid Level)

AA Project No: MB187323
Date Received: 11/16/18
Date Reported: 11/28/18
Units: ug/L

Date Sampled:	11/13/18	11/13/18	11/13/18	11/13/18	
Date Prepared:	11/13/18	11/13/18	11/13/18	11/14/18	
Date Analyzed:	11/13/18	11/13/18	11/13/18	11/14/18	
AA ID No:	8K19015-21	8K19015-22	8K19015-23	8K19015-24	
Client ID No:	SVM-3-5	SVM-3-15	Ambient Air	SVM-12-7	
Matrix:	Vapor	Vapor	Vapor	Vapor	
Dilution Factor:	1	1	1	1	MRL
TO-15 (Mid Level) (TO-15)					
Acetone	<0.020	<0.020	<0.020	<0.020	0.020
Allyl chloride	<0.020	<0.020	<0.020	<0.020	0.020
tert-Amyl Methyl Ether (TAME)	<0.020	<0.020	<0.020	<0.020	0.020
Benzene	<0.020	<0.020	<0.020	<0.020	0.020
Benzyl chloride	<0.020	<0.020	<0.020	<0.020	0.020
Bromodichloromethane	<0.020	<0.020	<0.020	<0.020	0.020
Bromoform	<0.020	<0.020	<0.020	<0.020	0.020
Bromomethane	<0.020	<0.020	<0.020	<0.020	0.020
1,3-Butadiene	<0.020	<0.020	<0.020	<0.020	0.020
2-Butanone (MEK)	<0.020	<0.020	<0.020	<0.020	0.020
tert-Butyl alcohol (TBA)	<20	<20	<20	<20	20
Carbon Disulfide	<0.020	<0.020	<0.020	<0.020	0.020
Carbon Tetrachloride	<0.020	<0.020	<0.020	<0.020	0.020
Chlorobenzene	<0.020	<0.020	<0.020	<0.020	0.020
Chloroethane	<0.020	<0.020	<0.020	<0.020	0.020
Chloroform	<0.020	<0.020	<0.020	<0.020	0.020
Chloromethane	<0.020	<0.020	<0.020	<0.020	0.020
Cyclohexane	<0.020	<0.020	<0.020	<0.020	0.020
Dibromochloromethane	<0.020	<0.020	<0.020	<0.020	0.020
1,2-Dibromoethane (EDB)	<0.020	<0.020	<0.020	<0.020	0.020
1,2-Dichlorobenzene	<0.020	<0.020	<0.020	<0.020	0.020
1,3-Dichlorobenzene	<0.020	<0.020	<0.020	<0.020	0.020
1,4-Dichlorobenzene	<0.020	<0.020	<0.020	<0.020	0.020
Dichlorodifluoromethane (R12)	<0.020	<0.020	<0.020	<0.020	0.020
1,1-Dichloroethane	<0.020	<0.020	<0.020	<0.020	0.020
1,2-Dichloroethane (EDC)	<0.020	<0.020	<0.020	<0.020	0.020
cis-1,2-Dichloroethylene	<0.020	<0.020	<0.020	<0.020	0.020

Allen Aminian
QA/QC Manager

LABORATORY ANALYSIS RESULTS

Client: CH2M Hill, Inc.
Project No: 693142
Project Name: KMEP Norwalk Biosparge Startup
Method: VOCs by GCMS EPA TO-15 (Mid Level)

AA Project No: MB187323
Date Received: 11/16/18
Date Reported: 11/28/18
Units: ug/L

Date Sampled:	11/13/18	11/13/18	11/13/18	11/13/18	
Date Prepared:	11/13/18	11/13/18	11/13/18	11/14/18	
Date Analyzed:	11/13/18	11/13/18	11/13/18	11/14/18	
AA ID No:	8K19015-21	8K19015-22	8K19015-23	8K19015-24	
Client ID No:	SVM-3-5	SVM-3-15	Ambient Air	SVM-12-7	
Matrix:	Vapor	Vapor	Vapor	Vapor	
Dilution Factor:	1	1	1	1	MRL
TO-15 (Mid Level) (TO-15) (continued)					
1,1-Dichloroethylene	<0.020	<0.020	<0.020	<0.020	0.020
trans-1,2-Dichloroethylene	<0.020	<0.020	<0.020	<0.020	0.020
1,2-Dichloropropane	<0.020	<0.020	<0.020	<0.020	0.020
trans-1,3-Dichloropropylene	<0.020	<0.020	<0.020	<0.020	0.020
cis-1,3-Dichloropropylene	<0.020	<0.020	<0.020	<0.020	0.020
Dichlorotetrafluoroethane	<0.020	<0.020	<0.020	<0.020	0.020
Diisopropyl ether (DIPE)	<0.020	<0.020	<0.020	<0.020	0.020
1,4-Dioxane	<0.020	<0.020	<0.020	<0.020	0.020
Ethanol	<0.020	<0.020	<0.020	<0.020	0.020
Ethyl Acetate	<0.020	<0.020	<0.020	<0.020	0.020
Ethylbenzene	<0.020	<0.020	<0.020	<0.020	0.020
Ethyl-tert-Butyl Ether (ETBE)	<0.020	<0.020	<0.020	<0.020	0.020
4-Ethyltoluene	<0.020	<0.020	<0.020	<0.020	0.020
Heptane	<0.020	<0.020	<0.020	<0.020	0.020
Hexachlorobutadiene	<0.020	<0.020	<0.020	<0.020	0.020
n-Hexane	<0.020	<0.020	<0.020	<0.020	0.020
2-Hexanone (MBK)	<0.020	<0.020	<0.020	<0.020	0.020
Isopropanol (IPA)	<0.20	<0.20	<0.20	<0.20	0.20
Methyl-tert-Butyl Ether (MTBE)	<0.020	<0.020	<0.020	<0.020	0.020
Methylene Chloride	<0.020	<0.020	<0.020	<0.020	0.020
4-Methyl-2-pentanone (MIBK)	<0.020	<0.020	<0.020	<0.020	0.020
Naphthalene	<0.020	<0.020	<0.020	<0.020	0.020
Propylene	<0.020	<0.020	<0.020	<0.020	0.020
Styrene	<0.020	<0.020	<0.020	<0.020	0.020
1,1,2,2-Tetrachloroethane	<0.020	<0.020	<0.020	<0.020	0.020
Tetrachloroethylene (PCE)	<0.020	<0.020	<0.020	<0.020	0.020
Tetrahydrofuran (THF)	<0.020	<0.020	<0.020	<0.020	0.020

Allen Aminian
QA/QC Manager

LABORATORY ANALYSIS RESULTS

Client: CH2M Hill, Inc.
Project No: 693142
Project Name: KMEP Norwalk Biosparge Startup
Method: VOCs by GCMS EPA TO-15 (Mid Level)

AA Project No: MB187323
Date Received: 11/16/18
Date Reported: 11/28/18
Units: ug/L

Date Sampled:	11/13/18	11/13/18	11/13/18	11/13/18	
Date Prepared:	11/13/18	11/13/18	11/13/18	11/14/18	
Date Analyzed:	11/13/18	11/13/18	11/13/18	11/14/18	
AA ID No:	8K19015-21	8K19015-22	8K19015-23	8K19015-24	
Client ID No:	SVM-3-5	SVM-3-15	Ambient Air	SVM-12-7	
Matrix:	Vapor	Vapor	Vapor	Vapor	
Dilution Factor:	1	1	1	1	MRL
TO-15 (Mid Level) (TO-15) (continued)					
Toluene	<0.020	<0.020	<0.020	<0.020	0.020
1,2,4-Trichlorobenzene	<0.020	<0.020	<0.020	<0.020	0.020
1,1,2-Trichloroethane	<0.020	<0.020	<0.020	<0.020	0.020
1,1,1-Trichloroethane	<0.020	<0.020	<0.020	<0.020	0.020
Trichloroethylene (TCE)	<0.020	<0.020	<0.020	<0.020	0.020
Trichlorofluoromethane (R11)	<0.020	<0.020	<0.020	<0.020	0.020
1,1,2-Trichloro-1,2,2-trifluoroethane (R113)	<0.020	<0.020	<0.020	<0.020	0.020
1,3,5-Trimethylbenzene	<0.020	<0.020	<0.020	<0.020	0.020
1,2,4-Trimethylbenzene	<0.020	<0.020	<0.020	<0.020	0.020
2,2,4-Trimethylpentane	<0.020	<0.020	<0.020	<0.020	0.020
Vinyl acetate	<0.020	<0.020	<0.020	<0.020	0.020
Vinyl bromide	<0.020	<0.020	<0.020	<0.020	0.020
Vinyl chloride	<0.020	<0.020	<0.020	<0.020	0.020
o-Xylene	<0.020	<0.020	<0.020	<0.020	0.020
m,p-Xylenes	<0.020	<0.020	<0.020	<0.020	0.020
1,2,3-Trichloropropane	<0.020	<0.020	<0.020	<0.020	0.020
sec-Butylbenzene	<0.020	<0.020	<0.020	<0.020	0.020
Isopropylbenzene	<0.020	<0.020	<0.020	<0.020	0.020
n-Propylbenzene	<0.020	<0.020	<0.020	<0.020	0.020
4-Isopropyltoluene	<0.020	<0.020	<0.020	<0.020	0.020
n-Butylbenzene	<0.020	<0.020	<0.020	<0.020	0.020
Surrogates					**%REC Limits**
4-Bromofluorobenzene	85%	86%	87%	86%	70-130

Allen Aminian
QA/QC Manager

LABORATORY ANALYSIS RESULTS

Client: CH2M Hill, Inc.
Project No: 693142
Project Name: KMEP Norwalk Biosparge Startup
Method: VOCs by GCMS EPA TO-15 (Mid Level)

AA Project No: MB187323
Date Received: 11/16/18
Date Reported: 11/28/18
Units: ug/L

Date Sampled:	11/13/18	11/13/18	11/13/18	11/14/18	
Date Prepared:	11/13/18	11/13/18	11/13/18	11/14/18	
Date Analyzed:	11/13/18	11/13/18	11/13/18	11/14/18	
AA ID No:	8K19015-25	8K19015-26	8K19015-27	8K19015-28	
Client ID No:	SVM-12-15	SVM-12-22	SVM-12-22 DUP	SVM-11-7	
Matrix:	Vapor	Vapor	Vapor	Vapor	
Dilution Factor:	1	1	1	1	MRL
TO-15 (Mid Level) (TO-15)					
Acetone	<0.020	<0.020	<0.020	<0.020	0.020
Allyl chloride	<0.020	<0.020	<0.020	<0.020	0.020
tert-Amyl Methyl Ether (TAME)	<0.020	<0.020	<0.020	<0.020	0.020
Benzene	<0.020	<0.020	<0.020	<0.020	0.020
Benzyl chloride	<0.020	<0.020	<0.020	<0.020	0.020
Bromodichloromethane	<0.020	<0.020	<0.020	<0.020	0.020
Bromoform	<0.020	<0.020	<0.020	<0.020	0.020
Bromomethane	<0.020	<0.020	<0.020	<0.020	0.020
1,3-Butadiene	<0.020	<0.020	<0.020	<0.020	0.020
2-Butanone (MEK)	<0.020	<0.020	<0.020	<0.020	0.020
tert-Butyl alcohol (TBA)	<20	<20	<20	<20	20
Carbon Disulfide	<0.020	<0.020	<0.020	<0.020	0.020
Carbon Tetrachloride	<0.020	<0.020	<0.020	<0.020	0.020
Chlorobenzene	<0.020	<0.020	<0.020	<0.020	0.020
Chloroethane	<0.020	<0.020	<0.020	<0.020	0.020
Chloroform	<0.020	<0.020	<0.020	<0.020	0.020
Chloromethane	<0.020	<0.020	<0.020	<0.020	0.020
Cyclohexane	<0.020	<0.020	<0.020	<0.020	0.020
Dibromochloromethane	<0.020	<0.020	<0.020	<0.020	0.020
1,2-Dibromoethane (EDB)	<0.020	<0.020	<0.020	<0.020	0.020
1,2-Dichlorobenzene	<0.020	<0.020	<0.020	<0.020	0.020
1,3-Dichlorobenzene	<0.020	<0.020	<0.020	<0.020	0.020
1,4-Dichlorobenzene	<0.020	<0.020	<0.020	<0.020	0.020
Dichlorodifluoromethane (R12)	<0.020	<0.020	<0.020	<0.020	0.020
1,1-Dichloroethane	<0.020	<0.020	<0.020	<0.020	0.020
1,2-Dichloroethane (EDC)	<0.020	<0.020	<0.020	<0.020	0.020
cis-1,2-Dichloroethylene	<0.020	<0.020	<0.020	<0.020	0.020

Allen Aminian
QA/QC Manager

LABORATORY ANALYSIS RESULTS

Client: CH2M Hill, Inc.
Project No: 693142
Project Name: KMEP Norwalk Biosparge Startup
Method: VOCs by GCMS EPA TO-15 (Mid Level)

AA Project No: MB187323
Date Received: 11/16/18
Date Reported: 11/28/18
Units: ug/L

Date Sampled:	11/13/18	11/13/18	11/13/18	11/14/18	
Date Prepared:	11/13/18	11/13/18	11/13/18	11/14/18	
Date Analyzed:	11/13/18	11/13/18	11/13/18	11/14/18	
AA ID No:	8K19015-25	8K19015-26	8K19015-27	8K19015-28	
Client ID No:	SVM-12-15	SVM-12-22	SVM-12-22 DUP	SVM-11-7	
Matrix:	Vapor	Vapor	Vapor	Vapor	
Dilution Factor:	1	1	1	1	MRL
TO-15 (Mid Level) (TO-15) (continued)					
1,1-Dichloroethylene	<0.020	<0.020	<0.020	<0.020	0.020
trans-1,2-Dichloroethylene	<0.020	<0.020	<0.020	<0.020	0.020
1,2-Dichloropropane	<0.020	<0.020	<0.020	<0.020	0.020
trans-1,3-Dichloropropylene	<0.020	<0.020	<0.020	<0.020	0.020
cis-1,3-Dichloropropylene	<0.020	<0.020	<0.020	<0.020	0.020
Dichlorotetrafluoroethane	<0.020	<0.020	<0.020	<0.020	0.020
Diisopropyl ether (DIPE)	<0.020	<0.020	<0.020	<0.020	0.020
1,4-Dioxane	<0.020	<0.020	<0.020	<0.020	0.020
Ethanol	<0.020	<0.020	<0.020	<0.020	0.020
Ethyl Acetate	<0.020	<0.020	<0.020	<0.020	0.020
Ethylbenzene	<0.020	<0.020	<0.020	<0.020	0.020
Ethyl-tert-Butyl Ether (ETBE)	<0.020	<0.020	<0.020	<0.020	0.020
4-Ethyltoluene	<0.020	<0.020	<0.020	<0.020	0.020
Heptane	<0.020	<0.020	<0.020	<0.020	0.020
Hexachlorobutadiene	<0.020	<0.020	<0.020	<0.020	0.020
n-Hexane	<0.020	<0.020	<0.020	<0.020	0.020
2-Hexanone (MBK)	<0.020	<0.020	<0.020	<0.020	0.020
Isopropanol (IPA)	<0.20	<0.20	<0.20	<0.20	0.20
Methyl-tert-Butyl Ether (MTBE)	<0.020	<0.020	<0.020	<0.020	0.020
Methylene Chloride	<0.020	<0.020	<0.020	<0.020	0.020
4-Methyl-2-pentanone (MIBK)	<0.020	<0.020	<0.020	<0.020	0.020
Naphthalene	<0.020	<0.020	<0.020	<0.020	0.020
Propylene	<0.020	<0.020	<0.020	<0.020	0.020
Styrene	<0.020	<0.020	<0.020	<0.020	0.020
1,1,2,2-Tetrachloroethane	<0.020	<0.020	<0.020	<0.020	0.020
Tetrachloroethylene (PCE)	<0.020	<0.020	<0.020	<0.020	0.020
Tetrahydrofuran (THF)	<0.020	<0.020	<0.020	<0.020	0.020

Allen Aminian
QA/QC Manager

LABORATORY ANALYSIS RESULTS

Client: CH2M Hill, Inc.
Project No: 693142
Project Name: KMEP Norwalk Biosparge Startup
Method: VOCs by GCMS EPA TO-15 (Mid Level)

AA Project No: MB187323
Date Received: 11/16/18
Date Reported: 11/28/18
Units: ug/L

Date Sampled:	11/13/18	11/13/18	11/13/18	11/14/18	
Date Prepared:	11/13/18	11/13/18	11/13/18	11/14/18	
Date Analyzed:	11/13/18	11/13/18	11/13/18	11/14/18	
AA ID No:	8K19015-25	8K19015-26	8K19015-27	8K19015-28	
Client ID No:	SVM-12-15	SVM-12-22	SVM-12-22 DUP	SVM-11-7	
Matrix:	Vapor	Vapor	Vapor	Vapor	
Dilution Factor:	1	1	1	1	MRL
TO-15 (Mid Level) (TO-15) (continued)					
Toluene	<0.020	<0.020	<0.020	<0.020	0.020
1,2,4-Trichlorobenzene	<0.020	<0.020	<0.020	<0.020	0.020
1,1,2-Trichloroethane	<0.020	<0.020	<0.020	<0.020	0.020
1,1,1-Trichloroethane	<0.020	<0.020	<0.020	<0.020	0.020
Trichloroethylene (TCE)	<0.020	<0.020	<0.020	<0.020	0.020
Trichlorofluoromethane (R11)	<0.020	<0.020	<0.020	<0.020	0.020
1,1,2-Trichloro-1,2,2-trifluoroethane (R113)	<0.020	<0.020	<0.020	<0.020	0.020
1,3,5-Trimethylbenzene	<0.020	<0.020	<0.020	<0.020	0.020
1,2,4-Trimethylbenzene	<0.020	<0.020	<0.020	<0.020	0.020
2,2,4-Trimethylpentane	<0.020	<0.020	<0.020	<0.020	0.020
Vinyl acetate	<0.020	<0.020	<0.020	<0.020	0.020
Vinyl bromide	<0.020	<0.020	<0.020	<0.020	0.020
Vinyl chloride	<0.020	<0.020	<0.020	<0.020	0.020
o-Xylene	<0.020	<0.020	<0.020	<0.020	0.020
m,p-Xylenes	<0.020	<0.020	<0.020	<0.020	0.020
1,2,3-Trichloropropane	<0.020	<0.020	<0.020	<0.020	0.020
sec-Butylbenzene	<0.020	<0.020	<0.020	<0.020	0.020
Isopropylbenzene	<0.020	<0.020	<0.020	<0.020	0.020
n-Propylbenzene	<0.020	<0.020	<0.020	<0.020	0.020
4-Isopropyltoluene	<0.020	<0.020	<0.020	<0.020	0.020
n-Butylbenzene	<0.020	<0.020	<0.020	<0.020	0.020
Surrogates					**%REC Limits**
4-Bromofluorobenzene	85%	89%	88%	88%	70-130

Allen Aminian
QA/QC Manager

LABORATORY ANALYSIS RESULTS

Client: CH2M Hill, Inc.
Project No: 693142
Project Name: KMEP Norwalk Biosparge Startup
Method: VOCs by GCMS EPA TO-15 (Mid Level)

AA Project No: MB187323
Date Received: 11/16/18
Date Reported: 11/28/18
Units: ug/L

Date Sampled:	11/14/18	11/14/18	11/14/18	11/14/18	
Date Prepared:	11/14/18	11/14/18	11/14/18	11/14/18	
Date Analyzed:	11/14/18	11/14/18	11/14/18	11/14/18	
AA ID No:	8K19015-29	8K19015-30	8K19015-31	8K19015-32	
Client ID No:	SVM-11-15	SVM-11-22	SVM-14R-8	SVM-14R-16	
Matrix:	Vapor	Vapor	Vapor	Vapor	
Dilution Factor:	1	1	1	1	MRL
TO-15 (Mid Level) (TO-15)					
Acetone	<0.020	<0.020	<0.020	<0.020	0.020
Allyl chloride	<0.020	<0.020	<0.020	<0.020	0.020
tert-Amyl Methyl Ether (TAME)	<0.020	<0.020	<0.020	<0.020	0.020
Benzene	<0.020	<0.020	<0.020	<0.020	0.020
Benzyl chloride	<0.020	<0.020	<0.020	<0.020	0.020
Bromodichloromethane	<0.020	<0.020	<0.020	<0.020	0.020
Bromoform	<0.020	<0.020	<0.020	<0.020	0.020
Bromomethane	<0.020	<0.020	<0.020	<0.020	0.020
1,3-Butadiene	<0.020	<0.020	<0.020	<0.020	0.020
2-Butanone (MEK)	<0.020	<0.020	<0.020	<0.020	0.020
tert-Butyl alcohol (TBA)	<20	<20	<20	<20	20
Carbon Disulfide	<0.020	<0.020	<0.020	<0.020	0.020
Carbon Tetrachloride	<0.020	<0.020	<0.020	<0.020	0.020
Chlorobenzene	<0.020	<0.020	<0.020	<0.020	0.020
Chloroethane	<0.020	<0.020	<0.020	<0.020	0.020
Chloroform	<0.020	<0.020	<0.020	<0.020	0.020
Chloromethane	<0.020	<0.020	<0.020	<0.020	0.020
Cyclohexane	<0.020	<0.020	<0.020	<0.020	0.020
Dibromochloromethane	<0.020	<0.020	<0.020	<0.020	0.020
1,2-Dibromoethane (EDB)	<0.020	<0.020	<0.020	<0.020	0.020
1,2-Dichlorobenzene	<0.020	<0.020	<0.020	<0.020	0.020
1,3-Dichlorobenzene	<0.020	<0.020	<0.020	<0.020	0.020
1,4-Dichlorobenzene	<0.020	<0.020	<0.020	<0.020	0.020
Dichlorodifluoromethane (R12)	<0.020	<0.020	<0.020	<0.020	0.020
1,1-Dichloroethane	<0.020	<0.020	<0.020	<0.020	0.020
1,2-Dichloroethane (EDC)	<0.020	<0.020	<0.020	<0.020	0.020
cis-1,2-Dichloroethylene	<0.020	<0.020	<0.020	<0.020	0.020

Allen Aminian
QA/QC Manager

LABORATORY ANALYSIS RESULTS

Client: CH2M Hill, Inc.
Project No: 693142
Project Name: KMEP Norwalk Biosparge Startup
Method: VOCs by GCMS EPA TO-15 (Mid Level)

AA Project No: MB187323
Date Received: 11/16/18
Date Reported: 11/28/18
Units: ug/L

Date Sampled:	11/14/18	11/14/18	11/14/18	11/14/18	
Date Prepared:	11/14/18	11/14/18	11/14/18	11/14/18	
Date Analyzed:	11/14/18	11/14/18	11/14/18	11/14/18	
AA ID No:	8K19015-29	8K19015-30	8K19015-31	8K19015-32	
Client ID No:	SVM-11-15	SVM-11-22	SVM-14R-8	SVM-14R-16	
Matrix:	Vapor	Vapor	Vapor	Vapor	
Dilution Factor:	1	1	1	1	MRL
TO-15 (Mid Level) (TO-15) (continued)					
1,1-Dichloroethylene	<0.020	<0.020	<0.020	<0.020	0.020
trans-1,2-Dichloroethylene	<0.020	<0.020	<0.020	<0.020	0.020
1,2-Dichloropropane	<0.020	<0.020	<0.020	<0.020	0.020
trans-1,3-Dichloropropylene	<0.020	<0.020	<0.020	<0.020	0.020
cis-1,3-Dichloropropylene	<0.020	<0.020	<0.020	<0.020	0.020
Dichlorotetrafluoroethane	<0.020	<0.020	<0.020	<0.020	0.020
Diisopropyl ether (DIPE)	<0.020	<0.020	<0.020	<0.020	0.020
1,4-Dioxane	<0.020	<0.020	<0.020	<0.020	0.020
Ethanol	<0.020	<0.020	<0.020	<0.020	0.020
Ethyl Acetate	<0.020	<0.020	<0.020	<0.020	0.020
Ethylbenzene	<0.020	<0.020	<0.020	<0.020	0.020
Ethyl-tert-Butyl Ether (ETBE)	<0.020	<0.020	<0.020	<0.020	0.020
4-Ethyltoluene	<0.020	<0.020	<0.020	<0.020	0.020
Heptane	<0.020	<0.020	<0.020	<0.020	0.020
Hexachlorobutadiene	<0.020	<0.020	<0.020	<0.020	0.020
n-Hexane	<0.020	<0.020	<0.020	<0.020	0.020
2-Hexanone (MBK)	<0.020	<0.020	<0.020	<0.020	0.020
Isopropanol (IPA)	<0.20	<0.20	<0.20	<0.20	0.20
Methyl-tert-Butyl Ether (MTBE)	<0.020	<0.020	<0.020	<0.020	0.020
Methylene Chloride	<0.020	<0.020	<0.020	<0.020	0.020
4-Methyl-2-pentanone (MIBK)	<0.020	<0.020	<0.020	<0.020	0.020
Naphthalene	<0.020	<0.020	<0.020	<0.020	0.020
Propylene	<0.020	<0.020	<0.020	<0.020	0.020
Styrene	<0.020	<0.020	<0.020	<0.020	0.020
1,1,2,2-Tetrachloroethane	<0.020	<0.020	<0.020	<0.020	0.020
Tetrachloroethylene (PCE)	<0.020	**0.061**	<0.020	<0.020	0.020
Tetrahydrofuran (THF)	<0.020	<0.020	<0.020	<0.020	0.020

Allen Aminian
QA/QC Manager

LABORATORY ANALYSIS RESULTS

Client: CH2M Hill, Inc.
Project No: 693142
Project Name: KMEP Norwalk Biosparge Startup
Method: VOCs by GCMS EPA TO-15 (Mid Level)

AA Project No: MB187323
Date Received: 11/16/18
Date Reported: 11/28/18
Units: ug/L

Date Sampled:	11/14/18	11/14/18	11/14/18	11/14/18	
Date Prepared:	11/14/18	11/14/18	11/14/18	11/14/18	
Date Analyzed:	11/14/18	11/14/18	11/14/18	11/14/18	
AA ID No:	8K19015-29	8K19015-30	8K19015-31	8K19015-32	
Client ID No:	SVM-11-15	SVM-11-22	SVM-14R-8	SVM-14R-16	
Matrix:	Vapor	Vapor	Vapor	Vapor	
Dilution Factor:	1	1	1	1	MRL
TO-15 (Mid Level) (TO-15) (continued)					
Toluene	<0.020	<0.020	<0.020	<0.020	0.020
1,2,4-Trichlorobenzene	<0.020	<0.020	<0.020	<0.020	0.020
1,1,2-Trichloroethane	<0.020	<0.020	<0.020	<0.020	0.020
1,1,1-Trichloroethane	<0.020	<0.020	<0.020	<0.020	0.020
Trichloroethylene (TCE)	<0.020	<0.020	<0.020	<0.020	0.020
Trichlorofluoromethane (R11)	<0.020	<0.020	<0.020	<0.020	0.020
1,1,2-Trichloro-1,2,2-trifluoroethane (R113)	<0.020	<0.020	<0.020	<0.020	0.020
1,3,5-Trimethylbenzene	<0.020	<0.020	<0.020	<0.020	0.020
1,2,4-Trimethylbenzene	<0.020	<0.020	<0.020	<0.020	0.020
2,2,4-Trimethylpentane	<0.020	<0.020	<0.020	<0.020	0.020
Vinyl acetate	<0.020	<0.020	<0.020	<0.020	0.020
Vinyl bromide	<0.020	<0.020	<0.020	<0.020	0.020
Vinyl chloride	<0.020	<0.020	<0.020	<0.020	0.020
o-Xylene	<0.020	<0.020	<0.020	<0.020	0.020
m,p-Xylenes	<0.020	<0.020	<0.020	<0.020	0.020
1,2,3-Trichloropropane	<0.020	<0.020	<0.020	<0.020	0.020
sec-Butylbenzene	<0.020	<0.020	<0.020	<0.020	0.020
Isopropylbenzene	<0.020	<0.020	<0.020	<0.020	0.020
n-Propylbenzene	<0.020	<0.020	<0.020	<0.020	0.020
4-Isopropyltoluene	<0.020	<0.020	<0.020	<0.020	0.020
n-Butylbenzene	<0.020	<0.020	<0.020	<0.020	0.020
Surrogates					**%REC Limits**
4-Bromofluorobenzene	91%	93%	86%	85%	70-130

Allen Aminian
QA/QC Manager

LABORATORY ANALYSIS RESULTS

Client: CH2M Hill, Inc.
Project No: 693142
Project Name: KMEP Norwalk Biosparge Startup
Method: VOCs by GCMS EPA TO-15 (Mid Level)

AA Project No: MB187323
Date Received: 11/16/18
Date Reported: 11/28/18
Units: ug/L

Date Sampled:	11/14/18	11/14/18	11/14/18	11/14/18	
Date Prepared:	11/16/18	11/16/18	11/14/18	11/14/18	
Date Analyzed:	11/16/18	11/16/18	11/14/18	11/14/18	
AA ID No:	8K19015-33	8K19015-34	8K19015-35	8K19015-36	
Client ID No:	SVM-14R-22	SVM-14R-22 DUP	SVM-13-7	SVM-13-15	
Matrix:	Vapor	Vapor	Vapor	Vapor	
Dilution Factor:	20	20	1	1	MRL
TO-15 (Mid Level) (TO-15)					
Acetone	**0.53**	**0.48**	<0.020	<0.020	0.020
Allyl chloride	<0.40	<0.40	<0.020	<0.020	0.020
tert-Amyl Methyl Ether (TAME)	<0.40	<0.40	<0.020	<0.020	0.020
Benzene	<0.40	<0.40	<0.020	<0.020	0.020
Benzyl chloride	<0.40	<0.40	<0.020	<0.020	0.020
Bromodichloromethane	<0.40	<0.40	<0.020	<0.020	0.020
Bromoform	<0.40	<0.40	<0.020	<0.020	0.020
Bromomethane	<0.40	<0.40	<0.020	<0.020	0.020
1,3-Butadiene	<0.40	<0.40	<0.020	<0.020	0.020
2-Butanone (MEK)	<0.40	<0.40	<0.020	<0.020	0.020
tert-Butyl alcohol (TBA)	<400	<400	<20	<20	20
Carbon Disulfide	<0.40	<0.40	<0.020	<0.020	0.020
Carbon Tetrachloride	<0.40	<0.40	<0.020	<0.020	0.020
Chlorobenzene	<0.40	<0.40	<0.020	<0.020	0.020
Chloroethane	<0.40	<0.40	<0.020	<0.020	0.020
Chloroform	<0.40	<0.40	<0.020	<0.020	0.020
Chloromethane	<0.40	<0.40	<0.020	<0.020	0.020
Cyclohexane	<0.40	<0.40	<0.020	<0.020	0.020
Dibromochloromethane	<0.40	<0.40	<0.020	<0.020	0.020
1,2-Dibromoethane (EDB)	<0.40	<0.40	<0.020	<0.020	0.020
1,2-Dichlorobenzene	<0.40	<0.40	<0.020	<0.020	0.020
1,3-Dichlorobenzene	<0.40	<0.40	<0.020	<0.020	0.020
1,4-Dichlorobenzene	<0.40	<0.40	<0.020	<0.020	0.020
Dichlorodifluoromethane (R12)	<0.40	<0.40	<0.020	<0.020	0.020
1,1-Dichloroethane	<0.40	<0.40	<0.020	<0.020	0.020
1,2-Dichloroethane (EDC)	<0.40	<0.40	<0.020	<0.020	0.020

Allen Aminian
QA/QC Manager

LABORATORY ANALYSIS RESULTS

Client: CH2M Hill, Inc.
Project No: 693142
Project Name: KMEP Norwalk Biosparge Startup
Method: VOCs by GCMS EPA TO-15 (Mid Level)

AA Project No: MB187323
Date Received: 11/16/18
Date Reported: 11/28/18
Units: ug/L

Date Sampled:	11/14/18	11/14/18	11/14/18	11/14/18	
Date Prepared:	11/16/18	11/16/18	11/14/18	11/14/18	
Date Analyzed:	11/16/18	11/16/18	11/14/18	11/14/18	
AA ID No:	8K19015-33	8K19015-34	8K19015-35	8K19015-36	
Client ID No:	SVM-14R-22	SVM-14R-22 DUP	SVM-13-7	SVM-13-15	
Matrix:	Vapor	Vapor	Vapor	Vapor	
Dilution Factor:	20	20	1	1	MRL
TO-15 (Mid Level) (TO-15) (continued)					
cis-1,2-Dichloroethylene	<0.40	<0.40	<0.020	<0.020	0.020
1,1-Dichloroethylene	<0.40	<0.40	<0.020	<0.020	0.020
trans-1,2-Dichloroethylene	<0.40	<0.40	<0.020	<0.020	0.020
1,2-Dichloropropane	<0.40	<0.40	<0.020	<0.020	0.020
trans-1,3-Dichloropropylene	<0.40	<0.40	<0.020	<0.020	0.020
cis-1,3-Dichloropropylene	<0.40	<0.40	<0.020	<0.020	0.020
Dichlorotetrafluoroethane	<0.40	<0.40	<0.020	<0.020	0.020
Diisopropyl ether (DIPE)	<0.40	<0.40	<0.020	<0.020	0.020
1,4-Dioxane	<0.40	<0.40	<0.020	<0.020	0.020
Ethanol	<0.40	<0.40	<0.020	<0.020	0.020
Ethyl Acetate	<0.40	<0.40	<0.020	<0.020	0.020
Ethylbenzene	<0.40	<0.40	<0.020	<0.020	0.020
Ethyl-tert-Butyl Ether (ETBE)	<0.40	<0.40	<0.020	<0.020	0.020
4-Ethyltoluene	<0.40	<0.40	<0.020	<0.020	0.020
Heptane	<0.40	<0.40	<0.020	<0.020	0.020
Hexachlorobutadiene	<0.40	<0.40	<0.020	<0.020	0.020
n-Hexane	<0.40	<0.40	<0.020	<0.020	0.020
2-Hexanone (MBK)	<0.40	<0.40	<0.020	<0.020	0.020
Isopropanol (IPA)	<4.0	<4.0	<0.20	<0.20	0.20
Methyl-tert-Butyl Ether (MTBE)	<0.40	<0.40	<0.020	<0.020	0.020
Methylene Chloride	<0.40	<0.40	<0.020	<0.020	0.020
4-Methyl-2-pentanone (MIBK)	<0.40	<0.40	<0.020	<0.020	0.020
Naphthalene	<0.40	<0.40	<0.020	<0.020	0.020
Propylene	<0.40	<0.40	<0.020	<0.020	0.020
Styrene	<0.40	<0.40	<0.020	<0.020	0.020
1,1,2,2-Tetrachloroethane	<0.40	<0.40	<0.020	<0.020	0.020

Allen Aminian
QA/QC Manager

LABORATORY ANALYSIS RESULTS

Client: CH2M Hill, Inc.
Project No: 693142
Project Name: KMEP Norwalk Biosparge Startup
Method: VOCs by GCMS EPA TO-15 (Mid Level)

AA Project No: MB187323
Date Received: 11/16/18
Date Reported: 11/28/18
Units: ug/L

Date Sampled:	11/14/18	11/14/18	11/14/18	11/14/18	
Date Prepared:	11/16/18	11/16/18	11/14/18	11/14/18	
Date Analyzed:	11/16/18	11/16/18	11/14/18	11/14/18	
AA ID No:	8K19015-33	8K19015-34	8K19015-35	8K19015-36	
Client ID No:	SVM-14R-22	SVM-14R-22 DUP	SVM-13-7	SVM-13-15	
Matrix:	Vapor	Vapor	Vapor	Vapor	
Dilution Factor:	20	20	1	1	MRL
TO-15 (Mid Level) (TO-15) (continued)					
Tetrachloroethylene (PCE)	<0.40	<0.40	<0.020	<0.020	0.020
Tetrahydrofuran (THF)	<0.40	<0.40	<0.020	<0.020	0.020
Toluene	<0.40	<0.40	<0.020	<0.020	0.020
1,2,4-Trichlorobenzene	<0.40	<0.40	<0.020	<0.020	0.020
1,1,2-Trichloroethane	<0.40	<0.40	<0.020	<0.020	0.020
1,1,1-Trichloroethane	<0.40	<0.40	<0.020	<0.020	0.020
Trichloroethylene (TCE)	<0.40	<0.40	<0.020	<0.020	0.020
Trichlorofluoromethane (R11)	<0.40	<0.40	<0.020	<0.020	0.020
1,1,2-Trichloro-1,2,2-trifluoroethane (R113)	<0.40	<0.40	<0.020	<0.020	0.020
1,3,5-Trimethylbenzene	<0.40	<0.40	<0.020	<0.020	0.020
1,2,4-Trimethylbenzene	<0.40	<0.40	<0.020	<0.020	0.020
2,2,4-Trimethylpentane	<0.40	<0.40	<0.020	<0.020	0.020
Vinyl acetate	<0.40	<0.40	<0.020	<0.020	0.020
Vinyl bromide	<0.40	<0.40	<0.020	<0.020	0.020
Vinyl chloride	<0.40	<0.40	<0.020	<0.020	0.020
o-Xylene	<0.40	<0.40	<0.020	<0.020	0.020
m,p-Xylenes	<0.40	<0.40	<0.020	<0.020	0.020
1,2,3-Trichloropropane	<0.40	<0.40	<0.020	<0.020	0.020
sec-Butylbenzene	<0.40	<0.40	<0.020	<0.020	0.020
Isopropylbenzene	<0.40	<0.40	<0.020	<0.020	0.020
n-Propylbenzene	<0.40	<0.40	<0.020	<0.020	0.020
4-Isopropyltoluene	<0.40	<0.40	<0.020	<0.020	0.020
n-Butylbenzene	<0.40	<0.40	<0.020	<0.020	0.020

Surrogates **%REC Limits**

Allen Aminian
QA/QC Manager

LABORATORY ANALYSIS RESULTS

Client: CH2M Hill, Inc.
Project No: 693142
Project Name: KMEP Norwalk Biosparge Startup
Method: VOCs by GCMS EPA TO-15 (Mid Level)

AA Project No: MB187323
Date Received: 11/16/18
Date Reported: 11/28/18
Units: ug/L

Date Sampled:	11/14/18	11/14/18	11/14/18	11/14/18	
Date Prepared:	11/16/18	11/16/18	11/14/18	11/14/18	
Date Analyzed:	11/16/18	11/16/18	11/14/18	11/14/18	
AA ID No:	8K19015-33	8K19015-34	8K19015-35	8K19015-36	
Client ID No:	SVM-14R-22	SVM-14R-22 DUP	SVM-13-7	SVM-13-15	
Matrix:	Vapor	Vapor	Vapor	Vapor	
Dilution Factor:	20	20	1	1	MRL
TO-15 (Mid Level) (TO-15) (continued)					
4-Bromofluorobenzene	88%	87%	86%	86%	70-130

Allen Aminian
QA/QC Manager

LABORATORY ANALYSIS RESULTS

Client: CH2M Hill, Inc.
Project No: 693142
Project Name: KMEP Norwalk Biosparge Startup
Method: VOCs by GCMS EPA TO-15 (Mid Level)

AA Project No: MB187323
Date Received: 11/16/18
Date Reported: 11/28/18
Units: ug/L

Date Sampled:	11/14/18	11/14/18	
Date Prepared:	11/14/18	11/14/18	
Date Analyzed:	11/14/18	11/14/18	
AA ID No:	8K19015-37	8K19015-38	
Client ID No:	SVM-13-22	Ambient Air	
Matrix:	Vapor	Vapor	
Dilution Factor:	1	1	MRL
TO-15 (Mid Level) (TO-15)			
Acetone	<0.020	<0.020	0.020
Allyl chloride	<0.020	<0.020	0.020
tert-Amyl Methyl Ether (TAME)	<0.020	<0.020	0.020
Benzene	<0.020	<0.020	0.020
Benzyl chloride	<0.020	<0.020	0.020
Bromodichloromethane	<0.020	<0.020	0.020
Bromoform	<0.020	<0.020	0.020
Bromomethane	<0.020	<0.020	0.020
1,3-Butadiene	<0.020	<0.020	0.020
2-Butanone (MEK)	<0.020	<0.020	0.020
tert-Butyl alcohol (TBA)	<20	<20	20
Carbon Disulfide	<0.020	<0.020	0.020
Carbon Tetrachloride	<0.020	<0.020	0.020
Chlorobenzene	<0.020	<0.020	0.020
Chloroethane	<0.020	<0.020	0.020
Chloroform	<0.020	<0.020	0.020
Chloromethane	<0.020	<0.020	0.020
Cyclohexane	<0.020	<0.020	0.020
Dibromochloromethane	<0.020	<0.020	0.020
1,2-Dibromoethane (EDB)	<0.020	<0.020	0.020
1,2-Dichlorobenzene	<0.020	<0.020	0.020
1,3-Dichlorobenzene	<0.020	<0.020	0.020
1,4-Dichlorobenzene	<0.020	<0.020	0.020
Dichlorodifluoromethane (R12)	<0.020	<0.020	0.020
1,1-Dichloroethane	<0.020	<0.020	0.020
1,2-Dichloroethane (EDC)	<0.020	<0.020	0.020
cis-1,2-Dichloroethylene	<0.020	<0.020	0.020

Allen Aminian
QA/QC Manager

LABORATORY ANALYSIS RESULTS

Client: CH2M Hill, Inc.
Project No: 693142
Project Name: KMEP Norwalk Biosparge Startup
Method: VOCs by GCMS EPA TO-15 (Mid Level)

AA Project No: MB187323
Date Received: 11/16/18
Date Reported: 11/28/18
Units: ug/L

Date Sampled:	11/14/18	11/14/18	
Date Prepared:	11/14/18	11/14/18	
Date Analyzed:	11/14/18	11/14/18	
AA ID No:	8K19015-37	8K19015-38	
Client ID No:	SVM-13-22	Ambient Air	
Matrix:	Vapor	Vapor	
Dilution Factor:	1	1	MRL
TO-15 (Mid Level) (TO-15) (continued)			
1,1-Dichloroethylene	<0.020	<0.020	0.020
trans-1,2-Dichloroethylene	<0.020	<0.020	0.020
1,2-Dichloropropane	<0.020	<0.020	0.020
trans-1,3-Dichloropropylene	<0.020	<0.020	0.020
cis-1,3-Dichloropropylene	<0.020	<0.020	0.020
Dichlorotetrafluoroethane	<0.020	<0.020	0.020
Diisopropyl ether (DIPE)	<0.020	<0.020	0.020
1,4-Dioxane	<0.020	<0.020	0.020
Ethanol	<0.020	<0.020	0.020
Ethyl Acetate	<0.020	<0.020	0.020
Ethylbenzene	<0.020	<0.020	0.020
Ethyl-tert-Butyl Ether (ETBE)	<0.020	<0.020	0.020
4-Ethyltoluene	<0.020	<0.020	0.020
Heptane	<0.020	<0.020	0.020
Hexachlorobutadiene	<0.020	<0.020	0.020
n-Hexane	<0.020	<0.020	0.020
2-Hexanone (MBK)	<0.020	<0.020	0.020
Isopropanol (IPA)	<0.20	<0.20	0.20
Methyl-tert-Butyl Ether (MTBE)	<0.020	<0.020	0.020
Methylene Chloride	<0.020	<0.020	0.020
4-Methyl-2-pentanone (MIBK)	<0.020	<0.020	0.020
Naphthalene	<0.020	<0.020	0.020
Propylene	<0.020	<0.020	0.020
Styrene	<0.020	<0.020	0.020
1,1,2,2-Tetrachloroethane	<0.020	<0.020	0.020
Tetrachloroethylene (PCE)	**0.023**	<0.020	0.020
Tetrahydrofuran (THF)	<0.020	<0.020	0.020

Allen Aminian
QA/QC Manager

LABORATORY ANALYSIS RESULTS

Client: CH2M Hill, Inc.
Project No: 693142
Project Name: KMEP Norwalk Biosparge Startup
Method: VOCs by GCMS EPA TO-15 (Mid Level)

AA Project No: MB187323
Date Received: 11/16/18
Date Reported: 11/28/18
Units: ug/L

Date Sampled:	11/14/18	11/14/18	
Date Prepared:	11/14/18	11/14/18	
Date Analyzed:	11/14/18	11/14/18	
AA ID No:	8K19015-37	8K19015-38	
Client ID No:	SVM-13-22	Ambient Air	
Matrix:	Vapor	Vapor	
Dilution Factor:	1	1	MRL
TO-15 (Mid Level) (TO-15) (continued)			
Toluene	<0.020	<0.020	0.020
1,2,4-Trichlorobenzene	<0.020	<0.020	0.020
1,1,2-Trichloroethane	<0.020	<0.020	0.020
1,1,1-Trichloroethane	<0.020	<0.020	0.020
Trichloroethylene (TCE)	<0.020	<0.020	0.020
Trichlorofluoromethane (R11)	<0.020	<0.020	0.020
1,1,2-Trichloro-1,2,2-trifluoroethane (R113)	<0.020	<0.020	0.020
1,3,5-Trimethylbenzene	<0.020	<0.020	0.020
1,2,4-Trimethylbenzene	<0.020	<0.020	0.020
2,2,4-Trimethylpentane	<0.020	<0.020	0.020
Vinyl acetate	<0.020	<0.020	0.020
Vinyl bromide	<0.020	<0.020	0.020
Vinyl chloride	<0.020	<0.020	0.020
o-Xylene	<0.020	<0.020	0.020
m,p-Xylenes	<0.020	<0.020	0.020
1,2,3-Trichloropropane	<0.020	<0.020	0.020
sec-Butylbenzene	<0.020	<0.020	0.020
Isopropylbenzene	<0.020	<0.020	0.020
n-Propylbenzene	<0.020	<0.020	0.020
4-Isopropyltoluene	<0.020	<0.020	0.020
n-Butylbenzene	<0.020	<0.020	0.020
Surrogates			**%REC Limits**
4-Bromofluorobenzene	87%	88%	70-130

Allen Aminian
QA/QC Manager

LABORATORY ANALYSIS RESULTS

Client: CH2M Hill, Inc.
Project No: 693142
Project Name: KMEP Norwalk Biosparge Startup
Method: Fixed Gases by TCD

AA Project No: MB187323
Date Received: 11/16/18
Date Reported: 11/28/18
Units: % by Volume

Date Sampled:	11/12/18	11/12/18	11/12/18	11/12/18	
Date Prepared:	11/12/18	11/12/18	11/12/18	11/12/18	
Date Analyzed:	11/12/18	11/12/18	11/12/18	11/12/18	
AA ID No:	8K19015-01	8K19015-02	8K19015-03	8K19015-04	
Client ID No:	SVM-1-5	SVM-1-15	SVM-2-5	SVM-15-7	
Matrix:	Vapor	Vapor	Vapor	Vapor	
Dilution Factor:	1	1	1	1	MRL
Fixed Gases - Field (EPA 3CM)					
Methane	<0.10	<0.10	<0.10	<0.10	0.10
Oxygen	**20**	**19**	**19**	**19**	0.10
Carbon Dioxide	<0.10	<0.10	<0.10	**0.17**	0.10

Allen Aminian
QA/QC Manager

LABORATORY ANALYSIS RESULTS

Client: CH2M Hill, Inc.
Project No: 693142
Project Name: KMEP Norwalk Biosparge Startup
Method: Fixed Gases by TCD

AA Project No: MB187323
Date Received: 11/16/18
Date Reported: 11/28/18
Units: % by Volume

Date Sampled:	11/12/18	11/12/18	11/12/18	11/12/18	
Date Prepared:	11/12/18	11/12/18	11/12/18	11/12/18	
Date Analyzed:	11/12/18	11/12/18	11/12/18	11/12/18	
AA ID No:	8K19015-05	8K19015-06	8K19015-07	8K19015-08	
Client ID No:	SVM-15-15	SVM-15-22	SVM-6-7	SVM-6-13	
Matrix:	Vapor	Vapor	Vapor	Vapor	
Dilution Factor:	1	1	1	1	MRL
Fixed Gases - Field (EPA 3CM)					
Methane	<0.10	<0.10	<0.10	<0.10	0.10
Oxygen	**19**	**18**	**19**	**17**	0.10
Carbon Dioxide	**0.24**	**0.30**	<0.10	**0.27**	0.10

Allen Aminian
QA/QC Manager

LABORATORY ANALYSIS RESULTS

Client: CH2M Hill, Inc.
Project No: 693142
Project Name: KMEP Norwalk Biosparge Startup
Method: Fixed Gases by TCD

AA Project No: MB187323
Date Received: 11/16/18
Date Reported: 11/28/18
Units: % by Volume

Date Sampled:	11/12/18	11/12/18	11/12/18	11/12/18	
Date Prepared:	11/12/18	11/12/18	11/12/18	11/12/18	
Date Analyzed:	11/12/18	11/12/18	11/12/18	11/12/18	
AA ID No:	8K19015-09	8K19015-10	8K19015-11	8K19015-13	
Client ID No:	SVM-7-7	SVM-7-13	SVM-7-13 DUP	SVM-10-15	
Matrix:	Vapor	Vapor	Vapor	Vapor	
Dilution Factor:	1	1	1	1	MRL
Fixed Gases - Field (EPA 3CM)					
Methane	<0.10	<0.10	<0.10	<0.10	0.10
Oxygen	**19**	**19**	**19**	**15**	0.10
Carbon Dioxide	**0.45**	**0.73**	**0.69**	**4.0**	0.10

Allen Aminian
QA/QC Manager

LABORATORY ANALYSIS RESULTS

Client: CH2M Hill, Inc.
Project No: 693142
Project Name: KMEP Norwalk Biosparge Startup
Method: Fixed Gases by TCD

AA Project No: MB187323
Date Received: 11/16/18
Date Reported: 11/28/18
Units: % by Volume

Date Sampled:	11/13/18	11/13/18	11/13/18	11/13/18	
Date Prepared:	11/13/18	11/13/18	11/13/18	11/13/18	
Date Analyzed:	11/13/18	11/13/18	11/13/18	11/13/18	
AA ID No:	8K19015-14	8K19015-15	8K19015-16	8K19015-17	
Client ID No:	SVM-5-5	SVM-5-15	SVM-8-5	SVM-8-15	
Matrix:	Vapor	Vapor	Vapor	Vapor	
Dilution Factor:	1	1	1	1	MRL
Fixed Gases - Field (EPA 3CM)					
Methane	<0.10	<0.10	<0.10	<0.10	0.10
Oxygen	**18**	**19**	**19**	**19**	0.10
Carbon Dioxide	<0.10	**0.13**	**0.13**	**0.18**	0.10

Allen Aminian
QA/QC Manager

LABORATORY ANALYSIS RESULTS

Client: CH2M Hill, Inc.
Project No: 693142
Project Name: KMEP Norwalk Biosparge Startup
Method: Fixed Gases by TCD

AA Project No: MB187323
Date Received: 11/16/18
Date Reported: 11/28/18
Units: % by Volume

Date Sampled:	11/13/2018	11/13/2018	11/13/2018	11/13/2018	
Date Prepared:	11/13/18	11/13/18	11/13/18	11/13/18	
Date Analyzed:	11/13/18	11/13/18	11/13/18	11/13/18	
AA ID No:	8K19015-18	8K19015-19	8K19015-20	8K19015-21	
Client ID No:	SVM-16-7	SVM-16-16	SVM-16-22	SVM-3-5	
Matrix:	Vapor	Vapor	Vapor	Vapor	
Dilution Factor:	1	1	1	1	MRL
Fixed Gases - Field (EPA 3CM)					
Methane	<0.10	<0.10	<0.10	<0.10	0.10
Oxygen	**19**	**17**	**6.1**	**19**	0.10
Carbon Dioxide	**0.39**	**0.75**	**8.8**	**0.13**	0.10

Allen Aminian
QA/QC Manager

LABORATORY ANALYSIS RESULTS

Client: CH2M Hill, Inc.
Project No: 693142
Project Name: KMEP Norwalk Biosparge Startup
Method: Fixed Gases by TCD

AA Project No: MB187323
Date Received: 11/16/18
Date Reported: 11/28/18
Units: % by Volume

Date Sampled:	11/13/18	11/13/18	11/13/18	11/13/18	
Date Prepared:	11/13/18	11/13/18	11/13/18	11/13/18	
Date Analyzed:	11/13/18	11/13/18	11/13/18	11/13/18	
AA ID No:	8K19015-22	8K19015-24	8K19015-25	8K19015-26	
Client ID No:	SVM-3-15	SVM-12-7	SVM-12-15	SVM-12-22	
Matrix:	Vapor	Vapor	Vapor	Vapor	
Dilution Factor:	1	1	1	1	MRL
Fixed Gases - Field (EPA 3CM)					
Methane	<0.10	<0.10	<0.10	<0.10	0.10
Oxygen	**18**	**19**	**16**	**8.2**	0.10
Carbon Dioxide	**0.28**	**1.1**	**3.0**	**8.0**	0.10

Allen Aminian
QA/QC Manager

LABORATORY ANALYSIS RESULTS

Client: CH2M Hill, Inc.
Project No: 693142
Project Name: KMEP Norwalk Biosparge Startup
Method: Fixed Gases by TCD

AA Project No: MB187323
Date Received: 11/16/18
Date Reported: 11/28/18
Units: % by Volume

Date Sampled:	11/13/18	11/14/18	11/14/18	11/14/18	
Date Prepared:	11/13/18	11/14/18	11/14/18	11/14/18	
Date Analyzed:	11/13/18	11/14/18	11/14/18	11/14/18	
AA ID No:	8K19015-27	8K19015-28	8K19015-29	8K19015-30	
Client ID No:	SVM-12-22 DUP	SVM-11-7	SVM-11-15	SVM-11-22	
Matrix:	Vapor	Vapor	Vapor	Vapor	
Dilution Factor:	1	1	1	1	MRL
Fixed Gases - Field (EPA 3CM)					
Methane	<0.10	<0.10	<0.10	<0.10	0.10
Oxygen	**8.4**	**19**	**18**	**7.7**	0.10
Carbon Dioxide	**7.4**	**0.47**	**1.2**	**8.2**	0.10

Allen Aminian
QA/QC Manager

LABORATORY ANALYSIS RESULTS

Client: CH2M Hill, Inc.
Project No: 693142
Project Name: KMEP Norwalk Biosparge Startup
Method: Fixed Gases by TCD

AA Project No: MB187323
Date Received: 11/16/18
Date Reported: 11/28/18
Units: % by Volume

Date Sampled:	11/14/18	11/14/18	11/14/18	11/14/18	
Date Prepared:	11/14/18	11/14/18	11/14/18	11/14/18	
Date Analyzed:	11/14/18	11/14/18	11/14/18	11/14/18	
AA ID No:	8K19015-31	8K19015-32	8K19015-33	8K19015-34	
Client ID No:	SVM-14R-8	SVM-14R-16	SVM-14R-22	SVM-14R-22 DUP	
Matrix:	Vapor	Vapor	Vapor	Vapor	
Dilution Factor:	1	1	1	1	MRL
Fixed Gases - Field (EPA 3CM)					
Methane	<0.10	<0.10	<0.10	<0.10	0.10
Oxygen	**15**	**14**	**1.9**	**2.2**	0.10
Carbon Dioxide	**1.7**	**1.8**	**5.9**	**5.7**	0.10

Allen Aminian
QA/QC Manager

LABORATORY ANALYSIS RESULTS

Client: CH2M Hill, Inc.
Project No: 693142
Project Name: KMEP Norwalk Biosparge Startup
Method: Fixed Gases by TCD

AA Project No: MB187323
Date Received: 11/16/18
Date Reported: 11/28/18
Units: % by Volume

Date Sampled:	11/14/18	11/14/18	11/14/18	
Date Prepared:	11/14/18	11/14/18	11/14/18	
Date Analyzed:	11/14/18	11/14/18	11/14/18	
AA ID No:	8K19015-35	8K19015-36	8K19015-37	
Client ID No:	SVM-13-7	SVM-13-15	SVM-13-22	
Matrix:	Vapor	Vapor	Vapor	
Dilution Factor:	1	1	1	MRL
Fixed Gases - Field (EPA 3CM)				
Methane	<0.10	<0.10	<0.10	0.10
Oxygen	**19**	**19**	**16**	0.10
Carbon Dioxide	<0.10	<0.10	**1.2**	0.10

Allen Aminian
QA/QC Manager

LABORATORY ANALYSIS RESULTS

Client: CH2M Hill, Inc.
Project No: 693142
Project Name: KMEP Norwalk Biosparge Startup

AA Project No: MB187323
Date Received: 11/16/18
Date Reported: 11/28/18

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
VOCs by EPA TO-3 - Quality Control										
*Batch B8K1938 - *** DEFAULT PREP ****										
Blank (B8K1938-BLK1)				Prepared & Analyzed: 11/12/18						
Gasoline Range Organics (GRO)	<20	20	ug/L							
Surrogate: 4-Bromofluorobenzene	*0.249*		*ug/L*	*0.29*		*86.9*	*70-130*			
LCS (B8K1938-BS1)				Prepared & Analyzed: 11/12/18						
Gasoline Range Organics (GRO)	**0.961**	20	ug/L	0.82		118	70-130			
Surrogate: 4-Bromofluorobenzene	*0.271*		*ug/L*	*0.29*		*94.8*	*70-130*			
LCS Dup (B8K1938-BSD1)				Prepared & Analyzed: 11/12/18						
Gasoline Range Organics (GRO)	**0.866**	20	ug/L	0.82		106	70-130	10.4	30	
Surrogate: 4-Bromofluorobenzene	*0.258*		*ug/L*	*0.29*		*90.2*	*70-130*			
Duplicate (B8K1938-DUP1)			**Source: 8K19015-10**	Prepared & Analyzed: 11/12/18						
Gasoline Range Organics (GRO)	**<20**	20	ug/L		<20				30	
Surrogate: 4-Bromofluorobenzene	*0.262*		*ug/L*	*0.29*		*91.3*	*70-130*			
*Batch B8K1942 - *** DEFAULT PREP ****										
Blank (B8K1942-BLK1)				Prepared & Analyzed: 11/13/18						
Gasoline Range Organics (GRO)	<20	20	ug/L							
Surrogate: 4-Bromofluorobenzene	*0.243*		*ug/L*	*0.29*		*84.9*	*70-130*			
LCS (B8K1942-BS1)				Prepared & Analyzed: 11/13/18						
Gasoline Range Organics (GRO)	**0.806**	20	ug/L	0.82		98.5	70-130			
Surrogate: 4-Bromofluorobenzene	*0.237*		*ug/L*	*0.29*		*83.0*	*70-130*			
LCS Dup (B8K1942-BSD1)				Prepared & Analyzed: 11/13/18						
Gasoline Range Organics (GRO)	**0.772**	20	ug/L	0.82		94.4	70-130	4.28	30	
Surrogate: 4-Bromofluorobenzene	*0.238*		*ug/L*	*0.29*		*83.0*	*70-130*			
Duplicate (B8K1942-DUP1)			**Source: 8K19015-26**	Prepared & Analyzed: 11/13/18						
Gasoline Range Organics (GRO)	**<20**	20	ug/L		<20				30	
Surrogate: 4-Bromofluorobenzene	*0.246*		*ug/L*	*0.29*		*85.9*	*70-130*			
*Batch B8K2026 - *** DEFAULT PREP ****										
Blank (B8K2026-BLK1)				Prepared & Analyzed: 11/14/18						
Gasoline Range Organics (GRO)	<20	20	ug/L							

Allen Aminian
QA/QC Manager

LABORATORY ANALYSIS RESULTS

Client: CH2M Hill, Inc.
Project No: 693142
Project Name: KMEP Norwalk Biosparge Startup

AA Project No: MB187323
Date Received: 11/16/18
Date Reported: 11/28/18

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
VOCs by EPA TO-3 - Quality Control										
*Batch B8K2026 - *** DEFAULT PREP ****										
Blank (B8K2026-BLK1) Continued				Prepared & Analyzed: 11/14/18						
Surrogate: 4-Bromofluorobenzene	*0.228*		*ug/L*	*0.29*		*79.7*	*70-130*			
LCS (B8K2026-BS1)				Prepared & Analyzed: 11/14/18						
Gasoline Range Organics (GRO)	**0.876**	20	ug/L	0.82		107	70-130			
Surrogate: 4-Bromofluorobenzene	*0.247*		*ug/L*	*0.29*		*86.3*	*70-130*			
LCS Dup (B8K2026-BSD1)				Prepared & Analyzed: 11/14/18						
Gasoline Range Organics (GRO)	**0.834**	20	ug/L	0.82		102	70-130	4.88	30	
Surrogate: 4-Bromofluorobenzene	*0.240*		*ug/L*	*0.29*		*83.8*	*70-130*			
*Batch B8K2033 - *** DEFAULT PREP ****										
Blank (B8K2033-BLK1)				Prepared & Analyzed: 11/16/18						
Gasoline Range Organics (GRO)	<20	20	ug/L							
Surrogate: 4-Bromofluorobenzene	*0.245*		*ug/L*	*0.29*		*85.5*	*70-130*			
LCS (B8K2033-BS1)				Prepared & Analyzed: 11/16/18						
Gasoline Range Organics (GRO)	**0.711**	20	ug/L	0.82		86.9	70-130			
Surrogate: 4-Bromofluorobenzene	*0.237*		*ug/L*	*0.29*		*82.7*	*70-130*			
LCS Dup (B8K2033-BSD1)				Prepared & Analyzed: 11/16/18						
Gasoline Range Organics (GRO)	**0.746**	20	ug/L	0.82		91.2	70-130	4.83	30	
Surrogate: 4-Bromofluorobenzene	*0.235*		*ug/L*	*0.29*		*82.0*	*70-130*			
Duplicate (B8K2033-DUP1)			**Source: 8K19015-33**	Prepared & Analyzed: 11/16/18						
Gasoline Range Organics (GRO)	**51.5**	20	ug/L		46.9			9.41	30	
Surrogate: 4-Bromofluorobenzene	*0.243*		*ug/L*	*0.29*		*84.8*	*70-130*			
VOCs by GCMS EPA TO-15 (Mid Level) - Quality Control										
*Batch B8K1937 - *** DEFAULT PREP ****										
Blank (B8K1937-BLK1)				Prepared & Analyzed: 11/12/18						
Acetone	<0.020	0.020	ug/L							
Allyl chloride	<0.020	0.020	ug/L							
tert-Amyl Methyl Ether (TAME)	<0.020	0.020	ug/L							
Benzene	<0.020	0.020	ug/L							
Benzyl chloride	<0.020	0.020	ug/L							

Allen Aminian
QA/QC Manager

LABORATORY ANALYSIS RESULTS

Client: CH2M Hill, Inc.
Project No: 693142
Project Name: KMEP Norwalk Biosparge Startup

AA Project No: MB187323
Date Received: 11/16/18
Date Reported: 11/28/18

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
VOCs by GCMS EPA TO-15 (Mid Level) - Quality Control										
*Batch B8K1937 - *** DEFAULT PREP ****										
Blank (B8K1937-BLK1) Continued				Prepared & Analyzed: 11/12/18						
Bromodichloromethane	<0.020	0.020	ug/L							
Bromoform	<0.020	0.020	ug/L							
Bromomethane	<0.020	0.020	ug/L							
1,3-Butadiene	<0.020	0.020	ug/L							
2-Butanone (MEK)	<0.020	0.020	ug/L							
tert-Butyl alcohol (TBA)	<20	20	ug/L							
Carbon Disulfide	<0.020	0.020	ug/L							
Carbon Tetrachloride	<0.020	0.020	ug/L							
Chlorobenzene	<0.020	0.020	ug/L							
Chloroethane	<0.020	0.020	ug/L							
Chloroform	<0.020	0.020	ug/L							
Chloromethane	<0.020	0.020	ug/L							
Cyclohexane	<0.020	0.020	ug/L							
Dibromochloromethane	<0.020	0.020	ug/L							
1,2-Dibromoethane (EDB)	<0.020	0.020	ug/L							
1,2-Dichlorobenzene	<0.020	0.020	ug/L							
1,3-Dichlorobenzene	<0.020	0.020	ug/L							
1,4-Dichlorobenzene	<0.020	0.020	ug/L							
Dichlorodifluoromethane (R12)	<0.020	0.020	ug/L							
1,1-Dichloroethane	<0.020	0.020	ug/L							
1,2-Dichloroethane (EDC)	<0.020	0.020	ug/L							
cis-1,2-Dichloroethylene	<0.020	0.020	ug/L							
1,1-Dichloroethylene	<0.020	0.020	ug/L							
trans-1,2-Dichloroethylene	<0.020	0.020	ug/L							
1,2-Dichloropropane	<0.020	0.020	ug/L							
trans-1,3-Dichloropropylene	<0.020	0.020	ug/L							
cis-1,3-Dichloropropylene	<0.020	0.020	ug/L							
Dichlorotetrafluoroethane	<0.020	0.020	ug/L							
Diisopropyl ether (DIPE)	<0.020	0.020	ug/L							
1,4-Dioxane	<0.020	0.020	ug/L							
Ethanol	<0.020	0.020	ug/L							
Ethyl Acetate	<0.020	0.020	ug/L							

Allen Aminian
QA/QC Manager

LABORATORY ANALYSIS RESULTS

Client: CH2M Hill, Inc.
Project No: 693142
Project Name: KMEP Norwalk Biosparge Startup

AA Project No: MB187323
Date Received: 11/16/18
Date Reported: 11/28/18

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
VOCs by GCMS EPA TO-15 (Mid Level) - Quality Control										
*Batch B8K1937 - *** DEFAULT PREP ****										
Blank (B8K1937-BLK1) Continued				Prepared & Analyzed: 11/12/18						
Ethylbenzene	<0.020	0.020	ug/L							
Ethyl-tert-Butyl Ether (ETBE)	<0.020	0.020	ug/L							
4-Ethyltoluene	<0.020	0.020	ug/L							
Heptane	<0.020	0.020	ug/L							
Hexachlorobutadiene	<0.020	0.020	ug/L							
n-Hexane	<0.020	0.020	ug/L							
2-Hexanone (MBK)	<0.020	0.020	ug/L							
Isopropanol (IPA)	<0.20	0.20	ug/L							
Methyl-tert-Butyl Ether (MTBE)	<0.020	0.020	ug/L							
Methylene Chloride	<0.020	0.020	ug/L							
4-Methyl-2-pentanone (MIBK)	<0.020	0.020	ug/L							
Naphthalene	<0.020	0.020	ug/L							
Propylene	<0.020	0.020	ug/L							
Styrene	<0.020	0.020	ug/L							
1,1,2,2-Tetrachloroethane	<0.020	0.020	ug/L							
Tetrachloroethylene (PCE)	<0.020	0.020	ug/L							
Tetrahydrofuran (THF)	<0.020	0.020	ug/L							
Toluene	<0.020	0.020	ug/L							
1,2,4-Trichlorobenzene	<0.020	0.020	ug/L							
1,1,2-Trichloroethane	<0.020	0.020	ug/L							
1,1,1-Trichloroethane	<0.020	0.020	ug/L							
Trichloroethylene (TCE)	<0.020	0.020	ug/L							
Trichlorofluoromethane (R11)	<0.020	0.020	ug/L							
1,1,2-Trichloro-1,2,2-trifluoroethane (R113)	<0.020	0.020	ug/L							
1,3,5-Trimethylbenzene	<0.020	0.020	ug/L							
1,2,4-Trimethylbenzene	<0.020	0.020	ug/L							
2,2,4-Trimethylpentane	<0.020	0.020	ug/L							
Vinyl acetate	<0.020	0.020	ug/L							
Vinyl bromide	<0.020	0.020	ug/L							
Vinyl chloride	<0.020	0.020	ug/L							
o-Xylene	<0.020	0.020	ug/L							

Allen Aminian
QA/QC Manager

LABORATORY ANALYSIS RESULTS

Client: CH2M Hill, Inc.
Project No: 693142
Project Name: KMEP Norwalk Biosparge Startup

AA Project No: MB187323
Date Received: 11/16/18
Date Reported: 11/28/18

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
VOCs by GCMS EPA TO-15 (Mid Level) - Quality Control										
*Batch B8K1937 - *** DEFAULT PREP ****										
Blank (B8K1937-BLK1) Continued				Prepared & Analyzed: 11/12/18						
m,p-Xylenes	<0.020	0.020	ug/L							
1,2,3-Trichloropropane	<0.020	0.020	ug/L							
sec-Butylbenzene	<0.020	0.020	ug/L							
Isopropylbenzene	<0.020	0.020	ug/L							
n-Propylbenzene	<0.020	0.020	ug/L							
4-Isopropyltoluene	<0.020	0.020	ug/L							
n-Butylbenzene	<0.020	0.020	ug/L							
Surrogate: 4-Bromofluorobenzene	*0.128*		*ug/L*	*0.14*		*89.4*	*70-130*			
LCS (B8K1937-BS1)				Prepared & Analyzed: 11/12/18						
Acetone	**0.0358**	0.020	ug/L	0.024		151	70-130		30	**
Benzene	**0.0351**	0.020	ug/L	0.032		110	70-130		30	
Benzyl chloride	**0.0610**	0.020	ug/L	0.052		118	70-130		30	
Bromodichloromethane	**0.0658**	0.020	ug/L	0.067		98.2	70-130		30	
Bromoform	**0.0901**	0.020	ug/L	0.10		87.2	70-130		30	
Bromomethane	**0.0448**	0.020	ug/L	0.039		116	70-130		30	
2-Butanone (MEK)	**0.0474**	0.020	ug/L	0.029		161	70-130		30	**
Carbon Disulfide	**0.0367**	0.020	ug/L	0.031		118	70-130		30	
Carbon Tetrachloride	**0.0545**	0.020	ug/L	0.063		86.6	70-130		30	
Chlorobenzene	**0.0521**	0.020	ug/L	0.046		113	70-130		30	
Chloroethane	**0.0373**	0.020	ug/L	0.026		141	70-130		30	**
Chloroform	**0.0517**	0.020	ug/L	0.049		106	70-130		30	
Chloromethane	**0.0291**	0.020	ug/L	0.021		141	70-130		30	**
Dibromochloromethane	**0.0759**	0.020	ug/L	0.085		89.1	70-130		30	
1,2-Dibromoethane (EDB)	**0.0811**	0.020	ug/L	0.077		106	70-130		30	
1,2-Dichlorobenzene	**0.0603**	0.020	ug/L	0.060		100	70-130		30	
1,3-Dichlorobenzene	**0.0598**	0.020	ug/L	0.060		99.4	70-130		30	
1,4-Dichlorobenzene	**0.0595**	0.020	ug/L	0.060		98.9	70-130		30	
Dichlorodifluoromethane (R12)	**0.0298**	0.020	ug/L	0.049		60.2	70-130		30	***
1,1-Dichloroethane	**0.0485**	0.020	ug/L	0.040		120	70-130		30	
1,2-Dichloroethane (EDC)	**0.0425**	0.020	ug/L	0.040		105	70-130		30	
cis-1,2-Dichloroethylene	**0.0456**	0.020	ug/L	0.040		115	70-130		30	

Allen Aminian
QA/QC Manager

LABORATORY ANALYSIS RESULTS

Client: CH2M Hill, Inc.
Project No: 693142
Project Name: KMEP Norwalk Biosparge Startup

AA Project No: MB187323
Date Received: 11/16/18
Date Reported: 11/28/18

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
VOCs by GCMS EPA TO-15 (Mid Level) - Quality Control										
*Batch B8K1937 - *** DEFAULT PREP ****										
LCS (B8K1937-BS1) Continued				Prepared & Analyzed: 11/12/18						
1,1-Dichloroethylene	**0.0460**	0.020	ug/L	0.040		116	70-130		30	
trans-1,2-Dichloroethylene	**0.0408**	0.020	ug/L	0.040		103	70-130		30	
1,2-Dichloropropane	**0.0554**	0.020	ug/L	0.046		120	70-130		30	
trans-1,3-Dichloropropylene	**0.0442**	0.020	ug/L	0.045		97.4	70-130		30	
cis-1,3-Dichloropropylene	**0.0454**	0.020	ug/L	0.045		100	70-130		30	
Dichlorotetrafluoroethane	**0.0674**	0.020	ug/L	0.070		96.4	70-130		30	
Ethylbenzene	**0.0507**	0.020	ug/L	0.043		117	70-130		30	
4-Ethyltoluene	**0.0645**	0.020	ug/L	0.049		131	70-130		30	**
Hexachlorobutadiene	**0.0844**	0.020	ug/L	0.11		79.1	70-130		30	
2-Hexanone (MBK)	**0.0664**	0.020	ug/L	0.041		162	70-130		30	**
Isopropanol (IPA)	**0.0364**	0.20	ug/L	0.025		148	70-130		30	**
Methylene Chloride	**0.0425**	0.020	ug/L	0.035		122	70-130		30	
4-Methyl-2-pentanone (MIBK)	**0.0808**	0.020	ug/L	0.041		197	70-130		30	**
Styrene	**0.0485**	0.020	ug/L	0.043		114	70-130		30	
1,1,2,2-Tetrachloroethane	**0.0638**	0.020	ug/L	0.069		92.9	70-130		30	
Tetrachloroethylene (PCE)	**0.0558**	0.020	ug/L	0.068		82.3	70-130		30	
Toluene	**0.0420**	0.020	ug/L	0.038		112	70-130		30	
1,2,4-Trichlorobenzene	**0.0582**	0.020	ug/L	0.074		78.4	70-130		30	
1,1,2-Trichloroethane	**0.0628**	0.020	ug/L	0.055		115	70-130		30	
1,1,1-Trichloroethane	**0.0485**	0.020	ug/L	0.055		88.9	70-130		30	
Trichloroethylene (TCE)	**0.0624**	0.020	ug/L	0.054		116	70-130		30	
Trichlorofluoromethane (R11)	**0.0577**	0.020	ug/L	0.056		103	70-130		30	
1,1,2-Trichloro-1,2,2-trifluoroethane (R113)	**0.0842**	0.020	ug/L	0.077		110	70-130		30	
1,3,5-Trimethylbenzene	**0.0603**	0.020	ug/L	0.049		123	70-130		30	
1,2,4-Trimethylbenzene	**0.0613**	0.020	ug/L	0.049		125	70-130		30	
Vinyl acetate	**0.0483**	0.020	ug/L	0.035		137	70-130		30	**
Vinyl chloride	**0.0316**	0.020	ug/L	0.026		124	70-130		30	
o-Xylene	**0.0532**	0.020	ug/L	0.043		122	70-130		30	
m,p-Xylenes	**0.104**	0.020	ug/L	0.087		120	70-130		30	
1,2,3-Trichloropropane	**0.0822**	0.020	ug/L	0.060		136	70-130		30	**
sec-Butylbenzene	**0.0742**	0.020	ug/L	0.055		135	70-130		30	**

Allen Aminian
QA/QC Manager

LABORATORY ANALYSIS RESULTS

Client: CH2M Hill, Inc.
Project No: 693142
Project Name: KMEP Norwalk Biosparge Startup

AA Project No: MB187323
Date Received: 11/16/18
Date Reported: 11/28/18

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
VOCs by GCMS EPA TO-15 (Mid Level) - Quality Control										
*Batch B8K1937 - *** DEFAULT PREP ****										
LCS (B8K1937-BS1) Continued				Prepared & Analyzed: 11/12/18						
Isopropylbenzene	**0.0604**	0.020	ug/L	0.049		123	70-130		30	
n-Propylbenzene	**0.0644**	0.020	ug/L	0.049		131	70-130		30	**
4-Isopropyltoluene	**0.0689**	0.020	ug/L	0.055		126	70-130		30	
Surrogate: 4-Bromofluorobenzene	*0.138*		*ug/L*	*0.14*		*96.3*	*70-130*			
LCS Dup (B8K1937-BSD1)				Prepared & Analyzed: 11/12/18						
Acetone	**0.0299**	0.020	ug/L	0.024		126	70-130	18.0	30	
Benzene	**0.0351**	0.020	ug/L	0.032		110	70-130	0.0910	30	
Benzyl chloride	**0.0564**	0.020	ug/L	0.052		109	70-130	7.85	30	
Bromodichloromethane	**0.0588**	0.020	ug/L	0.067		87.7	70-130	11.3	30	
Bromoform	**0.0923**	0.020	ug/L	0.10		89.3	70-130	2.38	30	
Bromomethane	**0.0424**	0.020	ug/L	0.039		109	70-130	5.70	30	
2-Butanone (MEK)	**0.0413**	0.020	ug/L	0.029		140	70-130	13.8	30	**
Carbon Disulfide	**0.0344**	0.020	ug/L	0.031		111	70-130	6.39	30	
Carbon Tetrachloride	**0.0486**	0.020	ug/L	0.063		77.2	70-130	11.5	30	
Chlorobenzene	**0.0522**	0.020	ug/L	0.046		113	70-130	0.177	30	
Chloroethane	**0.0326**	0.020	ug/L	0.026		124	70-130	13.5	30	
Chloroform	**0.0456**	0.020	ug/L	0.049		93.4	70-130	12.5	30	
Chloromethane	**0.0243**	0.020	ug/L	0.021		118	70-130	18.0	30	
Dibromochloromethane	**0.0745**	0.020	ug/L	0.085		87.4	70-130	1.93	30	
1,2-Dibromoethane (EDB)	**0.0814**	0.020	ug/L	0.077		106	70-130	0.473	30	
1,2-Dichlorobenzene	**0.0613**	0.020	ug/L	0.060		102	70-130	1.58	30	
1,3-Dichlorobenzene	**0.0599**	0.020	ug/L	0.060		99.7	70-130	0.301	30	
1,4-Dichlorobenzene	**0.0598**	0.020	ug/L	0.060		99.5	70-130	0.605	30	
Dichlorodifluoromethane (R12)	**0.0248**	0.020	ug/L	0.049		50.2	70-130	18.1	30	***
1,1-Dichloroethane	**0.0422**	0.020	ug/L	0.040		104	70-130	13.8	30	
1,2-Dichloroethane (EDC)	**0.0355**	0.020	ug/L	0.040		87.8	70-130	17.8	30	
cis-1,2-Dichloroethylene	**0.0457**	0.020	ug/L	0.040		115	70-130	0.261	30	
1,1-Dichloroethylene	**0.0395**	0.020	ug/L	0.040		99.7	70-130	15.2	30	
trans-1,2-Dichloroethylene	**0.0415**	0.020	ug/L	0.040		105	70-130	1.64	30	
1,2-Dichloropropane	**0.0518**	0.020	ug/L	0.046		112	70-130	6.72	30	
trans-1,3-Dichloropropylene	**0.0415**	0.020	ug/L	0.045		91.5	70-130	6.25	30	

Allen Aminian
QA/QC Manager

LABORATORY ANALYSIS RESULTS

Client: CH2M Hill, Inc.
Project No: 693142
Project Name: KMEP Norwalk Biosparge Startup

AA Project No: MB187323
Date Received: 11/16/18
Date Reported: 11/28/18

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
VOCs by GCMS EPA TO-15 (Mid Level) - Quality Control										
*Batch B8K1937 - *** DEFAULT PREP ****										
LCS Dup (B8K1937-BSD1) Continued				Prepared & Analyzed: 11/12/18						
cis-1,3-Dichloropropylene	**0.0429**	0.020	ug/L	0.045		94.6	70-130	5.65	30	
Dichlorotetrafluoroethane	**0.0565**	0.020	ug/L	0.070		80.8	70-130	17.6	30	
Ethylbenzene	**0.0499**	0.020	ug/L	0.043		115	70-130	1.55	30	
4-Ethyltoluene	**0.0618**	0.020	ug/L	0.049		126	70-130	4.36	30	
Hexachlorobutadiene	**0.0867**	0.020	ug/L	0.11		81.3	70-130	2.74	30	
2-Hexanone (MBK)	**0.0545**	0.020	ug/L	0.041		133	70-130	19.6	30	**
Isopropanol (IPA)	**0.0315**	0.20	ug/L	0.025		128	70-130	14.5	30	
Methylene Chloride	**0.0401**	0.020	ug/L	0.035		115	70-130	5.89	30	
4-Methyl-2-pentanone (MIBK)	**0.0635**	0.020	ug/L	0.041		155	70-130	23.9	30	**
Styrene	**0.0484**	0.020	ug/L	0.043		114	70-130	0.176	30	
1,1,2,2-Tetrachloroethane	**0.0587**	0.020	ug/L	0.069		85.5	70-130	8.30	30	
Tetrachloroethylene (PCE)	**0.0609**	0.020	ug/L	0.068		89.7	70-130	8.60	30	
Toluene	**0.0412**	0.020	ug/L	0.038		109	70-130	1.99	30	
1,2,4-Trichlorobenzene	**0.0616**	0.020	ug/L	0.074		83.0	70-130	5.70	30	
1,1,2-Trichloroethane	**0.0611**	0.020	ug/L	0.055		112	70-130	2.82	30	
1,1,1-Trichloroethane	**0.0434**	0.020	ug/L	0.055		79.6	70-130	11.0	30	
Trichloroethylene (TCE)	**0.0593**	0.020	ug/L	0.054		110	70-130	5.12	30	
Trichlorofluoromethane (R11)	**0.0496**	0.020	ug/L	0.056		88.3	70-130	15.1	30	
1,1,2-Trichloro-1,2,2-trifluoroethane (R113)	**0.0785**	0.020	ug/L	0.077		102	70-130	7.07	30	
1,3,5-Trimethylbenzene	**0.0576**	0.020	ug/L	0.049		117	70-130	4.59	30	
1,2,4-Trimethylbenzene	**0.0585**	0.020	ug/L	0.049		119	70-130	4.76	30	
Vinyl acetate	**0.0407**	0.020	ug/L	0.035		116	70-130	17.1	30	
Vinyl chloride	**0.0280**	0.020	ug/L	0.026		109	70-130	12.3	30	
o-Xylene	**0.0502**	0.020	ug/L	0.043		116	70-130	5.80	30	
m,p-Xylenes	**0.105**	0.020	ug/L	0.087		121	70-130	0.457	30	
1,2,3-Trichloropropane	**0.0730**	0.020	ug/L	0.060		121	70-130	11.9	30	
sec-Butylbenzene	**0.0704**	0.020	ug/L	0.055		128	70-130	5.24	30	
Isopropylbenzene	**0.0581**	0.020	ug/L	0.049		118	70-130	3.82	30	
n-Propylbenzene	**0.0611**	0.020	ug/L	0.049		124	70-130	5.25	30	
4-Isopropyltoluene	**0.0672**	0.020	ug/L	0.055		122	70-130	2.58	30	

Allen Aminian
QA/QC Manager

LABORATORY ANALYSIS RESULTS

Client: CH2M Hill, Inc.
Project No: 693142
Project Name: KMEP Norwalk Biosparge Startup

AA Project No: MB187323
Date Received: 11/16/18
Date Reported: 11/28/18

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
VOCs by GCMS EPA TO-15 (Mid Level) - Quality Control										
*Batch B8K1937 - *** DEFAULT PREP ****										
LCS Dup (B8K1937-BSD1) Continued				Prepared & Analyzed: 11/12/18						
Surrogate: 4-Bromofluorobenzene	*0.128*		*ug/L*	*0.14*		*89.2*	*70-130*			
Duplicate (B8K1937-DUP1)			**Source: 8K19015-10**	Prepared & Analyzed: 11/12/18						
Acetone	**<0.020**	0.020	ug/L		<0.020				30	
Allyl chloride	**<0.020**	0.020	ug/L		<0.020				30	
tert-Amyl Methyl Ether (TAME)	**<0.020**	0.020	ug/L		<0.020				30	
Benzene	**<0.020**	0.020	ug/L		<0.020				30	
Benzyl chloride	**<0.020**	0.020	ug/L		<0.020				30	
Bromodichloromethane	**<0.020**	0.020	ug/L		<0.020				30	
Bromoform	**<0.020**	0.020	ug/L		<0.020				30	
Bromomethane	**<0.020**	0.020	ug/L		<0.020				30	
1,3-Butadiene	**<0.020**	0.020	ug/L		<0.020				30	
2-Butanone (MEK)	**<0.020**	0.020	ug/L		<0.020				30	
tert-Butyl alcohol (TBA)	**<20**	20	ug/L		<20				30	
Carbon Disulfide	**<0.020**	0.020	ug/L		<0.020				30	
Carbon Tetrachloride	**<0.020**	0.020	ug/L		<0.020				30	
Chlorobenzene	**<0.020**	0.020	ug/L		<0.020				30	
Chloroethane	**<0.020**	0.020	ug/L		<0.020				30	
Chloroform	**<0.020**	0.020	ug/L		<0.020				30	
Chloromethane	**<0.020**	0.020	ug/L		<0.020				30	
Cyclohexane	**<0.020**	0.020	ug/L		<0.020				30	
Dibromochloromethane	**<0.020**	0.020	ug/L		<0.020				30	
1,2-Dibromoethane (EDB)	**<0.020**	0.020	ug/L		<0.020				30	
1,2-Dichlorobenzene	**<0.020**	0.020	ug/L		<0.020				30	
1,3-Dichlorobenzene	**<0.020**	0.020	ug/L		<0.020				30	
1,4-Dichlorobenzene	**<0.020**	0.020	ug/L		<0.020				30	
Dichlorodifluoromethane (R12)	**<0.020**	0.020	ug/L		<0.020				30	
1,1-Dichloroethane	**<0.020**	0.020	ug/L		<0.020				30	
1,2-Dichloroethane (EDC)	**<0.020**	0.020	ug/L		<0.020				30	
cis-1,2-Dichloroethylene	**<0.020**	0.020	ug/L		<0.020				30	
1,1-Dichloroethylene	**<0.020**	0.020	ug/L		<0.020				30	
trans-1,2-Dichloroethylene	**<0.020**	0.020	ug/L		<0.020				30	
1,2-Dichloropropane	**<0.020**	0.020	ug/L		<0.020				30	

Allen Aminian
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LABORATORY ANALYSIS RESULTS

Client: CH2M Hill, Inc.
Project No: 693142
Project Name: KMEP Norwalk Biosparge Startup

AA Project No: MB187323
Date Received: 11/16/18
Date Reported: 11/28/18

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
VOCs by GCMS EPA TO-15 (Mid Level) - Quality Control										
*Batch B8K1937 - *** DEFAULT PREP ****										
Duplicate (B8K1937-DUP1) Continued	**Source: 8K19015-10**				Prepared & Analyzed: 11/12/18					
trans-1,3-Dichloropropylene	**<0.020**	0.020	ug/L		<0.020				30	
cis-1,3-Dichloropropylene	**<0.020**	0.020	ug/L		<0.020				30	
Dichlorotetrafluoroethane	**<0.020**	0.020	ug/L		<0.020				30	
Diisopropyl ether (DIPE)	**<0.020**	0.020	ug/L		<0.020				30	
1,4-Dioxane	**<0.020**	0.020	ug/L		<0.020				30	
Ethanol	**<0.020**	0.020	ug/L		<0.020				30	
Ethyl Acetate	**<0.020**	0.020	ug/L		<0.020				30	
Ethylbenzene	**<0.020**	0.020	ug/L		<0.020				30	
Ethyl-tert-Butyl Ether (ETBE)	**<0.020**	0.020	ug/L		<0.020				30	
4-Ethyltoluene	**<0.020**	0.020	ug/L		<0.020				30	
Heptane	**<0.020**	0.020	ug/L		<0.020				30	
Hexachlorobutadiene	**<0.020**	0.020	ug/L		<0.020				30	
n-Hexane	**<0.020**	0.020	ug/L		<0.020				30	
2-Hexanone (MBK)	**<0.020**	0.020	ug/L		<0.020				30	
Isopropanol (IPA)	**<0.20**	0.20	ug/L		<0.20				30	
Methyl-tert-Butyl Ether (MTBE)	**<0.020**	0.020	ug/L		<0.020				30	
Methylene Chloride	**<0.020**	0.020	ug/L		<0.020				30	
4-Methyl-2-pentanone (MIBK)	**<0.020**	0.020	ug/L		<0.020				30	
Naphthalene	**<0.020**	0.020	ug/L		<0.020				30	
Propylene	**<0.020**	0.020	ug/L		<0.020				30	
Styrene	**<0.020**	0.020	ug/L		<0.020				30	
1,1,2,2-Tetrachloroethane	**<0.020**	0.020	ug/L		<0.020				30	
Tetrachloroethylene (PCE)	**<0.020**	0.020	ug/L		<0.020				30	
Tetrahydrofuran (THF)	**<0.020**	0.020	ug/L		<0.020				30	
Toluene	**<0.020**	0.020	ug/L		0.0135			25.6	30	
1,2,4-Trichlorobenzene	**<0.020**	0.020	ug/L		<0.020				30	
1,1,2-Trichloroethane	**<0.020**	0.020	ug/L		<0.020				30	
1,1,1-Trichloroethane	**<0.020**	0.020	ug/L		<0.020				30	
Trichloroethylene (TCE)	**<0.020**	0.020	ug/L		<0.020				30	
Trichlorofluoromethane (R11)	**<0.020**	0.020	ug/L		<0.020				30	
1,1,2-Trichloro-1,2,2-trifluoroethane (R113)	**<0.020**	0.020	ug/L		<0.020				30	

Allen Aminian
QA/QC Manager

LABORATORY ANALYSIS RESULTS

Client: CH2M Hill, Inc.
Project No: 693142
Project Name: KMEP Norwalk Biosparge Startup

AA Project No: MB187323
Date Received: 11/16/18
Date Reported: 11/28/18

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
VOCs by GCMS EPA TO-15 (Mid Level) - Quality Control										
*Batch B8K1937 - *** DEFAULT PREP ****										
Duplicate (B8K1937-DUP1) Continued	**Source: 8K19015-10**			Prepared & Analyzed: 11/12/18						
1,3,5-Trimethylbenzene	**<0.020**	0.020	ug/L		<0.020				30	
1,2,4-Trimethylbenzene	**<0.020**	0.020	ug/L		<0.020				30	
2,2,4-Trimethylpentane	**<0.020**	0.020	ug/L		<0.020				30	
Vinyl acetate	**<0.020**	0.020	ug/L		<0.020				30	
Vinyl bromide	**<0.020**	0.020	ug/L		<0.020				30	
Vinyl chloride	**<0.020**	0.020	ug/L		<0.020				30	
o-Xylene	**<0.020**	0.020	ug/L		<0.020				30	
m,p-Xylenes	**<0.020**	0.020	ug/L		<0.020				30	
1,2,3-Trichloropropane	**<0.020**	0.020	ug/L		<0.020				30	
sec-Butylbenzene	**<0.020**	0.020	ug/L		<0.020				30	
Isopropylbenzene	**<0.020**	0.020	ug/L		<0.020				30	
n-Propylbenzene	**<0.020**	0.020	ug/L		<0.020				30	
4-Isopropyltoluene	**<0.020**	0.020	ug/L		<0.020				30	
n-Butylbenzene	**<0.020**	0.020	ug/L		<0.020				30	
Surrogate: 4-Bromofluorobenzene	*0.135*		*ug/L*	*0.14*		*94.0*	*70-130*			
*Batch B8K1940 - *** DEFAULT PREP ****										
Blank (B8K1940-BLK1)				Prepared & Analyzed: 11/13/18						
Acetone	<0.020	0.020	ug/L							
Allyl chloride	<0.020	0.020	ug/L							
tert-Amyl Methyl Ether (TAME)	<0.020	0.020	ug/L							
Benzene	<0.020	0.020	ug/L							
Benzyl chloride	<0.020	0.020	ug/L							
Bromodichloromethane	<0.020	0.020	ug/L							
Bromoform	<0.020	0.020	ug/L							
Bromomethane	<0.020	0.020	ug/L							
1,3-Butadiene	<0.020	0.020	ug/L							
2-Butanone (MEK)	<0.020	0.020	ug/L							
tert-Butyl alcohol (TBA)	<20	20	ug/L							
Carbon Disulfide	<0.020	0.020	ug/L							
Carbon Tetrachloride	<0.020	0.020	ug/L							
Chlorobenzene	<0.020	0.020	ug/L							

Allen Aminian
QA/QC Manager

LABORATORY ANALYSIS RESULTS

Client: CH2M Hill, Inc.
Project No: 693142
Project Name: KMEP Norwalk Biosparge Startup

AA Project No: MB187323
Date Received: 11/16/18
Date Reported: 11/28/18

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
VOCs by GCMS EPA TO-15 (Mid Level) - Quality Control										
*Batch B8K1940 - *** DEFAULT PREP ****										
Blank (B8K1940-BLK1) Continued				Prepared & Analyzed: 11/13/18						
Chloroethane	<0.020	0.020	ug/L							
Chloroform	<0.020	0.020	ug/L							
Chloromethane	<0.020	0.020	ug/L							
Cyclohexane	<0.020	0.020	ug/L							
Dibromochloromethane	<0.020	0.020	ug/L							
1,2-Dibromoethane (EDB)	<0.020	0.020	ug/L							
1,2-Dichlorobenzene	<0.020	0.020	ug/L							
1,3-Dichlorobenzene	<0.020	0.020	ug/L							
1,4-Dichlorobenzene	<0.020	0.020	ug/L							
Dichlorodifluoromethane (R12)	<0.020	0.020	ug/L							
1,1-Dichloroethane	<0.020	0.020	ug/L							
1,2-Dichloroethane (EDC)	<0.020	0.020	ug/L							
cis-1,2-Dichloroethylene	<0.020	0.020	ug/L							
1,1-Dichloroethylene	<0.020	0.020	ug/L							
trans-1,2-Dichloroethylene	<0.020	0.020	ug/L							
1,2-Dichloropropane	<0.020	0.020	ug/L							
trans-1,3-Dichloropropylene	<0.020	0.020	ug/L							
cis-1,3-Dichloropropylene	<0.020	0.020	ug/L							
Dichlorotetrafluoroethane	<0.020	0.020	ug/L							
Diisopropyl ether (DIPE)	<0.020	0.020	ug/L							
1,4-Dioxane	<0.020	0.020	ug/L							
Ethanol	<0.020	0.020	ug/L							
Ethyl Acetate	<0.020	0.020	ug/L							
Ethylbenzene	<0.020	0.020	ug/L							
Ethyl-tert-Butyl Ether (ETBE)	<0.020	0.020	ug/L							
4-Ethyltoluene	<0.020	0.020	ug/L							
Heptane	<0.020	0.020	ug/L							
Hexachlorobutadiene	<0.020	0.020	ug/L							
n-Hexane	<0.020	0.020	ug/L							
2-Hexanone (MBK)	<0.020	0.020	ug/L							
Isopropanol (IPA)	<0.20	0.20	ug/L							
Methyl-tert-Butyl Ether (MTBE)	<0.020	0.020	ug/L							

Allen Aminian
QA/QC Manager

LABORATORY ANALYSIS RESULTS

Client: CH2M Hill, Inc.
Project No: 693142
Project Name: KMEP Norwalk Biosparge Startup

AA Project No: MB187323
Date Received: 11/16/18
Date Reported: 11/28/18

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
VOCs by GCMS EPA TO-15 (Mid Level) - Quality Control										
*Batch B8K1940 - *** DEFAULT PREP ****										
Blank (B8K1940-BLK1) Continued				Prepared & Analyzed: 11/13/18						
Methylene Chloride	<0.020	0.020	ug/L							
4-Methyl-2-pentanone (MIBK)	<0.020	0.020	ug/L							
Naphthalene	<0.020	0.020	ug/L							
Propylene	<0.020	0.020	ug/L							
Styrene	<0.020	0.020	ug/L							
1,1,2,2-Tetrachloroethane	<0.020	0.020	ug/L							
Tetrachloroethylene (PCE)	<0.020	0.020	ug/L							
Tetrahydrofuran (THF)	<0.020	0.020	ug/L							
Toluene	<0.020	0.020	ug/L							
1,2,4-Trichlorobenzene	<0.020	0.020	ug/L							
1,1,2-Trichloroethane	<0.020	0.020	ug/L							
1,1,1-Trichloroethane	<0.020	0.020	ug/L							
Trichloroethylene (TCE)	<0.020	0.020	ug/L							
Trichlorofluoromethane (R11)	<0.020	0.020	ug/L							
1,1,2-Trichloro-1,2,2-trifluoroethane (R113)	<0.020	0.020	ug/L							
1,3,5-Trimethylbenzene	<0.020	0.020	ug/L							
1,2,4-Trimethylbenzene	<0.020	0.020	ug/L							
2,2,4-Trimethylpentane	<0.020	0.020	ug/L							
Vinyl acetate	<0.020	0.020	ug/L							
Vinyl bromide	<0.020	0.020	ug/L							
Vinyl chloride	<0.020	0.020	ug/L							
o-Xylene	<0.020	0.020	ug/L							
m,p-Xylenes	<0.020	0.020	ug/L							
1,2,3-Trichloropropane	<0.020	0.020	ug/L							
sec-Butylbenzene	<0.020	0.020	ug/L							
Isopropylbenzene	<0.020	0.020	ug/L							
n-Propylbenzene	<0.020	0.020	ug/L							
4-Isopropyltoluene	<0.020	0.020	ug/L							
n-Butylbenzene	<0.020	0.020	ug/L							
Surrogate: 4-Bromofluorobenzene	*0.125*		*ug/L*	*0.14*		*87.3*	*70-130*			

Allen Aminian
QA/QC Manager

LABORATORY ANALYSIS RESULTS

Client: CH2M Hill, Inc.
Project No: 693142
Project Name: KMEP Norwalk Biosparge Startup

AA Project No: MB187323
Date Received: 11/16/18
Date Reported: 11/28/18

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
VOCs by GCMS EPA TO-15 (Mid Level) - Quality Control										
*Batch B8K1940 - *** DEFAULT PREP ****										
LCS (B8K1940-BS1)				Prepared & Analyzed: 11/13/18						
Acetone	**0.0255**	0.020	ug/L	0.024		108	70-130		30	
Benzene	**0.0330**	0.020	ug/L	0.032		103	70-130		30	
Benzyl chloride	**0.0524**	0.020	ug/L	0.052		101	70-130		30	
Bromodichloromethane	**0.0537**	0.020	ug/L	0.067		80.1	70-130		30	
Bromoform	**0.0913**	0.020	ug/L	0.10		88.3	70-130		30	
Bromomethane	**0.0343**	0.020	ug/L	0.039		88.4	70-130		30	
2-Butanone (MEK)	**0.0360**	0.020	ug/L	0.029		122	70-130		30	
Carbon Disulfide	**0.0308**	0.020	ug/L	0.031		99.0	70-130		30	
Carbon Tetrachloride	**0.0494**	0.020	ug/L	0.063		78.6	70-130		30	
Chlorobenzene	**0.0497**	0.020	ug/L	0.046		108	70-130		30	
Chloroethane	**0.0279**	0.020	ug/L	0.026		106	70-130		30	
Chloroform	**0.0419**	0.020	ug/L	0.049		85.8	70-130		30	
Chloromethane	**0.0213**	0.020	ug/L	0.021		103	70-130		30	
Dibromochloromethane	**0.0722**	0.020	ug/L	0.085		84.7	70-130		30	
1,2-Dibromoethane (EDB)	**0.0769**	0.020	ug/L	0.077		100	70-130		30	
1,2-Dichlorobenzene	**0.0599**	0.020	ug/L	0.060		99.7	70-130		30	
1,3-Dichlorobenzene	**0.0590**	0.020	ug/L	0.060		98.1	70-130		30	
1,4-Dichlorobenzene	**0.0588**	0.020	ug/L	0.060		97.8	70-130		30	
Dichlorodifluoromethane (R12)	**0.0424**	0.020	ug/L	0.049		85.8	70-130		30	
1,1-Dichloroethane	**0.0374**	0.020	ug/L	0.040		92.5	70-130		30	
1,2-Dichloroethane (EDC)	**0.0306**	0.020	ug/L	0.040		75.7	70-130		30	
cis-1,2-Dichloroethylene	**0.0400**	0.020	ug/L	0.040		101	70-130		30	
1,1-Dichloroethylene	**0.0348**	0.020	ug/L	0.040		87.7	70-130		30	
trans-1,2-Dichloroethylene	**0.0382**	0.020	ug/L	0.040		96.4	70-130		30	
1,2-Dichloropropane	**0.0470**	0.020	ug/L	0.046		102	70-130		30	
trans-1,3-Dichloropropylene	**0.0373**	0.020	ug/L	0.045		82.1	70-130		30	
cis-1,3-Dichloropropylene	**0.0394**	0.020	ug/L	0.045		86.8	70-130		30	
Dichlorotetrafluoroethane	**0.0490**	0.020	ug/L	0.070		70.1	70-130		30	
Ethylbenzene	**0.0459**	0.020	ug/L	0.043		106	70-130		30	
4-Ethyltoluene	**0.0588**	0.020	ug/L	0.049		120	70-130		30	
Hexachlorobutadiene	**0.0894**	0.020	ug/L	0.11		83.8	70-130		30	
2-Hexanone (MBK)	**0.0492**	0.020	ug/L	0.041		120	70-130		30	

Allen Aminian
QA/QC Manager

LABORATORY ANALYSIS RESULTS

Client: CH2M Hill, Inc.
Project No: 693142
Project Name: KMEP Norwalk Biosparge Startup

AA Project No: MB187323
Date Received: 11/16/18
Date Reported: 11/28/18

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
VOCs by GCMS EPA TO-15 (Mid Level) - Quality Control										
*Batch B8K1940 - *** DEFAULT PREP ****										
LCS (B8K1940-BS1) Continued				Prepared & Analyzed: 11/13/18						
Isopropanol (IPA)	**0.0279**	0.20	ug/L	0.025		114	70-130		30	
Methylene Chloride	**0.0366**	0.020	ug/L	0.035		105	70-130		30	
4-Methyl-2-pentanone (MIBK)	**0.0574**	0.020	ug/L	0.041		140	70-130		30	**
Styrene	**0.0456**	0.020	ug/L	0.043		107	70-130		30	
1,1,2,2-Tetrachloroethane	**0.0528**	0.020	ug/L	0.069		76.9	70-130		30	
Tetrachloroethylene (PCE)	**0.0616**	0.020	ug/L	0.068		90.8	70-130		30	
Toluene	**0.0395**	0.020	ug/L	0.038		105	70-130		30	
1,2,4-Trichlorobenzene	**0.0651**	0.020	ug/L	0.074		87.7	70-130		30	
1,1,2-Trichloroethane	**0.0590**	0.020	ug/L	0.055		108	70-130		30	
1,1,1-Trichloroethane	**0.0413**	0.020	ug/L	0.055		75.6	70-130		30	
Trichloroethylene (TCE)	**0.0551**	0.020	ug/L	0.054		102	70-130		30	
Trichlorofluoromethane (R11)	**0.0448**	0.020	ug/L	0.056		79.8	70-130		30	
1,1,2-Trichloro-1,2,2-trifluoroethane (R113)	**0.0733**	0.020	ug/L	0.077		95.6	70-130		30	
1,3,5-Trimethylbenzene	**0.0551**	0.020	ug/L	0.049		112	70-130		30	
1,2,4-Trimethylbenzene	**0.0543**	0.020	ug/L	0.049		110	70-130		30	
Vinyl acetate	**0.0350**	0.020	ug/L	0.035		99.4	70-130		30	
Vinyl chloride	**0.0242**	0.020	ug/L	0.026		94.8	70-130		30	
o-Xylene	**0.0456**	0.020	ug/L	0.043		105	70-130		30	
m,p-Xylenes	**0.0996**	0.020	ug/L	0.087		115	70-130		30	
1,2,3-Trichloropropane	**0.0650**	0.020	ug/L	0.060		108	70-130		30	
sec-Butylbenzene	**0.0641**	0.020	ug/L	0.055		117	70-130		30	
Isopropylbenzene	**0.0550**	0.020	ug/L	0.049		112	70-130		30	
n-Propylbenzene	**0.0554**	0.020	ug/L	0.049		113	70-130		30	
4-Isopropyltoluene	**0.0640**	0.020	ug/L	0.055		116	70-130		30	
Surrogate: 4-Bromofluorobenzene	*0.123*		*ug/L*	*0.14*		*86.0*	*70-130*			
LCS Dup (B8K1940-BSD1)				Prepared & Analyzed: 11/13/18						
Acetone	**0.0247**	0.020	ug/L	0.024		104	70-130	3.41	30	
Benzene	**0.0329**	0.020	ug/L	0.032		103	70-130	0.485	30	
Benzyl chloride	**0.0517**	0.020	ug/L	0.052		99.9	70-130	1.29	30	
Bromodichloromethane	**0.0525**	0.020	ug/L	0.067		78.3	70-130	2.27	30	

Allen Aminian
QA/QC Manager

LABORATORY ANALYSIS RESULTS

Client: CH2M Hill, Inc.
Project No: 693142
Project Name: KMEP Norwalk Biosparge Startup

AA Project No: MB187323
Date Received: 11/16/18
Date Reported: 11/28/18

VOCs by GCMS EPA TO-15 (Mid Level) - Quality Control

*Batch B8K1940 - *** DEFAULT PREP ****

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS Dup (B8K1940-BSD1) Continued				Prepared & Analyzed: 11/13/18						
Bromoform	**0.0928**	0.020	ug/L	0.10		89.8	70-130	1.68	30	
Bromomethane	**0.0347**	0.020	ug/L	0.039		89.4	70-130	1.12	30	
2-Butanone (MEK)	**0.0355**	0.020	ug/L	0.029		120	70-130	1.24	30	
Carbon Disulfide	**0.0312**	0.020	ug/L	0.031		100	70-130	1.30	30	
Carbon Tetrachloride	**0.0493**	0.020	ug/L	0.063		78.4	70-130	0.255	30	
Chlorobenzene	**0.0495**	0.020	ug/L	0.046		108	70-130	0.371	30	
Chloroethane	**0.0289**	0.020	ug/L	0.026		110	70-130	3.72	30	
Chloroform	**0.0416**	0.020	ug/L	0.049		85.3	70-130	0.584	30	
Chloromethane	**0.0208**	0.020	ug/L	0.021		101	70-130	2.36	30	
Dibromochloromethane	**0.0719**	0.020	ug/L	0.085		84.4	70-130	0.355	30	
1,2-Dibromoethane (EDB)	**0.0765**	0.020	ug/L	0.077		99.5	70-130	0.601	30	
1,2-Dichlorobenzene	**0.0605**	0.020	ug/L	0.060		101	70-130	0.899	30	
1,3-Dichlorobenzene	**0.0593**	0.020	ug/L	0.060		98.7	70-130	0.610	30	
1,4-Dichlorobenzene	**0.0597**	0.020	ug/L	0.060		99.3	70-130	1.52	30	
Dichlorodifluoromethane (R12)	**0.0203**	0.020	ug/L	0.049		41.1	70-130	70.4	30	***, AA-C1
1,1-Dichloroethane	**0.0371**	0.020	ug/L	0.040		91.7	70-130	0.869	30	
1,2-Dichloroethane (EDC)	**0.0302**	0.020	ug/L	0.040		74.5	70-130	1.60	30	
cis-1,2-Dichloroethylene	**0.0433**	0.020	ug/L	0.040		109	70-130	7.80	30	
1,1-Dichloroethylene	**0.0345**	0.020	ug/L	0.040		86.9	70-130	0.916	30	
trans-1,2-Dichloroethylene	**0.0385**	0.020	ug/L	0.040		97.2	70-130	0.826	30	
1,2-Dichloropropane	**0.0461**	0.020	ug/L	0.046		99.7	70-130	1.99	30	
trans-1,3-Dichloropropylene	**0.0372**	0.020	ug/L	0.045		82.0	70-130	0.122	30	
cis-1,3-Dichloropropylene	**0.0388**	0.020	ug/L	0.045		85.4	70-130	1.63	30	
Dichlorotetrafluoroethane	**0.0491**	0.020	ug/L	0.070		70.2	70-130	0.143	30	
Ethylbenzene	**0.0458**	0.020	ug/L	0.043		106	70-130	0.0948	30	
4-Ethyltoluene	**0.0591**	0.020	ug/L	0.049		120	70-130	0.417	30	
Hexachlorobutadiene	**0.0882**	0.020	ug/L	0.11		82.7	70-130	1.32	30	
2-Hexanone (MBK)	**0.0430**	0.020	ug/L	0.041		105	70-130	13.5	30	
Isopropanol (IPA)	**0.0278**	0.20	ug/L	0.025		113	70-130	0.265	30	
Methylene Chloride	**0.0367**	0.020	ug/L	0.035		106	70-130	0.285	30	
4-Methyl-2-pentanone (MIBK)	**0.0530**	0.020	ug/L	0.041		130	70-130	7.79	30	

Allen Aminian
QA/QC Manager

LABORATORY ANALYSIS RESULTS

Client: CH2M Hill, Inc.
Project No: 693142
Project Name: KMEP Norwalk Biosparge Startup

AA Project No: MB187323
Date Received: 11/16/18
Date Reported: 11/28/18

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
VOCs by GCMS EPA TO-15 (Mid Level) - Quality Control										
*Batch B8K1940 - *** DEFAULT PREP ****										
LCS Dup (B8K1940-BSD1) Continued				Prepared & Analyzed: 11/13/18						
Styrene	**0.0464**	0.020	ug/L	0.043		109	70-130	1.76	30	
1,1,2,2-Tetrachloroethane	**0.0527**	0.020	ug/L	0.069		76.7	70-130	0.260	30	
Tetrachloroethylene (PCE)	**0.0630**	0.020	ug/L	0.068		92.9	70-130	2.29	30	
Toluene	**0.0395**	0.020	ug/L	0.038		105	70-130	0.00	30	
1,2,4-Trichlorobenzene	**0.0642**	0.020	ug/L	0.074		86.5	70-130	1.38	30	
1,1,2-Trichloroethane	**0.0590**	0.020	ug/L	0.055		108	70-130	0.0925	30	
1,1,1-Trichloroethane	**0.0405**	0.020	ug/L	0.055		74.3	70-130	1.73	30	
Trichloroethylene (TCE)	**0.0541**	0.020	ug/L	0.054		101	70-130	1.77	30	
Trichlorofluoromethane (R11)	**0.0446**	0.020	ug/L	0.056		79.4	70-130	0.503	30	
1,1,2-Trichloro-1,2,2-trifluoroethane (R113)	**0.0745**	0.020	ug/L	0.077		97.2	70-130	1.66	30	
1,3,5-Trimethylbenzene	**0.0547**	0.020	ug/L	0.049		111	70-130	0.717	30	
1,2,4-Trimethylbenzene	**0.0540**	0.020	ug/L	0.049		110	70-130	0.454	30	
Vinyl acetate	**0.0349**	0.020	ug/L	0.035		99.0	70-130	0.403	30	
Vinyl chloride	**0.0235**	0.020	ug/L	0.026		91.9	70-130	3.11	30	
o-Xylene	**0.0458**	0.020	ug/L	0.043		106	70-130	0.570	30	
m,p-Xylenes	**0.100**	0.020	ug/L	0.087		115	70-130	0.652	30	
1,2,3-Trichloropropane	**0.0639**	0.020	ug/L	0.060		106	70-130	1.78	30	
sec-Butylbenzene	**0.0649**	0.020	ug/L	0.055		118	70-130	1.28	30	
Isopropylbenzene	**0.0553**	0.020	ug/L	0.049		112	70-130	0.535	30	
n-Propylbenzene	**0.0557**	0.020	ug/L	0.049		113	70-130	0.531	30	
4-Isopropyltoluene	**0.0647**	0.020	ug/L	0.055		118	70-130	1.19	30	
Surrogate: 4-Bromofluorobenzene	*0.121*		*ug/L*	*0.14*		*84.2*	*70-130*			
Duplicate (B8K1940-DUP1)				**Source: 8K19015-26** Prepared & Analyzed: 11/13/18						
Acetone	**<0.020**	0.020	ug/L		<0.020				30	
Allyl chloride	**<0.020**	0.020	ug/L		<0.020				30	
tert-Amyl Methyl Ether (TAME)	**<0.020**	0.020	ug/L		<0.020				30	
Benzene	**<0.020**	0.020	ug/L		<0.020				30	
Benzyl chloride	**<0.020**	0.020	ug/L		<0.020				30	
Bromodichloromethane	**<0.020**	0.020	ug/L		<0.020				30	
Bromoform	**<0.020**	0.020	ug/L		<0.020				30	

Allen Aminian
QA/QC Manager

LABORATORY ANALYSIS RESULTS

Client: CH2M Hill, Inc.
Project No: 693142
Project Name: KMEP Norwalk Biosparge Startup

AA Project No: MB187323
Date Received: 11/16/18
Date Reported: 11/28/18

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
VOCs by GCMS EPA TO-15 (Mid Level) - Quality Control										
*Batch B8K1940 - *** DEFAULT PREP ****										
Duplicate (B8K1940-DUP1) Continued	**Source: 8K19015-26**	Prepared & Analyzed: 11/13/18								
Bromomethane	**<0.020**	0.020	ug/L		<0.020				30	
1,3-Butadiene	**<0.020**	0.020	ug/L		<0.020				30	
2-Butanone (MEK)	**<0.020**	0.020	ug/L		<0.020				30	
tert-Butyl alcohol (TBA)	**<20**	20	ug/L		<20				30	
Carbon Disulfide	**<0.020**	0.020	ug/L		<0.020				30	
Carbon Tetrachloride	**<0.020**	0.020	ug/L		<0.020				30	
Chlorobenzene	**<0.020**	0.020	ug/L		<0.020				30	
Chloroethane	**<0.020**	0.020	ug/L		<0.020				30	
Chloroform	**<0.020**	0.020	ug/L		<0.020				30	
Chloromethane	**<0.020**	0.020	ug/L		<0.020				30	
Cyclohexane	**<0.020**	0.020	ug/L		<0.020				30	
Dibromochloromethane	**<0.020**	0.020	ug/L		<0.020				30	
1,2-Dibromoethane (EDB)	**<0.020**	0.020	ug/L		<0.020				30	
1,2-Dichlorobenzene	**<0.020**	0.020	ug/L		<0.020				30	
1,3-Dichlorobenzene	**<0.020**	0.020	ug/L		<0.020				30	
1,4-Dichlorobenzene	**<0.020**	0.020	ug/L		<0.020				30	
Dichlorodifluoromethane (R12)	**<0.020**	0.020	ug/L		<0.020				30	
1,1-Dichloroethane	**<0.020**	0.020	ug/L		<0.020				30	
1,2-Dichloroethane (EDC)	**<0.020**	0.020	ug/L		<0.020				30	
cis-1,2-Dichloroethylene	**<0.020**	0.020	ug/L		<0.020				30	
1,1-Dichloroethylene	**<0.020**	0.020	ug/L		<0.020				30	
trans-1,2-Dichloroethylene	**<0.020**	0.020	ug/L		<0.020				30	
1,2-Dichloropropane	**<0.020**	0.020	ug/L		<0.020				30	
trans-1,3-Dichloropropylene	**<0.020**	0.020	ug/L		<0.020				30	
cis-1,3-Dichloropropylene	**<0.020**	0.020	ug/L		<0.020				30	
Dichlorotetrafluoroethane	**<0.020**	0.020	ug/L		<0.020				30	
Diisopropyl ether (DIPE)	**<0.020**	0.020	ug/L		<0.020				30	
1,4-Dioxane	**<0.020**	0.020	ug/L		<0.020				30	
Ethanol	**<0.020**	0.020	ug/L		<0.020				30	
Ethyl Acetate	**<0.020**	0.020	ug/L		<0.020				30	
Ethylbenzene	**<0.020**	0.020	ug/L		<0.020				30	
Ethyl-tert-Butyl Ether (ETBE)	**<0.020**	0.020	ug/L		<0.020				30	

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LABORATORY ANALYSIS RESULTS

Client: CH2M Hill, Inc.
Project No: 693142
Project Name: KMEP Norwalk Biosparge Startup

AA Project No: MB187323
Date Received: 11/16/18
Date Reported: 11/28/18

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
VOCs by GCMS EPA TO-15 (Mid Level) - Quality Control										
*Batch B8K1940 - *** DEFAULT PREP ****										
Duplicate (B8K1940-DUP1) Continued	**Source: 8K19015-26**	Prepared & Analyzed: 11/13/18								
4-Ethyltoluene	**<0.020**	0.020	ug/L		<0.020				30	
Heptane	**<0.020**	0.020	ug/L		<0.020				30	
Hexachlorobutadiene	**<0.020**	0.020	ug/L		<0.020				30	
n-Hexane	**<0.020**	0.020	ug/L		<0.020				30	
2-Hexanone (MBK)	**<0.020**	0.020	ug/L		<0.020				30	
Isopropanol (IPA)	**<0.20**	0.20	ug/L		<0.20				30	
Methyl-tert-Butyl Ether (MTBE)	**<0.020**	0.020	ug/L		<0.020				30	
Methylene Chloride	**<0.020**	0.020	ug/L		<0.020				30	
4-Methyl-2-pentanone (MIBK)	**<0.020**	0.020	ug/L		<0.020				30	
Naphthalene	**<0.020**	0.020	ug/L		<0.020				30	
Propylene	**<0.020**	0.020	ug/L		<0.020				30	
Styrene	**<0.020**	0.020	ug/L		<0.020				30	
1,1,2,2-Tetrachloroethane	**<0.020**	0.020	ug/L		<0.020				30	
Tetrachloroethylene (PCE)	**<0.020**	0.020	ug/L		<0.020				30	
Tetrahydrofuran (THF)	**<0.020**	0.020	ug/L		<0.020				30	
Toluene	**<0.020**	0.020	ug/L		<0.020				30	
1,2,4-Trichlorobenzene	**<0.020**	0.020	ug/L		<0.020				30	
1,1,2-Trichloroethane	**<0.020**	0.020	ug/L		<0.020				30	
1,1,1-Trichloroethane	**<0.020**	0.020	ug/L		<0.020				30	
Trichloroethylene (TCE)	**<0.020**	0.020	ug/L		<0.020				30	
Trichlorofluoromethane (R11)	**<0.020**	0.020	ug/L		<0.020				30	
1,1,2-Trichloro-1,2,2-trifluoroethane (R113)	**<0.020**	0.020	ug/L		<0.020				30	
1,3,5-Trimethylbenzene	**<0.020**	0.020	ug/L		<0.020				30	
1,2,4-Trimethylbenzene	**<0.020**	0.020	ug/L		<0.020				30	
2,2,4-Trimethylpentane	**<0.020**	0.020	ug/L		<0.020				30	
Vinyl acetate	**<0.020**	0.020	ug/L		<0.020				30	
Vinyl bromide	**<0.020**	0.020	ug/L		<0.020				30	
Vinyl chloride	**<0.020**	0.020	ug/L		<0.020				30	
o-Xylene	**<0.020**	0.020	ug/L		<0.020				30	
m,p-Xylenes	**<0.020**	0.020	ug/L		<0.020				30	
1,2,3-Trichloropropane	**<0.020**	0.020	ug/L		<0.020				30	

Allen Aminian
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LABORATORY ANALYSIS RESULTS

Client: CH2M Hill, Inc.
Project No: 693142
Project Name: KMEP Norwalk Biosparge Startup

AA Project No: MB187323
Date Received: 11/16/18
Date Reported: 11/28/18

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
VOCs by GCMS EPA TO-15 (Mid Level) - Quality Control										
*Batch B8K1940 - *** DEFAULT PREP ****										
Duplicate (B8K1940-DUP1) Continued			**Source: 8K19015-26**	Prepared & Analyzed: 11/13/18						
sec-Butylbenzene	**<0.020**	0.020	ug/L		<0.020				30	
Isopropylbenzene	**<0.020**	0.020	ug/L		<0.020				30	
n-Propylbenzene	**<0.020**	0.020	ug/L		<0.020				30	
4-Isopropyltoluene	**<0.020**	0.020	ug/L		<0.020				30	
n-Butylbenzene	**<0.020**	0.020	ug/L		<0.020				30	
Surrogate: 4-Bromofluorobenzene	*0.127*		*ug/L*	*0.14*		*88.4*	*70-130*			
*Batch B8K1944 - *** DEFAULT PREP ****										
Blank (B8K1944-BLK1)				Prepared & Analyzed: 11/14/18						
Acetone	<0.020	0.020	ug/L							
Allyl chloride	<0.020	0.020	ug/L							
tert-Amyl Methyl Ether (TAME)	<0.020	0.020	ug/L							
Benzene	<0.020	0.020	ug/L							
Benzyl chloride	<0.020	0.020	ug/L							
Bromodichloromethane	<0.020	0.020	ug/L							
Bromoform	<0.020	0.020	ug/L							
Bromomethane	<0.020	0.020	ug/L							
1,3-Butadiene	<0.020	0.020	ug/L							
2-Butanone (MEK)	<0.020	0.020	ug/L							
tert-Butyl alcohol (TBA)	<20	20	ug/L							
Carbon Disulfide	<0.020	0.020	ug/L							
Carbon Tetrachloride	<0.020	0.020	ug/L							
Chlorobenzene	<0.020	0.020	ug/L							
Chloroethane	<0.020	0.020	ug/L							
Chloroform	<0.020	0.020	ug/L							
Chloromethane	<0.020	0.020	ug/L							
Cyclohexane	<0.020	0.020	ug/L							
Dibromochloromethane	<0.020	0.020	ug/L							
1,2-Dibromoethane (EDB)	<0.020	0.020	ug/L							
1,2-Dichlorobenzene	<0.020	0.020	ug/L							
1,3-Dichlorobenzene	<0.020	0.020	ug/L							
1,4-Dichlorobenzene	<0.020	0.020	ug/L							

Allen Aminian
QA/QC Manager

LABORATORY ANALYSIS RESULTS

Client: CH2M Hill, Inc.
Project No: 693142
Project Name: KMEP Norwalk Biosparge Startup

AA Project No: MB187323
Date Received: 11/16/18
Date Reported: 11/28/18

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
VOCs by GCMS EPA TO-15 (Mid Level) - Quality Control										
*Batch B8K1944 - *** DEFAULT PREP ****										
Blank (B8K1944-BLK1) Continued				Prepared & Analyzed: 11/14/18						
Dichlorodifluoromethane (R12)	<0.020	0.020	ug/L							
1,1-Dichloroethane	<0.020	0.020	ug/L							
1,2-Dichloroethane (EDC)	<0.020	0.020	ug/L							
cis-1,2-Dichloroethylene	<0.020	0.020	ug/L							
1,1-Dichloroethylene	<0.020	0.020	ug/L							
trans-1,2-Dichloroethylene	<0.020	0.020	ug/L							
1,2-Dichloropropane	<0.020	0.020	ug/L							
trans-1,3-Dichloropropylene	<0.020	0.020	ug/L							
cis-1,3-Dichloropropylene	<0.020	0.020	ug/L							
Dichlorotetrafluoroethane	<0.020	0.020	ug/L							
Diisopropyl ether (DIPE)	<0.020	0.020	ug/L							
1,4-Dioxane	<0.020	0.020	ug/L							
Ethanol	<0.020	0.020	ug/L							
Ethyl Acetate	<0.020	0.020	ug/L							
Ethylbenzene	<0.020	0.020	ug/L							
Ethyl-tert-Butyl Ether (ETBE)	<0.020	0.020	ug/L							
4-Ethyltoluene	<0.020	0.020	ug/L							
Heptane	<0.020	0.020	ug/L							
Hexachlorobutadiene	<0.020	0.020	ug/L							
n-Hexane	<0.020	0.020	ug/L							
2-Hexanone (MBK)	<0.020	0.020	ug/L							
Isopropanol (IPA)	<0.20	0.20	ug/L							
Methyl-tert-Butyl Ether (MTBE)	<0.020	0.020	ug/L							
Methylene Chloride	<0.020	0.020	ug/L							
4-Methyl-2-pentanone (MIBK)	<0.020	0.020	ug/L							
Naphthalene	<0.020	0.020	ug/L							
Propylene	<0.020	0.020	ug/L							
Styrene	<0.020	0.020	ug/L							
1,1,2,2-Tetrachloroethane	<0.020	0.020	ug/L							
Tetrachloroethylene (PCE)	<0.020	0.020	ug/L							
Tetrahydrofuran (THF)	<0.020	0.020	ug/L							
Toluene	<0.020	0.020	ug/L							

Allen Aminian
QA/QC Manager

LABORATORY ANALYSIS RESULTS

Client: CH2M Hill, Inc.
Project No: 693142
Project Name: KMEP Norwalk Biosparge Startup

AA Project No: MB187323
Date Received: 11/16/18
Date Reported: 11/28/18

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
VOCs by GCMS EPA TO-15 (Mid Level) - Quality Control										
*Batch B8K1944 - *** DEFAULT PREP ****										
Blank (B8K1944-BLK1) Continued				Prepared & Analyzed: 11/14/18						
1,2,4-Trichlorobenzene	<0.020	0.020	ug/L							
1,1,2-Trichloroethane	<0.020	0.020	ug/L							
1,1,1-Trichloroethane	<0.020	0.020	ug/L							
Trichloroethylene (TCE)	<0.020	0.020	ug/L							
Trichlorofluoromethane (R11)	<0.020	0.020	ug/L							
1,1,2-Trichloro-1,2,2-trifluoroethane (R113)	<0.020	0.020	ug/L							
1,3,5-Trimethylbenzene	<0.020	0.020	ug/L							
1,2,4-Trimethylbenzene	<0.020	0.020	ug/L							
2,2,4-Trimethylpentane	<0.020	0.020	ug/L							
Vinyl acetate	<0.020	0.020	ug/L							
Vinyl bromide	<0.020	0.020	ug/L							
Vinyl chloride	<0.020	0.020	ug/L							
o-Xylene	<0.020	0.020	ug/L							
m,p-Xylenes	<0.020	0.020	ug/L							
1,2,3-Trichloropropane	<0.020	0.020	ug/L							
sec-Butylbenzene	<0.020	0.020	ug/L							
Isopropylbenzene	<0.020	0.020	ug/L							
n-Propylbenzene	<0.020	0.020	ug/L							
4-Isopropyltoluene	<0.020	0.020	ug/L							
n-Butylbenzene	<0.020	0.020	ug/L							
Surrogate: 4-Bromofluorobenzene	*0.117*		*ug/L*	*0.14*		*82.0*	*70-130*			
LCS (B8K1944-BS1)				Prepared & Analyzed: 11/14/18						
Acetone	**0.0280**	0.020	ug/L	0.024		118	70-130		30	
Benzene	**0.0349**	0.020	ug/L	0.032		109	70-130		30	
Benzyl chloride	**0.0568**	0.020	ug/L	0.052		110	70-130		30	
Bromodichloromethane	**0.0599**	0.020	ug/L	0.067		89.4	70-130		30	
Bromoform	**0.0975**	0.020	ug/L	0.10		94.3	70-130		30	
Bromomethane	**0.0398**	0.020	ug/L	0.039		102	70-130		30	
2-Butanone (MEK)	**0.0389**	0.020	ug/L	0.029		132	70-130		30	**
Carbon Disulfide	**0.0339**	0.020	ug/L	0.031		109	70-130		30	

Allen Aminian
QA/QC Manager

LABORATORY ANALYSIS RESULTS

Client: CH2M Hill, Inc.
Project No: 693142
Project Name: KMEP Norwalk Biosparge Startup

AA Project No: MB187323
Date Received: 11/16/18
Date Reported: 11/28/18

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
VOCs by GCMS EPA TO-15 (Mid Level) - Quality Control										
*Batch B8K1944 - *** DEFAULT PREP ****										
LCS (B8K1944-BS1) Continued				Prepared & Analyzed: 11/14/18						
Carbon Tetrachloride	**0.0486**	0.020	ug/L	0.063		77.2	70-130		30	
Chlorobenzene	**0.0540**	0.020	ug/L	0.046		117	70-130		30	
Chloroethane	**0.0322**	0.020	ug/L	0.026		122	70-130		30	
Chloroform	**0.0464**	0.020	ug/L	0.049		95.1	70-130		30	
Chloromethane	**0.0243**	0.020	ug/L	0.021		118	70-130		30	
Dibromochloromethane	**0.0779**	0.020	ug/L	0.085		91.4	70-130		30	
1,2-Dibromoethane (EDB)	**0.0832**	0.020	ug/L	0.077		108	70-130		30	
1,2-Dichlorobenzene	**0.0645**	0.020	ug/L	0.060		107	70-130		30	
1,3-Dichlorobenzene	**0.0634**	0.020	ug/L	0.060		106	70-130		30	
1,4-Dichlorobenzene	**0.0649**	0.020	ug/L	0.060		108	70-130		30	
Dichlorodifluoromethane (R12)	**0.0242**	0.020	ug/L	0.049		49.0	70-130		30	***
1,1-Dichloroethane	**0.0410**	0.020	ug/L	0.040		101	70-130		30	
1,2-Dichloroethane (EDC)	**0.0336**	0.020	ug/L	0.040		83.1	70-130		30	
cis-1,2-Dichloroethylene	**0.0467**	0.020	ug/L	0.040		118	70-130		30	
1,1-Dichloroethylene	**0.0386**	0.020	ug/L	0.040		97.4	70-130		30	
trans-1,2-Dichloroethylene	**0.0412**	0.020	ug/L	0.040		104	70-130		30	
1,2-Dichloropropane	**0.0521**	0.020	ug/L	0.046		113	70-130		30	
trans-1,3-Dichloropropylene	**0.0407**	0.020	ug/L	0.045		89.6	70-130		30	
cis-1,3-Dichloropropylene	**0.0430**	0.020	ug/L	0.045		94.8	70-130		30	
Dichlorotetrafluoroethane	**0.0575**	0.020	ug/L	0.070		82.3	70-130		30	
Ethylbenzene	**0.0500**	0.020	ug/L	0.043		115	70-130		30	
4-Ethyltoluene	**0.0644**	0.020	ug/L	0.049		131	70-130		30	**
Hexachlorobutadiene	**0.0961**	0.020	ug/L	0.11		90.1	70-130		30	
2-Hexanone (MBK)	**0.0513**	0.020	ug/L	0.041		125	70-130		30	
Isopropanol (IPA)	**0.0302**	0.20	ug/L	0.025		123	70-130		30	
Methylene Chloride	**0.0406**	0.020	ug/L	0.035		117	70-130		30	
4-Methyl-2-pentanone (MIBK)	**0.0599**	0.020	ug/L	0.041		146	70-130		30	**
Styrene	**0.0492**	0.020	ug/L	0.043		116	70-130		30	
1,1,2,2-Tetrachloroethane	**0.0594**	0.020	ug/L	0.069		86.5	70-130		30	
Tetrachloroethylene (PCE)	**0.0652**	0.020	ug/L	0.068		96.1	70-130		30	
Toluene	**0.0426**	0.020	ug/L	0.038		113	70-130		30	
1,2,4-Trichlorobenzene	**0.0672**	0.020	ug/L	0.074		90.6	70-130		30	

Allen Aminian
QA/QC Manager

LABORATORY ANALYSIS RESULTS

Client: CH2M Hill, Inc.
Project No: 693142
Project Name: KMEP Norwalk Biosparge Startup

AA Project No: MB187323
Date Received: 11/16/18
Date Reported: 11/28/18

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
VOCs by GCMS EPA TO-15 (Mid Level) - Quality Control										
*Batch B8K1944 - *** DEFAULT PREP ****										
LCS (B8K1944-BS1) Continued				Prepared & Analyzed: 11/14/18						
1,1,2-Trichloroethane	**0.0645**	0.020	ug/L	0.055		118	70-130		30	
1,1,1-Trichloroethane	**0.0446**	0.020	ug/L	0.055		81.7	70-130		30	
Trichloroethylene (TCE)	**0.0611**	0.020	ug/L	0.054		114	70-130		30	
Trichlorofluoromethane (R11)	**0.0503**	0.020	ug/L	0.056		89.6	70-130		30	
1,1,2-Trichloro-1,2,2-trifluoroethane (R113)	**0.0824**	0.020	ug/L	0.077		108	70-130		30	
1,3,5-Trimethylbenzene	**0.0593**	0.020	ug/L	0.049		121	70-130		30	
1,2,4-Trimethylbenzene	**0.0588**	0.020	ug/L	0.049		120	70-130		30	
Vinyl acetate	**0.0386**	0.020	ug/L	0.035		110	70-130		30	
Vinyl chloride	**0.0271**	0.020	ug/L	0.026		106	70-130		30	
o-Xylene	**0.0505**	0.020	ug/L	0.043		116	70-130		30	
m,p-Xylenes	**0.110**	0.020	ug/L	0.087		126	70-130		30	
1,2,3-Trichloropropane	**0.0736**	0.020	ug/L	0.060		122	70-130		30	
sec-Butylbenzene	**0.0721**	0.020	ug/L	0.055		131	70-130		30	**
Isopropylbenzene	**0.0597**	0.020	ug/L	0.049		122	70-130		30	
n-Propylbenzene	**0.0613**	0.020	ug/L	0.049		125	70-130		30	
4-Isopropyltoluene	**0.0699**	0.020	ug/L	0.055		127	70-130		30	
Surrogate: 4-Bromofluorobenzene	*0.123*		*ug/L*	*0.14*		*86.3*	*70-130*			
LCS Dup (B8K1944-BSD1)				Prepared & Analyzed: 11/14/18						
Acetone	**0.0267**	0.020	ug/L	0.024		112	70-130	4.87	30	
Benzene	**0.0340**	0.020	ug/L	0.032		106	70-130	2.69	30	
Benzyl chloride	**0.0574**	0.020	ug/L	0.052		111	70-130	0.907	30	
Bromodichloromethane	**0.0588**	0.020	ug/L	0.067		87.7	70-130	1.92	30	
Bromoform	**0.101**	0.020	ug/L	0.10		97.3	70-130	3.13	30	
Bromomethane	**0.0396**	0.020	ug/L	0.039		102	70-130	0.489	30	
2-Butanone (MEK)	**0.0380**	0.020	ug/L	0.029		129	70-130	2.38	30	
Carbon Disulfide	**0.0332**	0.020	ug/L	0.031		106	70-130	2.32	30	
Carbon Tetrachloride	**0.0483**	0.020	ug/L	0.063		76.7	70-130	0.650	30	
Chlorobenzene	**0.0545**	0.020	ug/L	0.046		118	70-130	0.933	30	
Chloroethane	**0.0314**	0.020	ug/L	0.026		119	70-130	2.32	30	
Chloroform	**0.0444**	0.020	ug/L	0.049		90.9	70-130	4.52	30	

Allen Aminian
QA/QC Manager

LABORATORY ANALYSIS RESULTS

Client: CH2M Hill, Inc.
Project No: 693142
Project Name: KMEP Norwalk Biosparge Startup

AA Project No: MB187323
Date Received: 11/16/18
Date Reported: 11/28/18

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
VOCs by GCMS EPA TO-15 (Mid Level) - Quality Control										
*Batch B8K1944 - *** DEFAULT PREP ****										
LCS Dup (B8K1944-BSD1) Continued				Prepared & Analyzed: 11/14/18						
Chloromethane	**0.0230**	0.020	ug/L	0.021		112	70-130	5.41	30	
Dibromochloromethane	**0.0780**	0.020	ug/L	0.085		91.6	70-130	0.219	30	
1,2-Dibromoethane (EDB)	**0.0847**	0.020	ug/L	0.077		110	70-130	1.74	30	
1,2-Dichlorobenzene	**0.0657**	0.020	ug/L	0.060		109	70-130	1.85	30	
1,3-Dichlorobenzene	**0.0648**	0.020	ug/L	0.060		108	70-130	2.06	30	
1,4-Dichlorobenzene	**0.0654**	0.020	ug/L	0.060		109	70-130	0.738	30	
Dichlorodifluoromethane (R12)	**0.0230**	0.020	ug/L	0.049		46.5	70-130	5.24	30	***
1,1-Dichloroethane	**0.0403**	0.020	ug/L	0.040		99.5	70-130	1.79	30	
1,2-Dichloroethane (EDC)	**0.0322**	0.020	ug/L	0.040		79.6	70-130	4.30	30	
cis-1,2-Dichloroethylene	**0.0458**	0.020	ug/L	0.040		115	70-130	1.97	30	
1,1-Dichloroethylene	**0.0371**	0.020	ug/L	0.040		93.6	70-130	3.98	30	
trans-1,2-Dichloroethylene	**0.0408**	0.020	ug/L	0.040		103	70-130	0.774	30	
1,2-Dichloropropane	**0.0514**	0.020	ug/L	0.046		111	70-130	1.25	30	
trans-1,3-Dichloropropylene	**0.0399**	0.020	ug/L	0.045		88.0	70-130	1.80	30	
cis-1,3-Dichloropropylene	**0.0428**	0.020	ug/L	0.045		94.2	70-130	0.635	30	
Dichlorotetrafluoroethane	**0.0561**	0.020	ug/L	0.070		80.3	70-130	2.46	30	
Ethylbenzene	**0.0503**	0.020	ug/L	0.043		116	70-130	0.606	30	
4-Ethyltoluene	**0.0640**	0.020	ug/L	0.049		130	70-130	0.689	30	
Hexachlorobutadiene	**0.0964**	0.020	ug/L	0.11		90.4	70-130	0.332	30	
2-Hexanone (MBK)	**0.0495**	0.020	ug/L	0.041		121	70-130	3.58	30	
Isopropanol (IPA)	**0.0299**	0.20	ug/L	0.025		122	70-130	0.901	30	
Methylene Chloride	**0.0409**	0.020	ug/L	0.035		118	70-130	0.853	30	
4-Methyl-2-pentanone (MIBK)	**0.0595**	0.020	ug/L	0.041		145	70-130	0.686	30	**
Styrene	**0.0511**	0.020	ug/L	0.043		120	70-130	3.74	30	
1,1,2,2-Tetrachloroethane	**0.0595**	0.020	ug/L	0.069		86.7	70-130	0.231	30	
Tetrachloroethylene (PCE)	**0.0672**	0.020	ug/L	0.068		99.1	70-130	3.07	30	
Toluene	**0.0428**	0.020	ug/L	0.038		114	70-130	0.529	30	
1,2,4-Trichlorobenzene	**0.0692**	0.020	ug/L	0.074		93.3	70-130	2.94	30	
1,1,2-Trichloroethane	**0.0642**	0.020	ug/L	0.055		118	70-130	0.593	30	
1,1,1-Trichloroethane	**0.0429**	0.020	ug/L	0.055		78.6	70-130	3.87	30	
Trichloroethylene (TCE)	**0.0604**	0.020	ug/L	0.054		112	70-130	1.15	30	
Trichlorofluoromethane (R11)	**0.0483**	0.020	ug/L	0.056		85.9	70-130	4.22	30	

Allen Aminian
QA/QC Manager

LABORATORY ANALYSIS RESULTS

Client: CH2M Hill, Inc.
Project No: 693142
Project Name: KMEP Norwalk Biosparge Startup

AA Project No: MB187323
Date Received: 11/16/18
Date Reported: 11/28/18

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
VOCs by GCMS EPA TO-15 (Mid Level) - Quality Control										
*Batch B8K1944 - *** DEFAULT PREP ****										
LCS Dup (B8K1944-BSD1) Continued				Prepared & Analyzed: 11/14/18						
1,1,2-Trichloro-1,2,2-trifluoroethane (R113)	**0.0807**	0.020	ug/L	0.077		105	70-130	2.07	30	
1,3,5-Trimethylbenzene	**0.0604**	0.020	ug/L	0.049		123	70-130	1.81	30	
1,2,4-Trimethylbenzene	**0.0595**	0.020	ug/L	0.049		121	70-130	1.16	30	
Vinyl acetate	**0.0377**	0.020	ug/L	0.035		107	70-130	2.40	30	
Vinyl chloride	**0.0262**	0.020	ug/L	0.026		102	70-130	3.55	30	
o-Xylene	**0.0511**	0.020	ug/L	0.043		118	70-130	1.11	30	
m,p-Xylenes	**0.111**	0.020	ug/L	0.087		128	70-130	1.65	30	
1,2,3-Trichloropropane	**0.0725**	0.020	ug/L	0.060		120	70-130	1.40	30	
sec-Butylbenzene	**0.0725**	0.020	ug/L	0.055		132	70-130	0.456	30	**
Isopropylbenzene	**0.0609**	0.020	ug/L	0.049		124	70-130	1.88	30	
n-Propylbenzene	**0.0614**	0.020	ug/L	0.049		125	70-130	0.0801	30	
4-Isopropyltoluene	**0.0710**	0.020	ug/L	0.055		129	70-130	1.56	30	
Surrogate: 4-Bromofluorobenzene	*0.122*		*ug/L*	*0.14*		*85.2*	*70-130*			
*Batch B8K2028 - *** DEFAULT PREP ****										
Blank (B8K2028-BLK1)				Prepared & Analyzed: 11/16/18						
Acetone	<0.020	0.020	ug/L							
Allyl chloride	<0.020	0.020	ug/L							
tert-Amyl Methyl Ether (TAME)	<0.020	0.020	ug/L							
Benzene	<0.020	0.020	ug/L							
Benzyl chloride	<0.020	0.020	ug/L							
Bromodichloromethane	<0.020	0.020	ug/L							
Bromoform	<0.020	0.020	ug/L							
Bromomethane	<0.020	0.020	ug/L							
1,3-Butadiene	<0.020	0.020	ug/L							
2-Butanone (MEK)	<0.020	0.020	ug/L							
tert-Butyl alcohol (TBA)	<20	20	ug/L							
Carbon Disulfide	<0.020	0.020	ug/L							
Carbon Tetrachloride	<0.020	0.020	ug/L							
Chlorobenzene	<0.020	0.020	ug/L							
Chloroethane	<0.020	0.020	ug/L							

Allen Aminian
QA/QC Manager

LABORATORY ANALYSIS RESULTS

Client: CH2M Hill, Inc.
Project No: 693142
Project Name: KMEP Norwalk Biosparge Startup

AA Project No: MB187323
Date Received: 11/16/18
Date Reported: 11/28/18

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
VOCs by GCMS EPA TO-15 (Mid Level) - Quality Control										
*Batch B8K2028 - *** DEFAULT PREP ****										
Blank (B8K2028-BLK1) Continued				Prepared & Analyzed: 11/16/18						
Chloroform	<0.020	0.020	ug/L							
Chloromethane	<0.020	0.020	ug/L							
Cyclohexane	<0.020	0.020	ug/L							
Dibromochloromethane	<0.020	0.020	ug/L							
1,2-Dibromoethane (EDB)	<0.020	0.020	ug/L							
1,2-Dichlorobenzene	<0.020	0.020	ug/L							
1,3-Dichlorobenzene	<0.020	0.020	ug/L							
1,4-Dichlorobenzene	<0.020	0.020	ug/L							
Dichlorodifluoromethane (R12)	<0.020	0.020	ug/L							
1,1-Dichloroethane	<0.020	0.020	ug/L							
1,2-Dichloroethane (EDC)	<0.020	0.020	ug/L							
cis-1,2-Dichloroethylene	<0.020	0.020	ug/L							
1,1-Dichloroethylene	<0.020	0.020	ug/L							
trans-1,2-Dichloroethylene	<0.020	0.020	ug/L							
1,2-Dichloropropane	<0.020	0.020	ug/L							
trans-1,3-Dichloropropylene	<0.020	0.020	ug/L							
cis-1,3-Dichloropropylene	<0.020	0.020	ug/L							
Dichlorotetrafluoroethane	<0.020	0.020	ug/L							
Diisopropyl ether (DIPE)	<0.020	0.020	ug/L							
1,4-Dioxane	<0.020	0.020	ug/L							
Ethanol	<0.020	0.020	ug/L							
Ethyl Acetate	<0.020	0.020	ug/L							
Ethylbenzene	<0.020	0.020	ug/L							
Ethyl-tert-Butyl Ether (ETBE)	<0.020	0.020	ug/L							
4-Ethyltoluene	<0.020	0.020	ug/L							
Heptane	<0.020	0.020	ug/L							
Hexachlorobutadiene	<0.020	0.020	ug/L							
n-Hexane	<0.020	0.020	ug/L							
2-Hexanone (MBK)	<0.020	0.020	ug/L							
Isopropanol (IPA)	<0.20	0.20	ug/L							
Methyl-tert-Butyl Ether (MTBE)	<0.020	0.020	ug/L							
Methylene Chloride	<0.020	0.020	ug/L							

Allen Aminian
QA/QC Manager

LABORATORY ANALYSIS RESULTS

Client: CH2M Hill, Inc.
Project No: 693142
Project Name: KMEP Norwalk Biosparge Startup

AA Project No: MB187323
Date Received: 11/16/18
Date Reported: 11/28/18

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
VOCs by GCMS EPA TO-15 (Mid Level) - Quality Control										
*Batch B8K2028 - *** DEFAULT PREP ****										
Blank (B8K2028-BLK1) Continued				Prepared & Analyzed: 11/16/18						
4-Methyl-2-pentanone (MIBK)	<0.020	0.020	ug/L							
Naphthalene	<0.020	0.020	ug/L							
Propylene	<0.020	0.020	ug/L							
Styrene	<0.020	0.020	ug/L							
1,1,2,2-Tetrachloroethane	<0.020	0.020	ug/L							
Tetrachloroethylene (PCE)	<0.020	0.020	ug/L							
Tetrahydrofuran (THF)	<0.020	0.020	ug/L							
Toluene	<0.020	0.020	ug/L							
1,2,4-Trichlorobenzene	<0.020	0.020	ug/L							
1,1,2-Trichloroethane	<0.020	0.020	ug/L							
1,1,1-Trichloroethane	<0.020	0.020	ug/L							
Trichloroethylene (TCE)	<0.020	0.020	ug/L							
Trichlorofluoromethane (R11)	<0.020	0.020	ug/L							
1,1,2-Trichloro-1,2,2-trifluoroethane (R113)	<0.020	0.020	ug/L							
1,3,5-Trimethylbenzene	<0.020	0.020	ug/L							
1,2,4-Trimethylbenzene	<0.020	0.020	ug/L							
2,2,4-Trimethylpentane	<0.020	0.020	ug/L							
Vinyl acetate	<0.020	0.020	ug/L							
Vinyl bromide	<0.020	0.020	ug/L							
Vinyl chloride	<0.020	0.020	ug/L							
o-Xylene	<0.020	0.020	ug/L							
m,p-Xylenes	<0.020	0.020	ug/L							
1,2,3-Trichloropropane	<0.020	0.020	ug/L							
sec-Butylbenzene	<0.020	0.020	ug/L							
Isopropylbenzene	<0.020	0.020	ug/L							
n-Propylbenzene	<0.020	0.020	ug/L							
4-Isopropyltoluene	<0.020	0.020	ug/L							
n-Butylbenzene	<0.020	0.020	ug/L							
Surrogate: 4-Bromofluorobenzene	*0.126*		*ug/L*	*0.14*		*88.0*	*70-130*			
LCS (B8K2028-BS1)				Prepared & Analyzed: 11/16/18						

Allen Aminian
QA/QC Manager

LABORATORY ANALYSIS RESULTS

Client: CH2M Hill, Inc.
Project No: 693142
Project Name: KMEP Norwalk Biosparge Startup

AA Project No: MB187323
Date Received: 11/16/18
Date Reported: 11/28/18

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
VOCs by GCMS EPA TO-15 (Mid Level) - Quality Control										
*Batch B8K2028 - *** DEFAULT PREP ****										
LCS (B8K2028-BS1) Continued				Prepared & Analyzed: 11/16/18						
Acetone	**0.0247**	0.020	ug/L	0.024		104	70-130		30	
Benzene	**0.0315**	0.020	ug/L	0.032		98.6	70-130		30	
Benzyl chloride	**0.0517**	0.020	ug/L	0.052		99.9	70-130		30	
Bromodichloromethane	**0.0540**	0.020	ug/L	0.067		80.6	70-130		30	
Bromoform	**0.0956**	0.020	ug/L	0.10		92.5	70-130		30	
Bromomethane	**0.0333**	0.020	ug/L	0.039		85.7	70-130		30	
2-Butanone (MEK)	**0.0342**	0.020	ug/L	0.029		116	70-130		30	
Carbon Disulfide	**0.0293**	0.020	ug/L	0.031		94.2	70-130		30	
Carbon Tetrachloride	**0.0453**	0.020	ug/L	0.063		72.0	70-130		30	
Chlorobenzene	**0.0487**	0.020	ug/L	0.046		106	70-130		30	
Chloroethane	**0.0247**	0.020	ug/L	0.026		93.7	70-130		30	
Chloroform	**0.0408**	0.020	ug/L	0.049		83.6	70-130		30	
Chloromethane	**0.0204**	0.020	ug/L	0.021		99.0	70-130		30	
Dibromochloromethane	**0.0745**	0.020	ug/L	0.085		87.4	70-130		30	
1,2-Dibromoethane (EDB)	**0.0781**	0.020	ug/L	0.077		102	70-130		30	
1,2-Dichlorobenzene	**0.0629**	0.020	ug/L	0.060		105	70-130		30	
1,3-Dichlorobenzene	**0.0613**	0.020	ug/L	0.060		102	70-130		30	
1,4-Dichlorobenzene	**0.0618**	0.020	ug/L	0.060		103	70-130		30	
Dichlorodifluoromethane (R12)	**0.0203**	0.020	ug/L	0.049		41.0	70-130		30	***
1,1-Dichloroethane	**0.0357**	0.020	ug/L	0.040		88.3	70-130		30	
1,2-Dichloroethane (EDC)	**0.0299**	0.020	ug/L	0.040		73.8	70-130		30	
cis-1,2-Dichloroethylene	**0.0410**	0.020	ug/L	0.040		104	70-130		30	
1,1-Dichloroethylene	**0.0333**	0.020	ug/L	0.040		83.9	70-130		30	
trans-1,2-Dichloroethylene	**0.0374**	0.020	ug/L	0.040		94.4	70-130		30	
1,2-Dichloropropane	**0.0452**	0.020	ug/L	0.046		97.8	70-130		30	
trans-1,3-Dichloropropylene	**0.0363**	0.020	ug/L	0.045		80.0	70-130		30	
cis-1,3-Dichloropropylene	**0.0384**	0.020	ug/L	0.045		84.5	70-130		30	
Dichlorotetrafluoroethane	**0.0493**	0.020	ug/L	0.070		70.5	70-130		30	
Ethylbenzene	**0.0450**	0.020	ug/L	0.043		104	70-130		30	
4-Ethyltoluene	**0.0599**	0.020	ug/L	0.049		122	70-130		30	
Hexachlorobutadiene	**0.0989**	0.020	ug/L	0.11		92.7	70-130		30	
2-Hexanone (MBK)	**0.0500**	0.020	ug/L	0.041		122	70-130		30	

Allen Aminian
QA/QC Manager

LABORATORY ANALYSIS RESULTS

Client: CH2M Hill, Inc.
Project No: 693142
Project Name: KMEP Norwalk Biosparge Startup

AA Project No: MB187323
Date Received: 11/16/18
Date Reported: 11/28/18

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
VOCs by GCMS EPA TO-15 (Mid Level) - Quality Control										
*Batch B8K2028 - *** DEFAULT PREP ****										
LCS (B8K2028-BS1) Continued				Prepared & Analyzed: 11/16/18						
Isopropanol (IPA)	**0.0277**	0.20	ug/L	0.025		112	70-130		30	
Methylene Chloride	**0.0350**	0.020	ug/L	0.035		101	70-130		30	
4-Methyl-2-pentanone (MIBK)	**0.0609**	0.020	ug/L	0.041		149	70-130		30	**
Styrene	**0.0469**	0.020	ug/L	0.043		110	70-130		30	
1,1,2,2-Tetrachloroethane	**0.0518**	0.020	ug/L	0.069		75.4	70-130		30	
Tetrachloroethylene (PCE)	**0.0660**	0.020	ug/L	0.068		97.3	70-130		30	
Toluene	**0.0398**	0.020	ug/L	0.038		106	70-130		30	
1,2,4-Trichlorobenzene	**0.0714**	0.020	ug/L	0.074		96.2	70-130		30	
1,1,2-Trichloroethane	**0.0591**	0.020	ug/L	0.055		108	70-130		30	
1,1,1-Trichloroethane	**0.0404**	0.020	ug/L	0.055		74.1	70-130		30	
Trichloroethylene (TCE)	**0.0557**	0.020	ug/L	0.054		104	70-130		30	
Trichlorofluoromethane (R11)	**0.0458**	0.020	ug/L	0.056		81.6	70-130		30	
1,1,2-Trichloro-1,2,2-trifluoroethane (R113)	**0.0727**	0.020	ug/L	0.077		94.9	70-130		30	
1,3,5-Trimethylbenzene	**0.0554**	0.020	ug/L	0.049		113	70-130		30	
1,2,4-Trimethylbenzene	**0.0559**	0.020	ug/L	0.049		114	70-130		30	
Vinyl acetate	**0.0342**	0.020	ug/L	0.035		97.1	70-130		30	
Vinyl chloride	**0.0232**	0.020	ug/L	0.026		90.6	70-130		30	
o-Xylene	**0.0461**	0.020	ug/L	0.043		106	70-130		30	
m,p-Xylenes	**0.0978**	0.020	ug/L	0.087		113	70-130		30	
1,2,3-Trichloropropane	**0.0639**	0.020	ug/L	0.060		106	70-130		30	
sec-Butylbenzene	**0.0666**	0.020	ug/L	0.055		121	70-130		30	
Isopropylbenzene	**0.0557**	0.020	ug/L	0.049		113	70-130		30	
n-Propylbenzene	**0.0565**	0.020	ug/L	0.049		115	70-130		30	
4-Isopropyltoluene	**0.0663**	0.020	ug/L	0.055		121	70-130		30	
Surrogate: 4-Bromofluorobenzene	*0.124*		*ug/L*	*0.14*		*86.7*	*70-130*			
LCS Dup (B8K2028-BSD1)				Prepared & Analyzed: 11/16/18						
Acetone	**0.0246**	0.020	ug/L	0.024		103	70-130	0.675	30	
Benzene	**0.0316**	0.020	ug/L	0.032		98.8	70-130	0.203	30	
Benzyl chloride	**0.0536**	0.020	ug/L	0.052		104	70-130	3.64	30	
Bromodichloromethane	**0.0523**	0.020	ug/L	0.067		78.0	70-130	3.28	30	

Allen Aminian
QA/QC Manager

LABORATORY ANALYSIS RESULTS

Client: CH2M Hill, Inc.
Project No: 693142
Project Name: KMEP Norwalk Biosparge Startup

AA Project No: MB187323
Date Received: 11/16/18
Date Reported: 11/28/18

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
VOCs by GCMS EPA TO-15 (Mid Level) - Quality Control										
*Batch B8K2028 - *** DEFAULT PREP ****										
LCS Dup (B8K2028-BSD1) Continued				Prepared & Analyzed: 11/16/18						
Bromoform	**0.0976**	0.020	ug/L	0.10		94.4	70-130	2.03	30	
Bromomethane	**0.0344**	0.020	ug/L	0.039		88.5	70-130	3.21	30	
2-Butanone (MEK)	**0.0341**	0.020	ug/L	0.029		116	70-130	0.259	30	
Carbon Disulfide	**0.0300**	0.020	ug/L	0.031		96.4	70-130	2.31	30	
Carbon Tetrachloride	**0.0442**	0.020	ug/L	0.063		70.3	70-130	2.39	30	
Chlorobenzene	**0.0504**	0.020	ug/L	0.046		110	70-130	3.44	30	
Chloroethane	**0.0249**	0.020	ug/L	0.026		94.2	70-130	0.532	30	
Chloroform	**0.0407**	0.020	ug/L	0.049		83.3	70-130	0.359	30	
Chloromethane	**0.0210**	0.020	ug/L	0.021		102	70-130	2.59	30	
Dibromochloromethane	**0.0727**	0.020	ug/L	0.085		85.4	70-130	2.31	30	
1,2-Dibromoethane (EDB)	**0.0760**	0.020	ug/L	0.077		98.9	70-130	2.69	30	
1,2-Dichlorobenzene	**0.0627**	0.020	ug/L	0.060		104	70-130	0.287	30	
1,3-Dichlorobenzene	**0.0624**	0.020	ug/L	0.060		104	70-130	1.75	30	
1,4-Dichlorobenzene	**0.0628**	0.020	ug/L	0.060		104	70-130	1.54	30	
Dichlorodifluoromethane (R12)	**0.0206**	0.020	ug/L	0.049		41.7	70-130	1.69	30	***
1,1-Dichloroethane	**0.0359**	0.020	ug/L	0.040		88.7	70-130	0.452	30	
1,2-Dichloroethane (EDC)	**0.0294**	0.020	ug/L	0.040		72.6	70-130	1.64	30	
cis-1,2-Dichloroethylene	**0.0415**	0.020	ug/L	0.040		105	70-130	1.15	30	
1,1-Dichloroethylene	**0.0342**	0.020	ug/L	0.040		86.3	70-130	2.82	30	
trans-1,2-Dichloroethylene	**0.0382**	0.020	ug/L	0.040		96.3	70-130	1.99	30	
1,2-Dichloropropane	**0.0446**	0.020	ug/L	0.046		96.5	70-130	1.34	30	
trans-1,3-Dichloropropylene	**0.0360**	0.020	ug/L	0.045		79.4	70-130	0.753	30	
cis-1,3-Dichloropropylene	**0.0386**	0.020	ug/L	0.045		85.0	70-130	0.590	30	
Dichlorotetrafluoroethane	**0.0510**	0.020	ug/L	0.070		73.0	70-130	3.48	30	
Ethylbenzene	**0.0460**	0.020	ug/L	0.043		106	70-130	2.29	30	
4-Ethyltoluene	**0.0607**	0.020	ug/L	0.049		123	70-130	1.22	30	
Hexachlorobutadiene	**0.0967**	0.020	ug/L	0.11		90.7	70-130	2.18	30	
2-Hexanone (MBK)	**0.0440**	0.020	ug/L	0.041		107	70-130	12.9	30	
Isopropanol (IPA)	**0.0272**	0.20	ug/L	0.025		110	70-130	1.79	30	
Methylene Chloride	**0.0364**	0.020	ug/L	0.035		105	70-130	3.79	30	
4-Methyl-2-pentanone (MIBK)	**0.0528**	0.020	ug/L	0.041		129	70-130	14.3	30	
Styrene	**0.0478**	0.020	ug/L	0.043		112	70-130	1.80	30	

Allen Aminian
QA/QC Manager

LABORATORY ANALYSIS RESULTS

Client: CH2M Hill, Inc.
Project No: 693142
Project Name: KMEP Norwalk Biosparge Startup

AA Project No: MB187323
Date Received: 11/16/18
Date Reported: 11/28/18

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
VOCs by GCMS EPA TO-15 (Mid Level) - Quality Control										
*Batch B8K2028 - *** DEFAULT PREP ****										
LCS Dup (B8K2028-BSD1) Continued				Prepared & Analyzed: 11/16/18						
1,1,2,2-Tetrachloroethane	**0.0522**	0.020	ug/L	0.069		76.1	70-130	0.924	30	
Tetrachloroethylene (PCE)	**0.0646**	0.020	ug/L	0.068		95.2	70-130	2.18	30	
Toluene	**0.0388**	0.020	ug/L	0.038		103	70-130	2.50	30	
1,2,4-Trichlorobenzene	**0.0689**	0.020	ug/L	0.074		92.9	70-130	3.49	30	
1,1,2-Trichloroethane	**0.0568**	0.020	ug/L	0.055		104	70-130	4.05	30	
1,1,1-Trichloroethane	**0.0408**	0.020	ug/L	0.055		74.8	70-130	0.940	30	
Trichloroethylene (TCE)	**0.0535**	0.020	ug/L	0.054		99.5	70-130	4.13	30	
Trichlorofluoromethane (R11)	**0.0446**	0.020	ug/L	0.056		79.3	70-130	2.86	30	
1,1,2-Trichloro-1,2,2-trifluoroethane (R113)	**0.0729**	0.020	ug/L	0.077		95.1	70-130	0.211	30	
1,3,5-Trimethylbenzene	**0.0573**	0.020	ug/L	0.049		116	70-130	3.40	30	
1,2,4-Trimethylbenzene	**0.0562**	0.020	ug/L	0.049		114	70-130	0.614	30	
Vinyl acetate	**0.0340**	0.020	ug/L	0.035		96.7	70-130	0.413	30	
Vinyl chloride	**0.0236**	0.020	ug/L	0.026		92.3	70-130	1.86	30	
o-Xylene	**0.0468**	0.020	ug/L	0.043		108	70-130	1.40	30	
m,p-Xylenes	**0.101**	0.020	ug/L	0.087		116	70-130	3.28	30	
1,2,3-Trichloropropane	**0.0650**	0.020	ug/L	0.060		108	70-130	1.78	30	
sec-Butylbenzene	**0.0681**	0.020	ug/L	0.055		124	70-130	2.20	30	
Isopropylbenzene	**0.0564**	0.020	ug/L	0.049		115	70-130	1.23	30	
n-Propylbenzene	**0.0573**	0.020	ug/L	0.049		117	70-130	1.47	30	
4-Isopropyltoluene	**0.0671**	0.020	ug/L	0.055		122	70-130	1.32	30	
Surrogate: 4-Bromofluorobenzene	*0.125*		*ug/L*	*0.14*		*87.1*	*70-130*			
Duplicate (B8K2028-DUP1)				**Source: 8K19015-33**		Prepared & Analyzed: 11/16/18				
Acetone	**0.475**	0.40	ug/L		0.526			10.2	30	
Allyl chloride	**<0.40**	0.40	ug/L		<0.40				30	
tert-Amyl Methyl Ether (TAME)	**<0.40**	0.40	ug/L		<0.40				30	
Benzene	**<0.40**	0.40	ug/L		<0.40				30	
Benzyl chloride	**<0.40**	0.40	ug/L		<0.40				30	
Bromodichloromethane	**<0.40**	0.40	ug/L		<0.40				30	
Bromoform	**<0.40**	0.40	ug/L		<0.40				30	
Bromomethane	**<0.40**	0.40	ug/L		<0.40				30	

Allen Aminian
QA/QC Manager

LABORATORY ANALYSIS RESULTS

Client: CH2M Hill, Inc.
Project No: 693142
Project Name: KMEP Norwalk Biosparge Startup

AA Project No: MB187323
Date Received: 11/16/18
Date Reported: 11/28/18

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
VOCs by GCMS EPA TO-15 (Mid Level) - Quality Control										
*Batch B8K2028 - *** DEFAULT PREP ****										
Duplicate (B8K2028-DUP1) Continued	**Source: 8K19015-33**		Prepared & Analyzed: 11/16/18							
1,3-Butadiene	**<0.40**	0.40	ug/L		<0.40				30	
2-Butanone (MEK)	**<0.40**	0.40	ug/L		<0.40				30	
tert-Butyl alcohol (TBA)	**<400**	400	ug/L		<400				30	
Carbon Disulfide	**<0.40**	0.40	ug/L		<0.40				30	
Carbon Tetrachloride	**<0.40**	0.40	ug/L		<0.40				30	
Chlorobenzene	**<0.40**	0.40	ug/L		<0.40				30	
Chloroethane	**<0.40**	0.40	ug/L		<0.40				30	
Chloroform	**<0.40**	0.40	ug/L		<0.40				30	
Chloromethane	**<0.40**	0.40	ug/L		<0.40				30	
Cyclohexane	**<0.40**	0.40	ug/L		<0.40				30	
Dibromochloromethane	**<0.40**	0.40	ug/L		<0.40				30	
1,2-Dibromoethane (EDB)	**<0.40**	0.40	ug/L		<0.40				30	
1,2-Dichlorobenzene	**<0.40**	0.40	ug/L		<0.40				30	
1,3-Dichlorobenzene	**<0.40**	0.40	ug/L		<0.40				30	
1,4-Dichlorobenzene	**<0.40**	0.40	ug/L		<0.40				30	
Dichlorodifluoromethane (R12)	**<0.40**	0.40	ug/L		<0.40				30	
1,1-Dichloroethane	**<0.40**	0.40	ug/L		<0.40				30	
1,2-Dichloroethane (EDC)	**<0.40**	0.40	ug/L		<0.40				30	
cis-1,2-Dichloroethylene	**<0.40**	0.40	ug/L		<0.40				30	
1,1-Dichloroethylene	**<0.40**	0.40	ug/L		<0.40				30	
trans-1,2-Dichloroethylene	**<0.40**	0.40	ug/L		<0.40				30	
1,2-Dichloropropane	**<0.40**	0.40	ug/L		<0.40				30	
trans-1,3-Dichloropropylene	**<0.40**	0.40	ug/L		<0.40				30	
cis-1,3-Dichloropropylene	**<0.40**	0.40	ug/L		<0.40				30	
Dichlorotetrafluoroethane	**<0.40**	0.40	ug/L		<0.40				30	
Diisopropyl ether (DIPE)	**<0.40**	0.40	ug/L		<0.40				30	
1,4-Dioxane	**<0.40**	0.40	ug/L		<0.40				30	
Ethanol	**<0.40**	0.40	ug/L		<0.40				30	
Ethyl Acetate	**<0.40**	0.40	ug/L		<0.40				30	
Ethylbenzene	**<0.40**	0.40	ug/L		<0.40				30	
Ethyl-tert-Butyl Ether (ETBE)	**<0.40**	0.40	ug/L		<0.40				30	
4-Ethyltoluene	**<0.40**	0.40	ug/L		<0.40				30	

Allen Aminian
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LABORATORY ANALYSIS RESULTS

Client: CH2M Hill, Inc.
Project No: 693142
Project Name: KMEP Norwalk Biosparge Startup

AA Project No: MB187323
Date Received: 11/16/18
Date Reported: 11/28/18

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
VOCs by GCMS EPA TO-15 (Mid Level) - Quality Control										
*Batch B8K2028 - *** DEFAULT PREP ****										
Duplicate (B8K2028-DUP1) Continued	**Source: 8K19015-33**	Prepared & Analyzed: 11/16/18								
Heptane	**<0.40**	0.40	ug/L		<0.40				30	
Hexachlorobutadiene	**<0.40**	0.40	ug/L		<0.40				30	
n-Hexane	**<0.40**	0.40	ug/L		<0.40				30	
2-Hexanone (MBK)	**<0.40**	0.40	ug/L		<0.40				30	
Isopropanol (IPA)	**<4.0**	4.0	ug/L		<4.0				30	
Methyl-tert-Butyl Ether (MTBE)	**<0.40**	0.40	ug/L		<0.40				30	
Methylene Chloride	**<0.40**	0.40	ug/L		<0.40				30	
4-Methyl-2-pentanone (MIBK)	**<0.40**	0.40	ug/L		<0.40				30	
Naphthalene	**<0.40**	0.40	ug/L		<0.40				30	
Propylene	**<0.40**	0.40	ug/L		<0.40				30	
Styrene	**<0.40**	0.40	ug/L		<0.40				30	
1,1,2,2-Tetrachloroethane	**<0.40**	0.40	ug/L		<0.40				30	
Tetrachloroethylene (PCE)	**<0.40**	0.40	ug/L		<0.40				30	
Tetrahydrofuran (THF)	**<0.40**	0.40	ug/L		<0.40				30	
Toluene	**<0.40**	0.40	ug/L		<0.40				30	
1,2,4-Trichlorobenzene	**<0.40**	0.40	ug/L		<0.40				30	
1,1,2-Trichloroethane	**<0.40**	0.40	ug/L		<0.40				30	
1,1,1-Trichloroethane	**<0.40**	0.40	ug/L		<0.40				30	
Trichloroethylene (TCE)	**<0.40**	0.40	ug/L		<0.40				30	
Trichlorofluoromethane (R11)	**<0.40**	0.40	ug/L		<0.40				30	
1,1,2-Trichloro-1,2,2-trifluoroethane (R113)	**<0.40**	0.40	ug/L		<0.40				30	
1,3,5-Trimethylbenzene	**<0.40**	0.40	ug/L		<0.40				30	
1,2,4-Trimethylbenzene	**<0.40**	0.40	ug/L		<0.40				30	
2,2,4-Trimethylpentane	**<0.40**	0.40	ug/L		<0.40				30	
Vinyl acetate	**<0.40**	0.40	ug/L		<0.40				30	
Vinyl bromide	**<0.40**	0.40	ug/L		<0.40				30	
Vinyl chloride	**<0.40**	0.40	ug/L		<0.40				30	
o-Xylene	**<0.40**	0.40	ug/L		<0.40				30	
m,p-Xylenes	**<0.40**	0.40	ug/L		<0.40				30	
1,2,3-Trichloropropane	**<0.40**	0.40	ug/L		<0.40				30	
sec-Butylbenzene	**<0.40**	0.40	ug/L		<0.40				30	

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LABORATORY ANALYSIS RESULTS

Client: CH2M Hill, Inc.
Project No: 693142
Project Name: KMEP Norwalk Biosparge Startup

AA Project No: MB187323
Date Received: 11/16/18
Date Reported: 11/28/18

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
VOCs by GCMS EPA TO-15 (Mid Level) - Quality Control										
*Batch B8K2028 - *** DEFAULT PREP ****										
Duplicate (B8K2028-DUP1) Continued			**Source: 8K19015-33**	Prepared & Analyzed: 11/16/18						
Isopropylbenzene	**<0.40**	0.40	ug/L		<0.40				30	
n-Propylbenzene	**<0.40**	0.40	ug/L		<0.40				30	
4-Isopropyltoluene	**<0.40**	0.40	ug/L		<0.40				30	
n-Butylbenzene	**<0.40**	0.40	ug/L		<0.40				30	
Surrogate: 4-Bromofluorobenzene	*0.125*		*ug/L*	*0.14*		*87.3*	*70-130*			
Fixed Gases by TCD - Quality Control										
*Batch B8K1939 - *** DEFAULT PREP ****										
Blank (B8K1939-BLK1)				Prepared & Analyzed: 11/12/18						
Methane	<0.10	0.10	% by Volume							
Oxygen	<0.10	0.10	% by Volume							
Carbon Dioxide	<0.10	0.10	% by Volume							
LCS (B8K1939-BS1)				Prepared & Analyzed: 11/12/18						
Methane	**4.57**	0.10	% by Volume	4.5		102	75-125			
Oxygen	**4.01**	0.10	% by Volume	4.0		100	75-125			
Carbon Dioxide	**14.8**	0.10	% by Volume	15		98.7	75-125			
LCS Dup (B8K1939-BSD1)				Prepared & Analyzed: 11/12/18						
Methane	**4.57**	0.10	% by Volume	4.5		102	75-125	0.00	30	
Oxygen	**4.03**	0.10	% by Volume	4.0		101	75-125	0.498	30	
Carbon Dioxide	**14.5**	0.10	% by Volume	15		96.8	75-125	1.91	30	
Duplicate (B8K1939-DUP1)			**Source: 8K19015-10**	Prepared & Analyzed: 11/12/18						
Methane	**<0.10**	0.10	% by Volume		<0.10				30	

Allen Aminian
QA/QC Manager

LABORATORY ANALYSIS RESULTS

Client: CH2M Hill, Inc.
Project No: 693142
Project Name: KMEP Norwalk Biosparge Startup

AA Project No: MB187323
Date Received: 11/16/18
Date Reported: 11/28/18

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Fixed Gases by TCD - Quality Control										
*Batch B8K1939 - *** DEFAULT PREP ****										
Duplicate (B8K1939-DUP1) Continued			**Source: 8K19015-10**	Prepared & Analyzed: 11/12/18						
Oxygen	**19.1**	0.10	% by Volume		18.8			1.90	30	
Carbon Dioxide	**0.688**	0.10	% by Volume		0.726			5.37	30	
*Batch B8K1943 - *** DEFAULT PREP ****										
Blank (B8K1943-BLK1)				Prepared & Analyzed: 11/13/18						
Methane	<0.10	0.10	% by Volume							
Oxygen	<0.10	0.10	% by Volume							
Carbon Dioxide	<0.10	0.10	% by Volume							
LCS (B8K1943-BS1)				Prepared & Analyzed: 11/13/18						
Methane	**4.57**	0.10	% by Volume	4.5		102	75-125			
Oxygen	**4.07**	0.10	% by Volume	4.0		102	75-125			
Carbon Dioxide	**14.5**	0.10	% by Volume	15		96.4	75-125			
LCS Dup (B8K1943-BSD1)				Prepared & Analyzed: 11/13/18						
Methane	**4.65**	0.10	% by Volume	4.5		103	75-125	1.74	30	
Oxygen	**3.99**	0.10	% by Volume	4.0		99.8	75-125	1.91	30	
Carbon Dioxide	**14.7**	0.10	% by Volume	15		97.9	75-125	1.58	30	
Duplicate (B8K1943-DUP1)			**Source: 8K19015-26**	Prepared & Analyzed: 11/13/18						
Methane	**<0.10**	0.10	% by Volume		<0.10				30	
Oxygen	**8.38**	0.10	% by Volume		8.24			1.72	30	

Allen Aminian
QA/QC Manager

LABORATORY ANALYSIS RESULTS

Client: CH2M Hill, Inc.
Project No: 693142
Project Name: KMEP Norwalk Biosparge Startup

AA Project No: MB187323
Date Received: 11/16/18
Date Reported: 11/28/18

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Fixed Gases by TCD - Quality Control										
*Batch B8K1943 - *** DEFAULT PREP ****										
Duplicate (B8K1943-DUP1) Continued			**Source: 8K19015-26**	Prepared & Analyzed: 11/13/18						
Carbon Dioxide	**7.42**	0.10	% by Volume		8.00			7.57	30	
*Batch B8K2027 - *** DEFAULT PREP ****										
Blank (B8K2027-BLK1)				Prepared & Analyzed: 11/14/18						
Methane	<0.10	0.10	% by Volume							
Oxygen	<0.10	0.10	% by Volume							
Carbon Dioxide	<0.10	0.10	% by Volume							
LCS (B8K2027-BS1)				Prepared & Analyzed: 11/14/18						
Methane	**4.48**	0.10	% by Volume	4.5		99.6	75-125			
Oxygen	**4.12**	0.10	% by Volume	4.0		103	75-125			
Carbon Dioxide	**14.3**	0.10	% by Volume	15		95.1	75-125			
LCS Dup (B8K2027-BSD1)				Prepared & Analyzed: 11/14/18						
Methane	**4.50**	0.10	% by Volume	4.5		99.9	75-125	0.334	30	
Oxygen	**4.17**	0.10	% by Volume	4.0		104	75-125	1.11	30	
Carbon Dioxide	**14.1**	0.10	% by Volume	15		94.1	75-125	1.07	30	
Duplicate (B8K2027-DUP1)			**Source: 8K19015-33**	Prepared & Analyzed: 11/14/18						
Methane	**<0.10**	0.10	% by Volume		<0.10				30	
Oxygen	**2.22**	0.10	% by Volume		1.86			17.6	30	
Carbon Dioxide	**5.72**	0.10	% by Volume		5.88			2.76	30	

Allen Aminian
QA/QC Manager

LABORATORY ANALYSIS RESULTS

Client:	CH2M Hill, Inc.	**AA Project No:**	MB187323
Project No:	693142	**Date Received:**	11/16/18
Project Name:	KMEP Norwalk Biosparge Startup	**Date Reported:**	11/28/18

Special Notes

[1] = ****** : Exceeds upper control limit.

[2] = ******* : Exceeds lower control limit.

[3] = **AA-C1** : Exceeds RPD control limit.

Allen Aminian
QA/QC Manager

AMERICAN ANALYTICS CHAIN-OF-CUSTODY RECORD

9765 ETON AVE., CHATSWORTH, CA 91311
Tel: 818-998-5547 FAX: 818-998-7258

A.A. COC No.: 17069
70053886
Page 1 of 1

Client: JACOBS	Project Name / No.: KINDER MORGAN NORWALK	Sampler's Name: WILLIAM SCHOONMAKER
Project Manager:	Site Address: 15306 NORWALK BLVD	Sampler's Signature:
Phone:	City: NORWALK	P.O. No.:
Fax:	State & Zip: CA	Quote No.:

TAT Turnaround Codes **

(1) = Same Day Rush
(2) = 24 Hour Rush
(3) = 48 Hour Rush
(4) = 72 Hour Rush
(5) = 5 Day Rush
X = 10 Working Days (Standard TAT)

ANALYSIS REQUESTED (Test Name)

Please enter the TAT Turnaround Codes ** below

Client I.D.	A.A. I.D.	Date	Time	Sample Matrix	No. of Cont	TO15	TO3	FIXED GASES	Special Instructions
SVM-1-5	8K19015-01	11/12/18	0754	V	2	X	X	X	
SVM-1-15	-02		0755	V	2	X	X	X	
SVM-2-5	-03		0840	V	2	X	X	X	
SVM-15-7	-04		0910	V	2	X	X	X	
SVM-15-15	-05		0912	V	2	X	X	X	
SVM-15-22	-06		0914	V	2	X	X	X	
SVM-6-7	-07		0957	V	2	X	X	X	
SVM-6-13	-08		0959	V	2	X	X	X	
SVM-7-7	-09		1050	V	2	X	X	X	
SVM-7-13	-10		1052	V	2	X	X	X	
SVM-7-13 DUP	-11		1052	V	2	X	X	X	
AMBIENT AIR	-12		1130	V	1	X	X		
SVM-10-15	-13		1148	V	2	X	X	X	

For Laboratory Use
REVIEWED
Date 11/16/18 Time 17:00
TAT 5 Days Sign:

A.A. Project No.: MB187323 / 8K19015

	Relinquished by	Date	Time	Received by
		11/12/18	1425	
	Relinquished by	Date	Time	Received by
		11/16/18	16:00	
	Relinquished by	Date	Time	Received by

Note: By relinquishing samples to American Analytics, client agrees to pay for the services requested on this chain of custody form and any additional client-requested analyses performed on this project. Payment for services is due within 30 days from the date of invoice. Sample(s) will be disposed of after 45 days following the submittal of the sample(s) to American Analytics.

AMERICAN ANALYTICS CHAIN-OF-CUSTODY RECORD

9765 ETON AVE., CHATSWORTH, CA 91311
Tel: 818-998-5547 FAX: 818-998-7258

A.A. COC No.: 17070
70053884
Page 1 of 1

Client: JACOBS	**Project Name / No.:** KINDER MORGAN NORWALK	**Sampler's Name:** WILLIAM SCHWARTZ	
Project Manager:	**Site Address:** 15306 NORWALK BLVD	**Sampler's Signature:**	
Phone:	**City:** NORWALK	**P.O. No.:**	
Fax:	**State & Zip:** CA.	**Quote No.:**	

TAT Turnaround Codes **

(1) = Same Day Rush
(2) = 24 Hour Rush
(3) = 48 Hour Rush
(4) = 72 Hour Rush
(5) = 5 Day Rush
X = 10 Working Days (Standard TAT)

ANALYSIS REQUESTED (Test Name)

Please enter the TAT Turnaround Codes ** below

Client I.D.	A.A. I.D.	Date	Time	Sample Matrix	No. of Cont	TO15	TO3	FIXED GASES								Special Instructions
SUM-S-5	8K19015-14	11-13-18	0803	V	2	X	X	X								
SUM-S-15	-15		0805	V	2	X	X	X								
SUM-8-5	-16		0846	V	2	X	X	X								
SUM-8-15	-17		0848	V	2	X	X	X								
SUM-16-7	-18		0927	V	2	X	X	X								
SUM-16-16	-19		0929	V	2	X	X	X								
SUM-16-22	-20		0931	V	2	X	X	X								
SUM-3-5	21		1011	V	2	X	X	X								
SUM-3-15	-22		1013	V	2	X	X	X								
AMBIENT AIR	-23		1120	V	1	X	X									
SUM-2-7	-24		1126	V	2	X	X	X								
SUM-12-15	-25		1128	V	2	X	X	X								
SUM-12-22	-26		1130	V	2	X	X	X								
SUM-12-02 DUP	-27	↓	1130	V	2	X	X	X								

For Laboratory Use

REVIEWED
Date 11/16/18 Time 17:00
TAT 5 Days Sign:

A.A. Project No.: MB187323 / 8K19015

Relinquished by	Date	Time	Received by
	11/15/18	1145	
Relinquished by	Date	Time	Received by
	11/16/18	16:00	
Relinquished by	Date	Time	Received by

Note: By relinquishing samples to American Analytics, client agrees to pay for the services requested on this chain of custody form and any additional client-requested analyses performed on this project. Payment for services is due within 30 days from the date of invoice. Sample(s) will be disposed of after 45 days following the submittal of the sample(s) to American Analytics.

AMERICAN ANALYTICS CHAIN-OF-CUSTODY RECORD

9765 ETON AVE., CHATSWORTH, CA 91311
Tel: 818-998-5547 FAX: 818-998-7258

A.A. COC No.: 17071
70053885
Page 1 of 1

Client: JACOBS	Project Name / No.: KINDER MORGAN NORWALK	Sampler's Name: WILLIAM SCHRAMM
Project Manager:	Site Address: 15306 NORWALK BLVD	Sampler's Signature:
Phone:	City: NORWALK	P.O. No.:
Fax:	State & Zip: CA	Quote No.:

TAT Turnaround Codes **

(1) = Same Day Rush
(2) = 24 Hour Rush
(3) = 48 Hour Rush
(4) = 72 Hour Rush
(5) = 5 Day Rush
X = 10 Working Days (Standard TAT)

ANALYSIS REQUESTED (Test Name)

Please enter the TAT Turnaround Codes ** below

Client I.D.	A.A. I.D.	Date	Time	Sample Matrix	No. of Cont	1015	703	FIXED GAS							Special Instructions
SVM-11-7	8K19015-28	11-14-18	0825	V	2	X	X	X							
SVM-11-15	-29		0827	V	2	X	X	X							
SVM-11-22	-30		0829	V	2	X	X	X							
SVM-14R-8	-31		0920	V	2	X	X	X							
SVM-14R-16	-32		0922	V	2	X	X	X							
SVM-14R-22	-33		0924	V	2	X	X	X							
SVM-14R-22 DUP	-34		0924	V	2	X	X	X							
SVM-13-7	-35		1033	V	2	X	X	X							
SVM-13-15	-36		1035	V	2	X	X	X							
SVM-13-22	-37		1037	V	2	X	X	X							
AMBIENT AIR	-38		1045	V	1	X	X								

For Laboratory Use

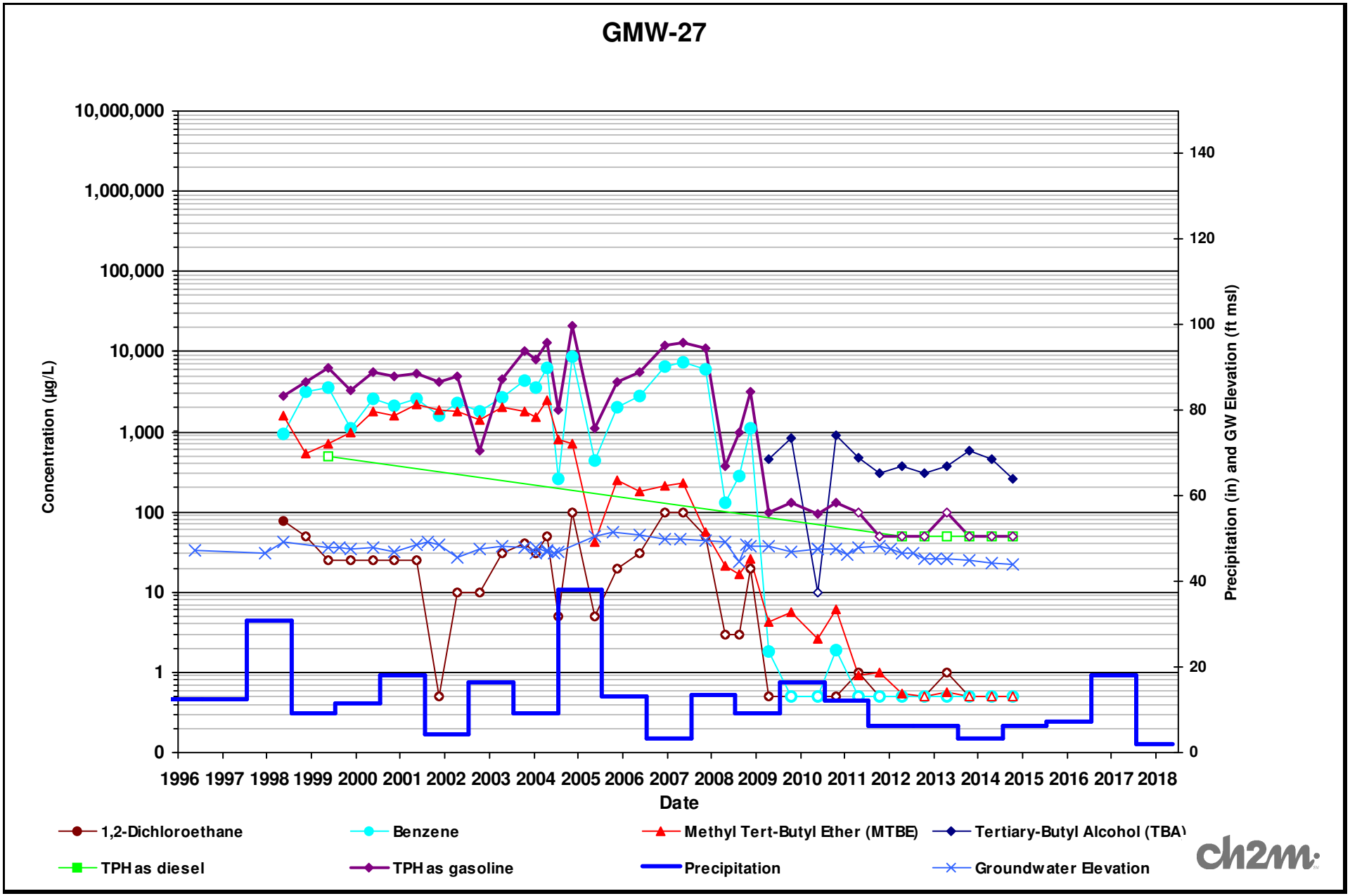
REVIEWED
Date 11/16/18 Time 1700
TAT 5 Days Sign:

A.A. Project No.: MB187323 / 8K19015

	Relinquished by	Date	Time	Received by
1		11-14-18	1330	
2		11/16/18	16:00	
3				

Note: By relinquishing samples to American Analytics, client agrees to pay for the services requested on this chain of custody form and any additional client-requested analyses performed on this project. Payment for services is due within 30 days from the date of invoice. Sample(s) will be disposed of after 45 days following the submittal of the sample(s) to American Analytics.

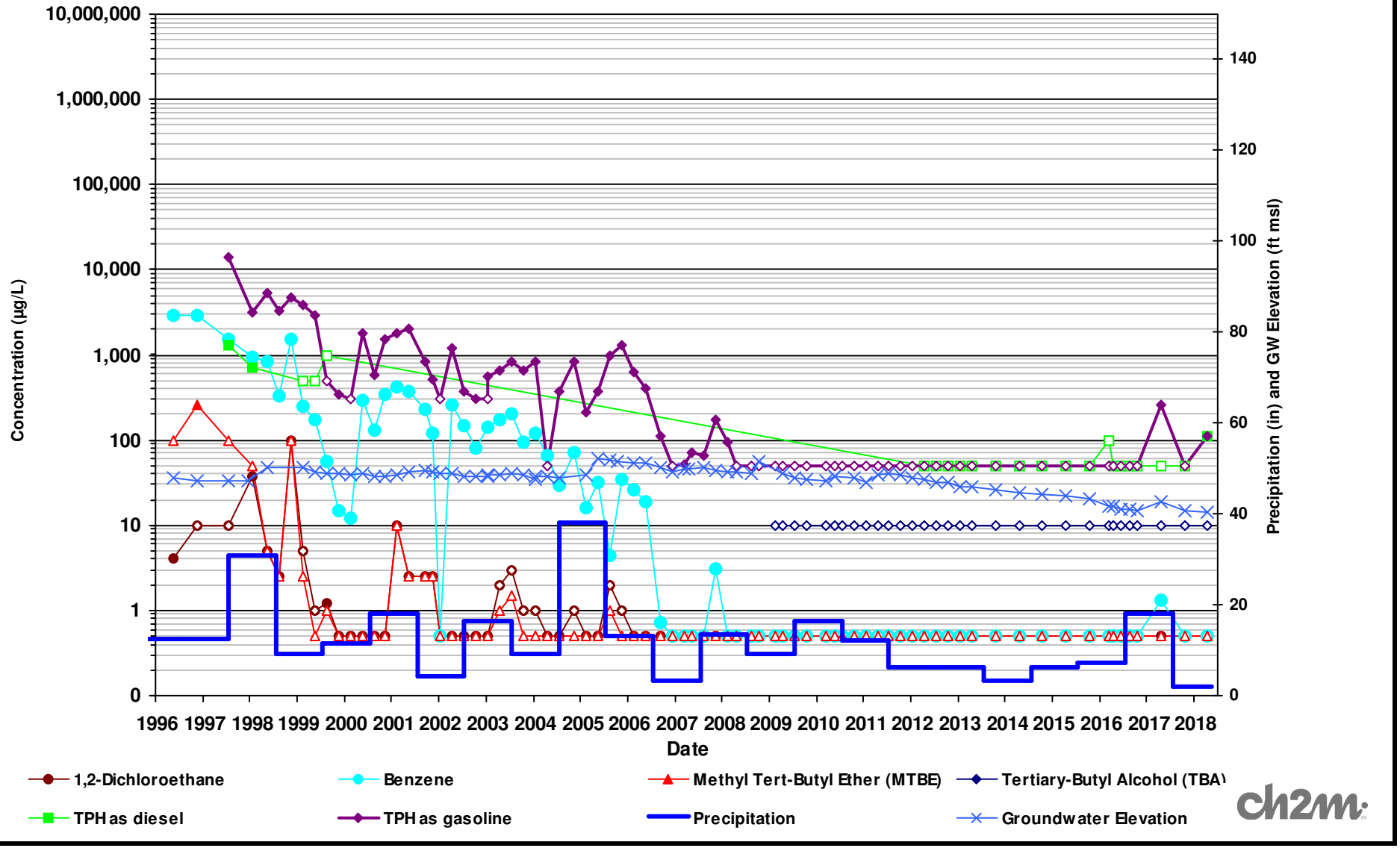
Appendix B
Time Series Charts for Select South-Central Area Wells



Non detect results (ND) are plotted with an open symbol using the laboratory reporting limit.

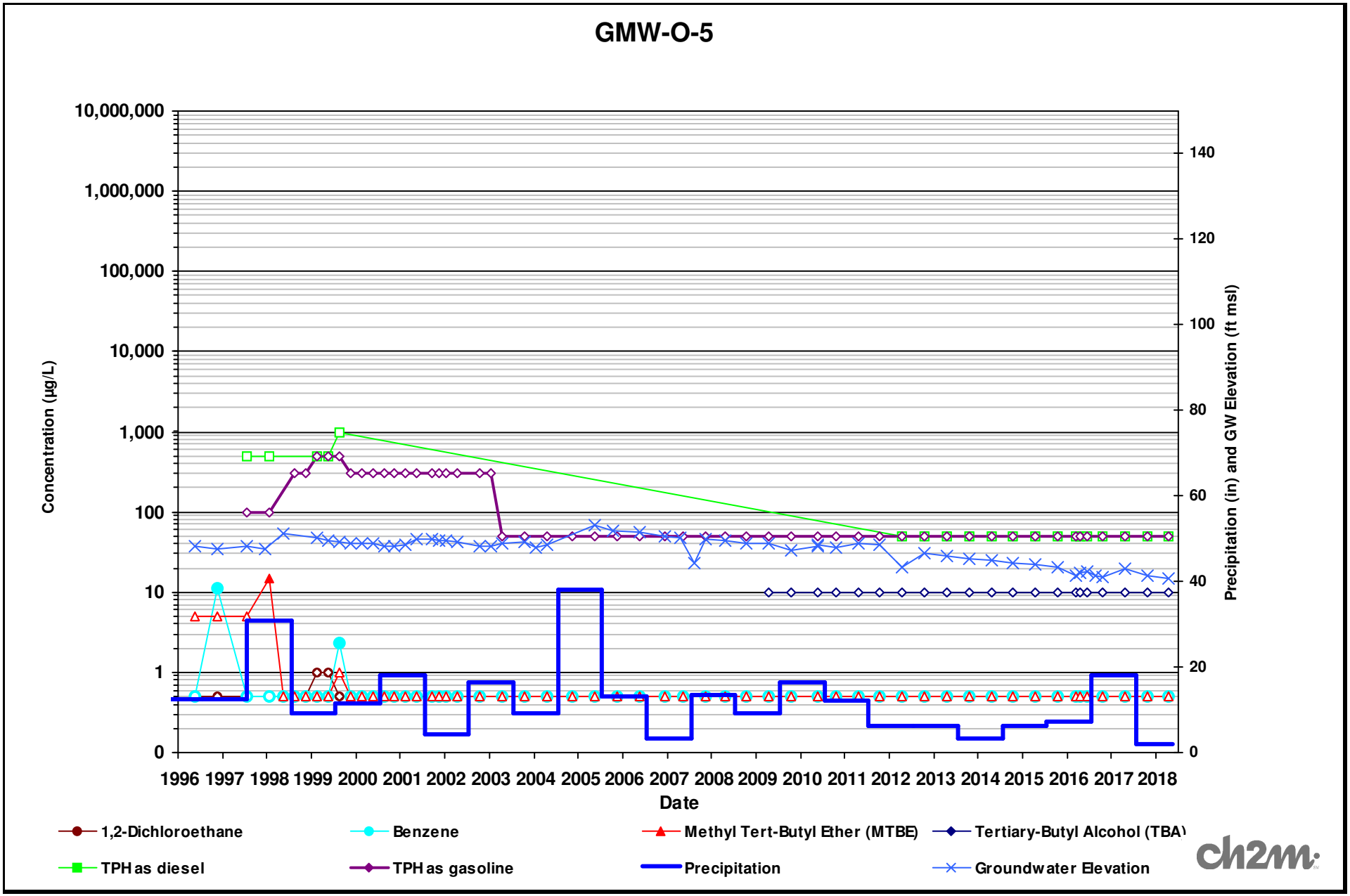
Precipitation data reported as annual rainfall which is calculated from Long Beach CIMIS #174 weather station. source: https://cimis.water.ca.gov/

GMW-O-3



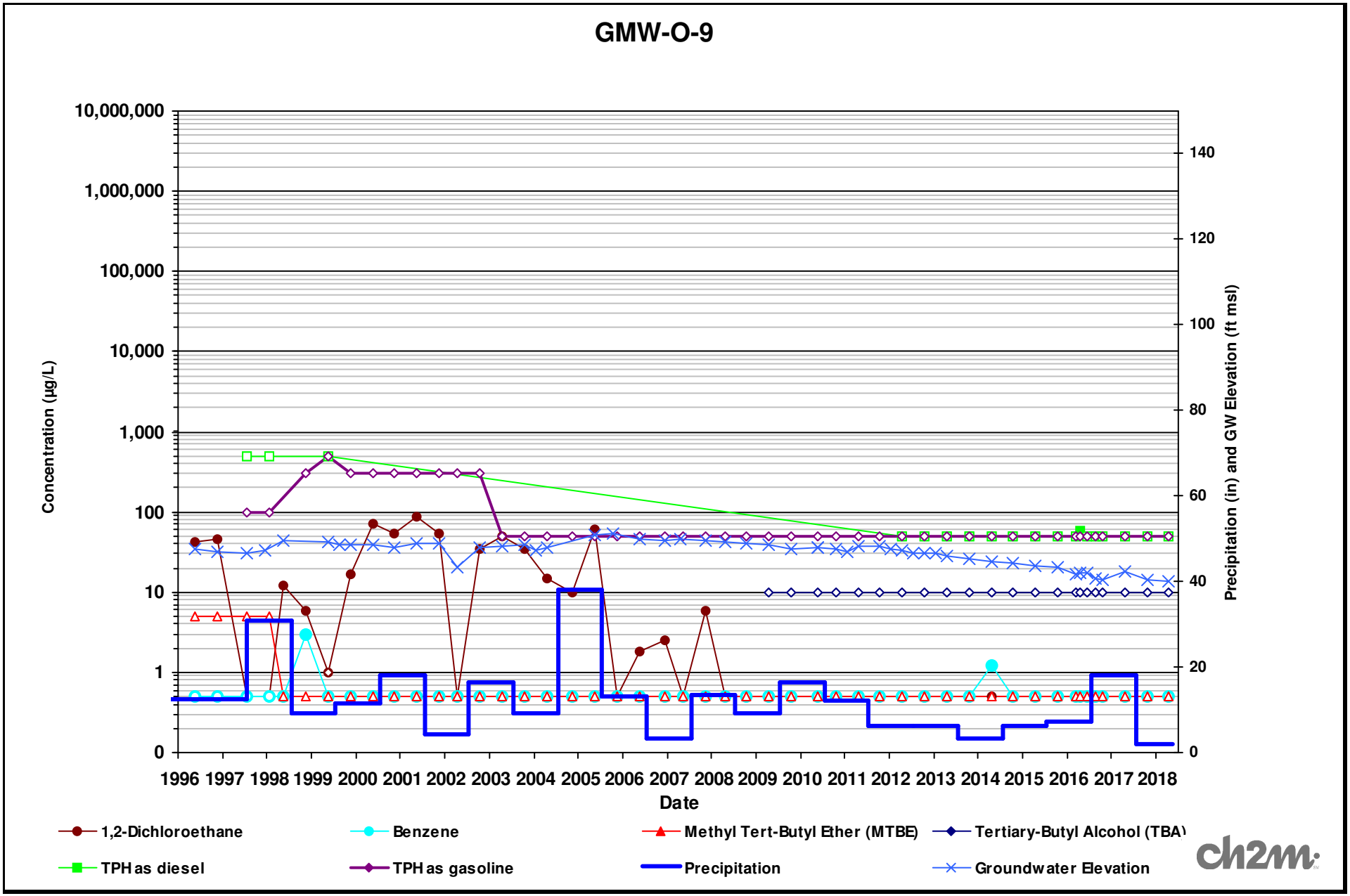
Non detect results (ND) are plotted with an open symbol using the laboratory reporting limit.

Precipitation data reported as annual rainfall which is calculated from Long Beach CIMIS #174 weather station. source: https://cimis.water.ca.gov/



Non detect results (ND) are plotted with an open symbol using the laboratory reporting limit.

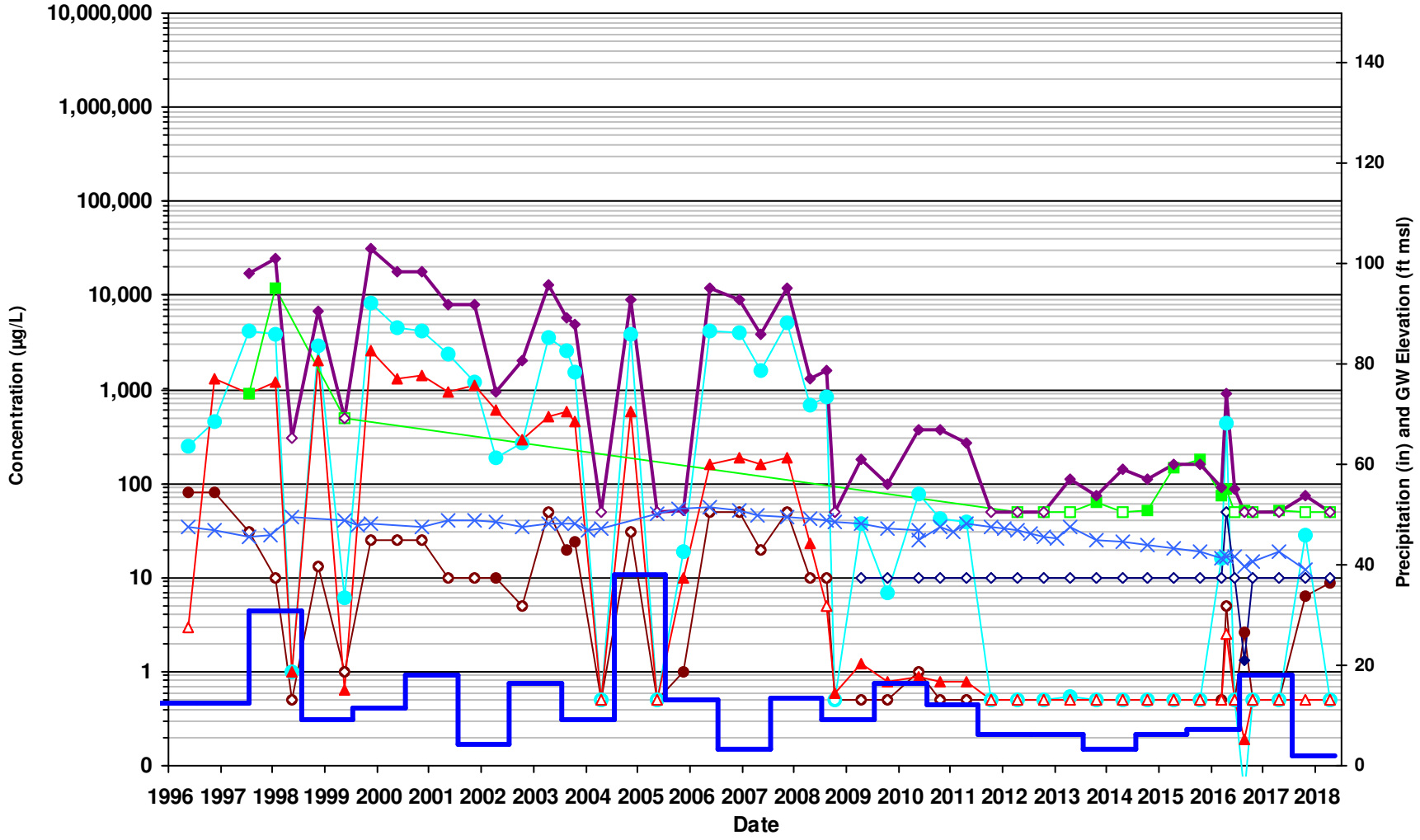
Precipitation data reported as annual rainfall which is calculated from Long Beach CIMIS #174 weather station. source: https://cimis.water.ca.gov/



Non detect results (ND) are plotted with an open symbol using the laboratory reporting limit.

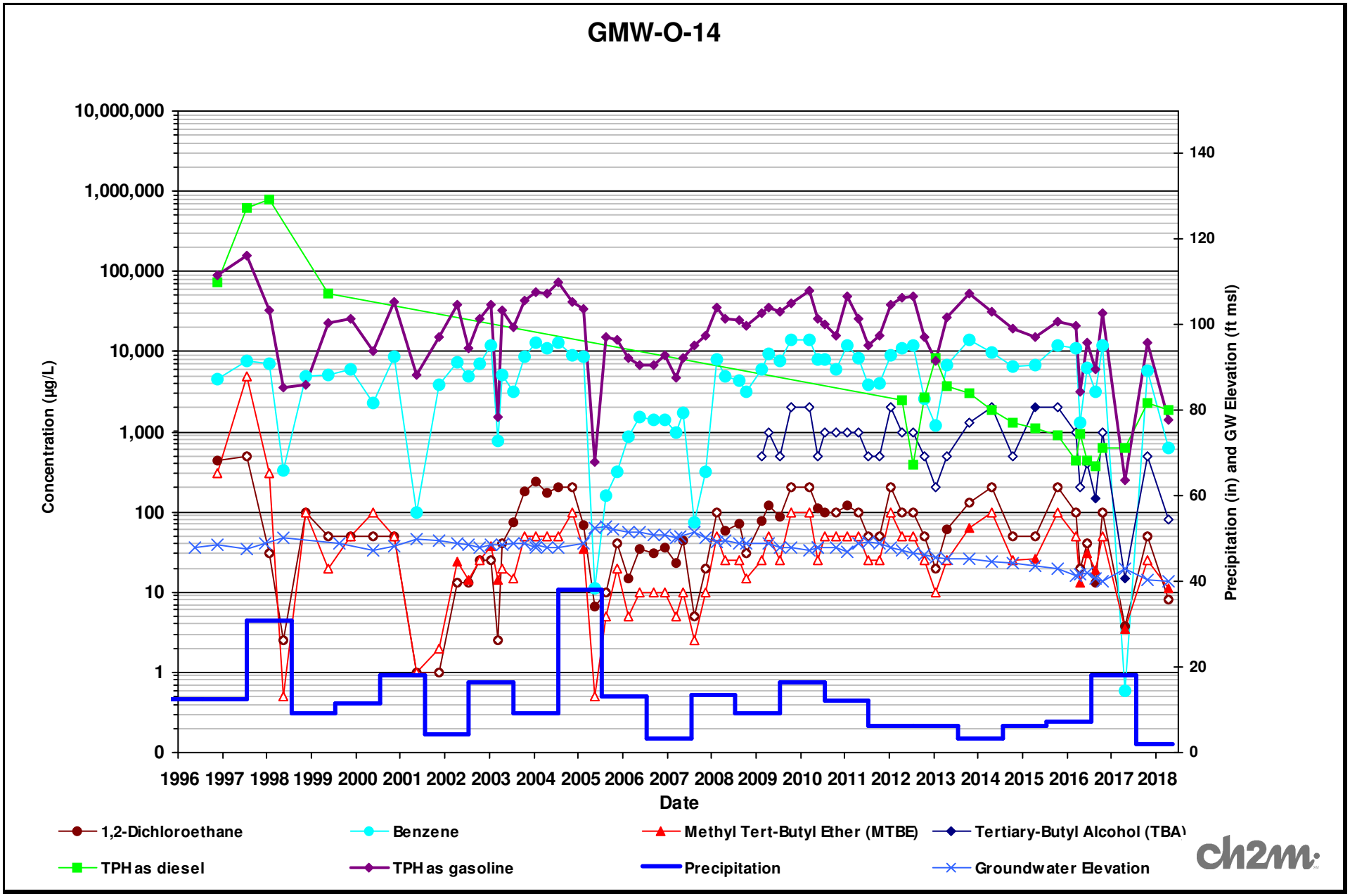
Precipitation data reported as annual rainfall which is calculated from Long Beach CIMIS #174 weather station. source: https://cimis.water.ca.gov/

GMW-O-10



Non detect results (ND) are plotted with an open symbol using the laboratory reporting limit.

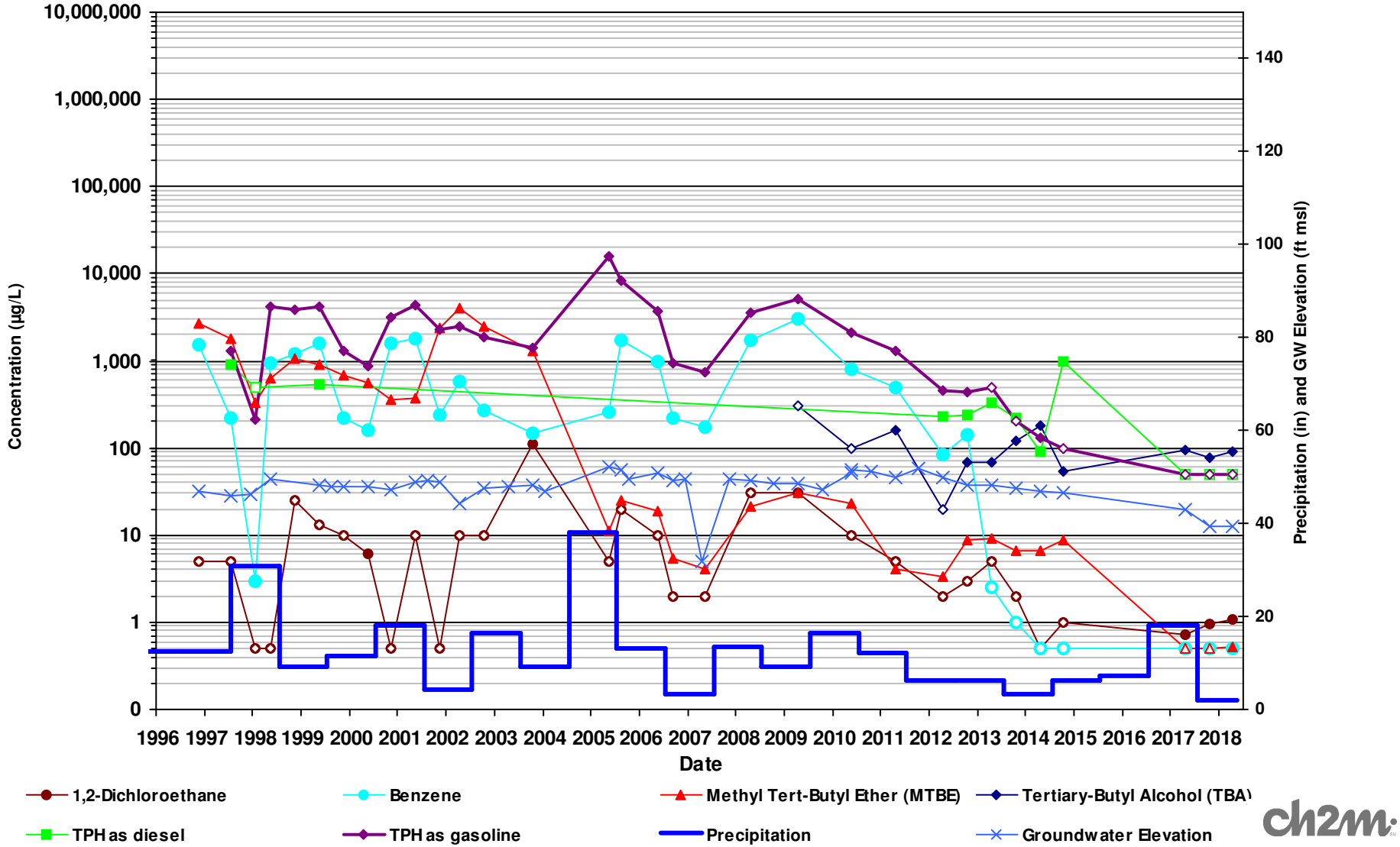
Precipitation data reported as annual rainfall which is calculated from Long Beach CIMIS #174 weather station. source: https://cimis.water.ca.gov/



Non detect results (ND) are plotted with an open symbol using the laboratory reporting limit.

Precipitation data reported as annual rainfall which is calculated from Long Beach CIMIS #174 weather station. source: https://cimis.water.ca.gov/

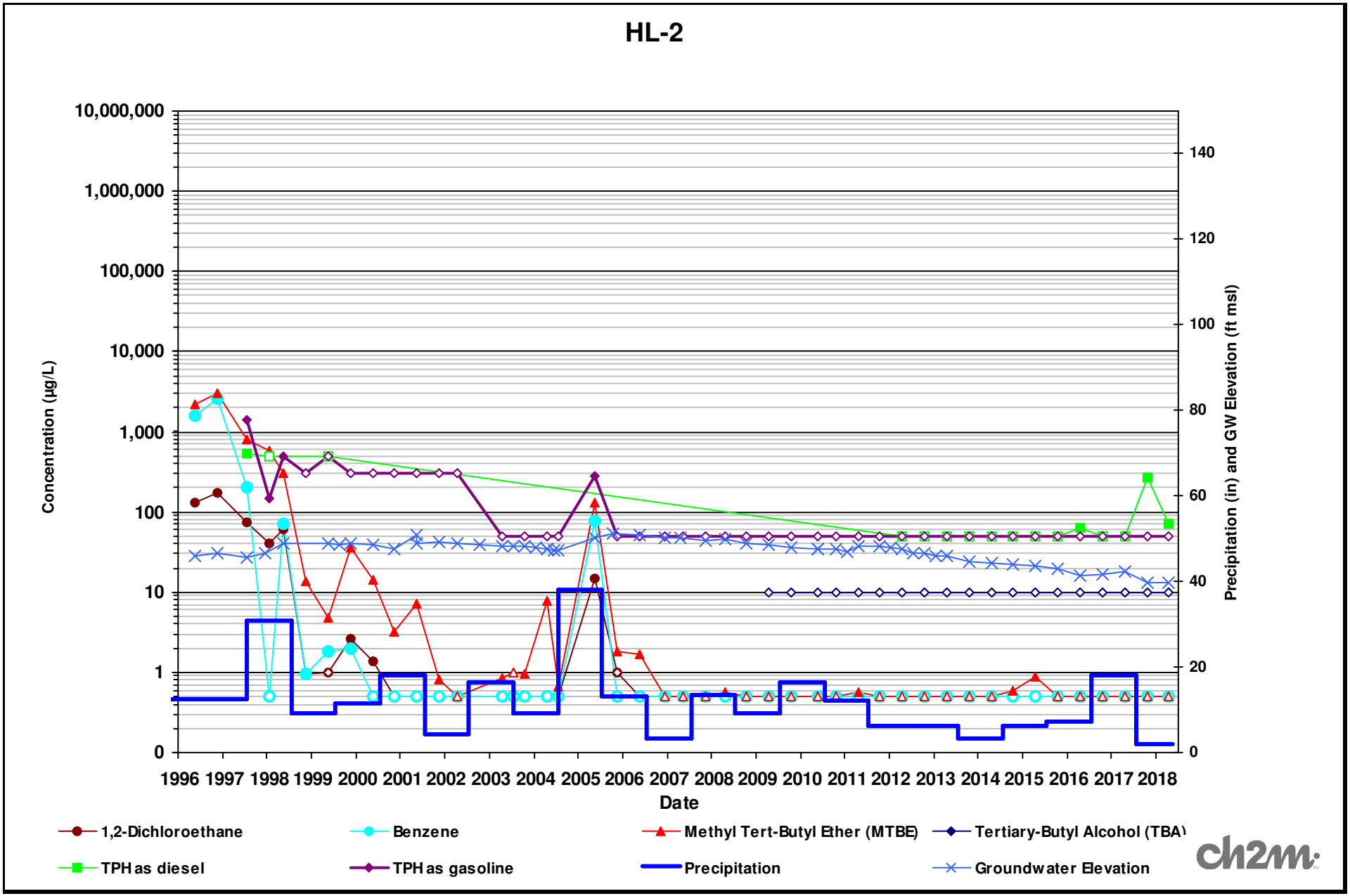
GWR-1R



Well formerly known as GWR-1.

Non detect results (ND) are plotted with an open symbol using the laboratory reporting limit.

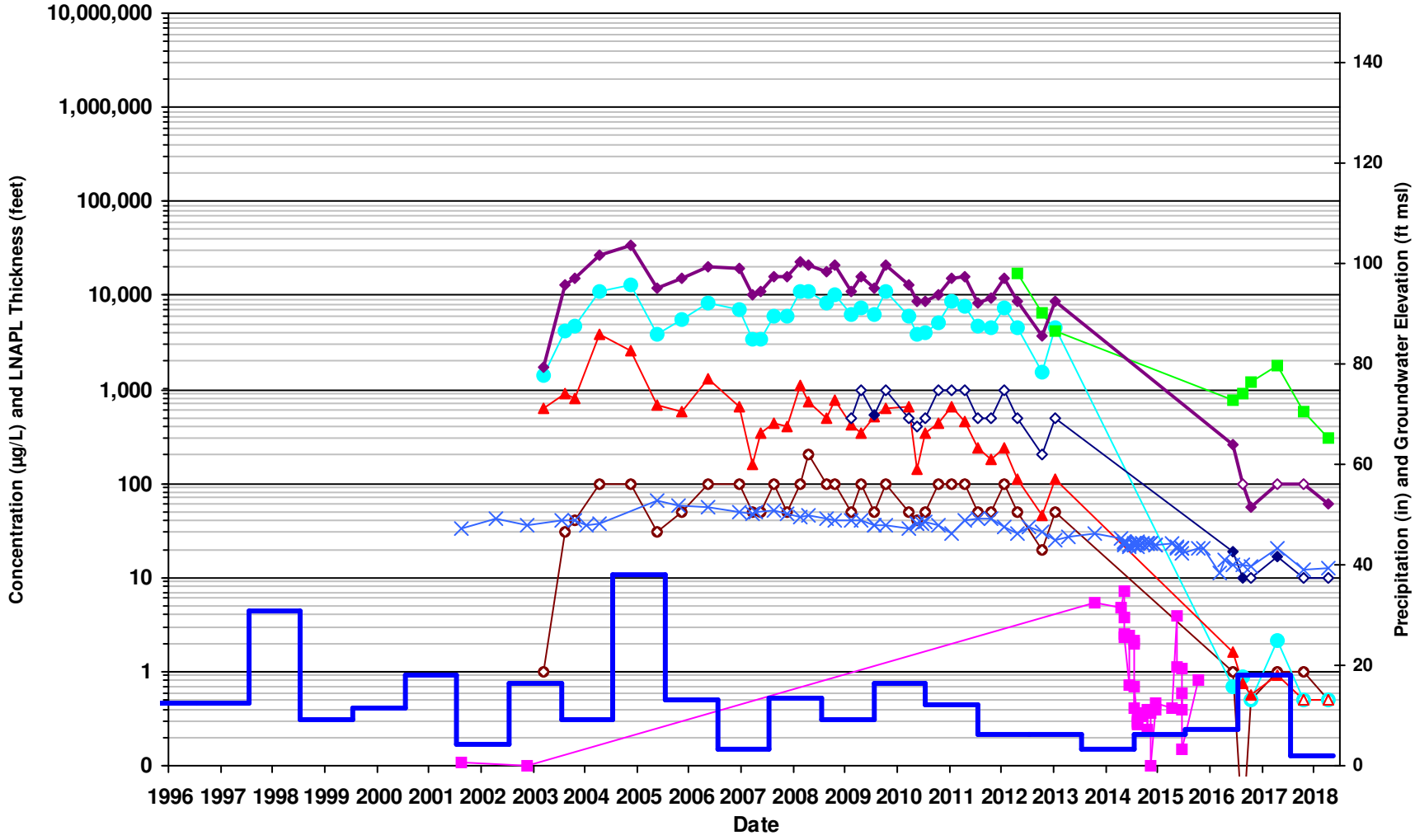
Precipitation data reported as annual rainfall which is calculated from Long Beach CIMIS #174 weather station.
source: https://cimis.water.ca.gov/



Non detect results (ND) are plotted with an open symbol using the laboratory reporting limit.

Precipitation data reported as annual rainfall which is calculated from Long Beach CIMIS #174 weather station. source: https://cimis.water.ca.gov/

MW-SF-1



Non detect results (ND) are plotted with an open symbol using the laboratory reporting limit.

Precipitation data reported as annual rainfall which is calculated from Long Beach CIMIS #174 weather station. source:https://cimis.water.ca.gov/