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## **SFPP Norwalk Pump Station Norwalk, California**

### **Second Quarter 2019 Remediation Progress Report**

Final

July 12, 2019

Kinder Morgan, Inc.



## SFPP Norwalk Pump Station, Norwalk, California

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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
DTSC	Department of Toxic Substances Control
EPA	U.S. Environmental Protection Agency
GWE	groundwater extraction
GWTS	groundwater treatment system
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
PID	photoionization detector
PVC	polyvinyl chloride
RTO	regenerative thermal oxidizer
scfm	standard cubic feet per minute
SFPP	SFPP, L.P.
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

This report summarizes remediation activities performed at the SFPP, L.P. (SFPP) Norwalk Pump Station located within the Defense Fuel Support Point Norwalk, at 15306 Norwalk Boulevard, Norwalk, California (the site; Figure 1) during the second quarter 2019 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<sup>1</sup>, 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 April through June 2019 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 April through June 2019 and the progress achieved through those activities are summarized in the following sections.

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<sup>1</sup> CH2M is now part of Jacobs.



## 2. Remediation Systems

Kinder Morgan, Inc. (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)
  - 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 second quarter 2019. 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 conveyed to a 300-gallon tank and then treated using liquid-phase granular activated carbon (LGAC) to remove hydrocarbons including benzene, toluene, ethylbenzene, and xylenes (BTEX). 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 system 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.

Prior to initiating horizontal biosparging activities in the southeastern area of the site, the SVE system in the southeastern area will be upgraded to enhance the capture zone coverage required to match the zone of influence of the biosparge well. On March 7 through 8, 2019, three new SVE wells (VEW-3, VEW-4, and VEW-5) were installed in the southeastern area. Additionally, three groundwater monitoring wells (GMW-O-16, GMW-O-19, MW-8) will need to be converted to SVE wells and connected to the SVE system. To minimize vacuum leakage, decrease friction, and increase the volume of air that passes through the conveyance line, upgrades to the well vaults and a new, dedicated 6-inch high density polyethylene (HDPE) header will be installed for the southeastern area. Conversion of the three existing groundwater monitoring wells, installation of a new 6-inch header, and other upgrades are scheduled to take place during the third quarter of 2019.

### 3. Operations and Maintenance

During the second quarter 2019 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.
- In addition, horizontal SVE wells HW-1 and HW-2 were abandoned on June 14, 2019, by The Source Group, Inc.

The remediation systems operated continuously during the second quarter 2019, with the following exceptions:

- The GWTS was restarted on April 4, 2019, after the carbon change-out was completed.
- The air sparge system was shut down from March 29 to April 2, 2019, to revise programming of the programmable logic controller (PLC) to include an output for indicator lights to the GWTS pad.
- The SVE, air sparge system, and GWTS were shut down on April 9, 2019, and restarted on April 23, 2019, to facilitate gauging and sampling activities during the first semiannual groundwater sampling event that was conducted April 16 to 23, 2019.
- The SVE system and the GWTS were shut down on May 6, 2019, to accommodate Southern California Edison's onsite activities.

During the second quarter 2019, the GWTS was operational approximately 80 percent of the time (100 percent of the time excluding the planned shutdown for the carbon change-out and the semiannual groundwater monitoring event). The SVE system was operational approximately 84 percent of the time (100 percent of the time excluding planned shutdowns). The biosparge system was operational 79 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 second quarter 2019 are summarized in Tables 3 and 4, respectively. The groundwater remediation system operation activities for the second quarter 2019 are summarized in Table 5. The extracted groundwater analytical results for the second quarter 2019 are summarized in Table 6. Table 7 presents the biosparge system operation summary. Table 8 presents the soil vapor probe analytical results for June 2019. 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 April 29, May 28, and June 20, 2019. 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 U.S. Environmental Protection Agency (EPA) Method 8260B, 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 EPA Method 8015(B).

Vapor samples from the SVE influent were collected on April 4, May 7, and June 4, 2019. 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. 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 the Department of Toxic Substances Control (DTSC) recommended flow rates as set forth in the *Advisory for Active Soil Gas Investigations* (DTSC, 2015). The American Analytics laboratory of Chatsworth, California, conducted this event on June 11 and 12, 2019. 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-14R (22-foot depth) and SVM-16 (16-foot depth) during the June 2019 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 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.

The American Analytics laboratory collected and analyzed 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 6,286 pounds during the second quarter 2019. Total mass recovered by the SVE system has consistently decreased since the first quarter of 2016 (74,148 pounds of VOCs recovered), when biosparging in the south-central area was implemented (see Figure 3). The cumulative mass of VOCs removed since SVE was implemented in September 1995 is 3,567,625 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 south-central area SVE well GMW-O-20 (Table 3). Laboratory analytical data show that the influent VOC concentrations (BTEX and MTBE) have consistently decreased since biosparging started in 2016 (Table 4, Figure 4).

A total of 848,498 gallons of groundwater was extracted during the second quarter 2019 (Table 5). No water was extracted from the WSB area during the second quarter 2019. Approximately 107 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 April 2019 did not warrant restarting the WSB system.

Free product did not accumulate in the product holding tank during the second quarter 2019. 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 second quarter 2019 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 18,452 pounds. During the second quarter 2019, the mass removal of hydrocarbons was calculated to be 2.8 pounds (Table 5). Table 6 shows the extracted groundwater analytical results for the samples collected on April 29, May 28, and June 20, 2019. TPH, BTEX, and MTBE concentrations during the second quarter 2019 were less than the concentrations reported in the fourth quarter 2018 and considerably less than the concentrations reported in late 2015 and early 2016 when the south-central biosparge system was started. This reduction in dissolved-phase hydrocarbon concentrations can be attributed to biosparge operations in the south-central area. Figure 5 includes a time series chart that shows this general decrease in dissolved-phase hydrocarbon concentrations in the extracted groundwater.

The biosparge system operated for 1,773 hours in the second quarter 2019 (Table 7). The biosparge system flow (air injection) rate ranged from 149 to 445 scfm during the second quarter 2019. Soil vapor samples were collected from 14 locations around the south-central area biosparge well on June 11 and 12, 2019, with the biosparge on at an average air flow of 410 scfm.

## 5. Soil Vapor Monitoring Results

### 5.1 Overview

During the second quarter 2019, soil vapor samples were collected using 1.4-liter Summa canisters. The samples were analyzed by the American Analytics laboratory for VOCs using EPA Method TO-15, TPH-g using EPA Method TO-3, and fixed gases (carbon dioxide, methane, and oxygen) 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).

### 5.2 Laboratory Results

Table 8 presents the analytical results for samples collected during the June 2019 sampling event. Laboratory analytical reports are included in Appendix A. A summary of results is provided as follows:

- During the second quarter 2019 sampling event, COPCs were detected at offsite probes SVM-5 (15-foot depth), SVM-10 (15-foot depth), and SVM-15 (15-foot depth). Naphthalene was detected at a concentration of 0.0019 microgram per liter ( $\mu\text{g/L}$ ) in the sample collected from SVM-5 (15-foot depth). Benzene was detected at a concentration of 0.00077  $\mu\text{g/L}$  in the sample collected from SVM-10 (15-foot depth). Benzene and toluene were detected at concentrations of 0.00077  $\mu\text{g/L}$  and 0.0053  $\mu\text{g/L}$ , respectively, in the sample collected from SVM-15 (15-foot depth). The detected concentrations were below the April 2019 DTSC modified screening levels (DTSC, 2019<sup>2</sup>).
- During the second quarter 2019 sampling event, 1,2,4-trimethylbenzene, benzene, xylenes, naphthalene, and toluene were detected in the onsite soil vapor monitoring probes. The detected concentrations were below the DTSC modified screening levels (DTSC, 2019).
- Other non-COPCs that were detected during this sampling event included acetone, chloroform, chloromethane, ethanol, methylene chloride, and tetrachloroethylene (PCE). There are no established screening levels for chloromethane, ethanol, and methylene chloride. The detected concentrations for acetone, chloroform, and PCE were below their respective DTSC modified screening levels (DTSC, 2019).
- VOCs detected in the shallow soil vapor in the offsite area do not pose an unacceptable human health risk to residents. The SVE system creates a vacuum in the south-central area to mitigate risk from offsite migration of VOCs. The SVE system will continue to remain online during biosparging operations.

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<sup>2</sup> DTSC has developed modified screening levels based on EPA Regional Screening Levels (RSLs) for use in the human health risk assessment process at hazardous waste sites and permitted facilities (DTSC, 2019).

## 6. System Evaluation and Optimization

The GWTS continued to operate during the second quarter 2019 for hydraulic control and product recovery in the south-central and southeastern areas. The SVE wells in the southeastern and south-central areas were fully open to ensure maximum vapor extraction in those areas. As a result of biosparge operations in the south-central area, light nonaqueous phase liquid (LNAPL) thickness was significantly reduced, with measured LNAPL detected in only one well (GMW-O-12) in the south-central area of the site. In addition, dissolved-phase TPH, BTEX, and MTBE concentrations also showed significant reductions in the groundwater and vapor samples collected from the influent into the GWTS and SVE, respectively.

The following repairs and modifications were conducted during this reporting period:

- The two 2,000-pound LGAC vessels downstream of the DAF/OWS were removed from the site on March 19, 2019, to perform carbon changeouts. The LGAC vessels were returned on April 2, 2019, and the system was restarted on April 4, 2019.

## 7. Planned Third Quarter 2019 Activities

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

- Continue to operate the SVE system.
- Continue to operate 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.
- Conduct quarterly and monthly National Pollutant Discharge Elimination System sampling event.
- Collect and analyze system influent vapor and groundwater samples.
- Perform as-needed carbon changeouts of the LGAC vessels.
- 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.
- Maintain the 2007 and 2008 air compressor monthly, as backup operation for 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.

After completion of the SVE system upgrades in the southeastern area, startup of the southeastern biosparge well will commence. System inspections will continue on a weekly basis; system evaluation parameters will be collected as needed.

The remediation activities and progress for the third quarter 2019 will be described in the Third Quarter 2019 Remediation Progress Report, to be submitted by October 15, 2019.



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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	Well Screen Interval	Remediation Well Function	Well Operation Status During Second Quarter 2019	
			(feet msl)	(feet bgs)		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	--	ON
	GMW-O-23	6/25/2007	73.63	20 - 40	SVE; TFE	ON	OFF
	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	ON
	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	--	--

**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	Well Screen Interval	Remediation Well Function	Well Operation Status During Second Quarter 2019	
			(feet msl)	(feet bgs)		SVE/BS	TFE/GWE
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 <sub>2</sub> O)	Mass Removed (pounds) <sup>a</sup>
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
2018 Totals	115,346	7,084	--	--	--	38,999
1/11/2019	115,360	14	84	1,543	50	20
1/15/2019	115,453	93	112	1,585	50	205
1/22/2019	115,626	173	198	1,465	50	634
1/29/2019	115,793	167	130	1,499	50	419
2/7/2019	115,997	204	96	1,451	50	357
2/12/2019	116,119	122	106	1,455	50	239
2/21/2019	116,120	1	98	1,491	50	1.8
2/28/2019	116,293	173	66	1,548	50	219
3/5/2019	116,404	111	104	1,419	50	221
3/12/2019	116,571	167	111	1,416	50	327
3/19/2019	116,738	167	88	1,448	50	258
3/26/2019	116,906	168	210	1,372	50	591
<b>First Quarter 2019 Total</b>	<b>116,906</b>	<b>1,560</b>	--	--	--	<b>3,492</b>

**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 <sub>2</sub> O)	Mass Removed (pounds) <sup>a</sup>
4/2/2019	117,077	171	208	1,370	50	653
4/9/2019	117,242	165	226	1,483	50	593
4/25/2019	117,293	51	234	1,610	50	190
4/29/2019	117,385	92	254	1,508	50	371
5/7/2019	117,567	182	196	1,758	50	798
5/14/2019	117,733	166	180	1,438	50	523
5/21/2019	117,902	169	214	1,430	50	628
5/30/2019	118,116	214	198	1,404	50	777
6/4/2019	118,237	121	108	1,267	50	195
6/11/2019	118,404	167	118	1,343	50	341
6/18/2019	118,573	169	190	1,349	50	550
6/27/2019	118,770	197	205	1,405	50	668
<b>Second Quarter 2019 Total</b>	<b>118,573</b>	<b>1,864</b>	--	--	--	<b>6,286</b>
<b>Cumulative Totals</b>	<b>118,573</b>	--	--	--	--	<b>3,567,625</b>

Notes:

<sup>a</sup> 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<sub>2</sub>O = 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	05/14/2019 (ppmv as Hexane) <sup>a</sup>
South-Central	MW-SF-1	SVE	0
	MW-SF-2	SVE; TFE	0
	MW-SF-3	SVE; TFE	162
	MW-SF-4	SVE	0
	MW-SF-5	SVE	0
	MW-SF-6	SVE; TFE	8
	MW-SF-9	SVE	0
	MW-SF-10	SVE	4
	MW-SF-11	SVE; TFE	NM
	MW-SF-12	SVE; TFE	0
	MW-SF-13	SVE; TFE	0
	MW-SF-14	SVE; TFE	0
	MW-SF-15	SVE; TFE	8
	MW-SF-16	SVE; TFE	4
	MW-SF-17	SVE; TFE	--
	GMW-9	SVE; TFE	0
	GMW-10	SVE	508
	GMW-22	SVE; TFE	0
	GMW-24	SVE; TFE	NM
	GMW-25	SVE; GWE	NM
	GWR-3	SVE; GWE	NM
	VEW-1	SVE	NM
	VEW-2	SVE	84
	MW-O-1	SVE; TFE	NM
	MW-O-2	SVE; TFE	8
	GMW-O-11	SVE; TFE	0
	GMW-O-12	SVE	612
	GMW-O-20	SVE; TFE	2,544
	GMW-O-23	SVE; TFE	0
	MW-18 (MID)	SVE	78
HW-1	SVE	196	
HW-2	SVE	196	
Southeastern	GMW-36	SVE; TFE	2,048
	GMW-O-15	SVE; TFE	2,048
	GMW-O-18	SVE; TFE	2,048

Notes:

<sup>a</sup> 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<sup>a</sup>**  
*SFPP Norwalk Pump Station, Norwalk, California*

Date Sampled	ASTM D-1946			EPA TO-3		SCAQMD 25.1	EPA TO-15 (VOCs) <sup>b</sup>				
	Methane (%v)	Carbon Dioxide (%v)	Oxygen and Argon (%v)	TPH-g (ppmv)	TVOC (ppmv)	TGNMOC (ppmv)	Benzene (ppbv)	Ethyl-benzene (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 <sup>c</sup>	<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



**Table 4. Extracted Vapor Analytical Results<sup>a</sup>**  
**SFPP Norwalk Pump Station, Norwalk, California**

Date Sampled	ASTM D-1946			EPA TO-3		SCAQMD 25.1	EPA TO-15 (VOCs) <sup>b</sup>				
	Methane (%v)	Carbon Dioxide (%v)	Oxygen and Argon (%v)	TPH-g (ppmv)	TVOC (ppmv)	TGNMOC (ppmv)	Benzene (ppbv)	Ethyl-benzene (ppbv)	Toluene (ppbv)	Xylenes (ppbv)	MTBE (ppbv)
12/11/2012	0.0074	0.84	21.0	53	---	---	130	17	110	173	<5.0
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 <sup>c</sup>	---	---	---	---	---	470	4,800	500	5,400	3,600	<0.099
8/17/2015 <sup>c</sup>	---	---	---	---	---	470	5,000	520	5,800	3,870	<0.100
8/17/2015 <sup>c</sup>	---	---	---	---	---	480	5,100	580	6,100	4,000	<0.097
8/17/2015 <sup>c</sup>	---	---	---	---	---	480	5,200	580	6,300	4,100	<0.099
9/1/2015 <sup>c</sup>	---	---	---	---	---	670	7,000	850	8,700	6,900	<0.097
9/1/2015 <sup>c</sup>	---	---	---	---	---	930	12,000	1,500	14,000	11,400	<0.140
9/1/2015 <sup>c</sup>	---	---	---	---	---	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
12/10/2015	0.004	0.41	21	---	580	---	6,400	1,200	10,000	7,600	<120
1/4/2016 <sup>c</sup>	0.0059	0.27	22	---	750	---	9,600	2,400	20,000	13,500	<220
2/4/2016 <sup>c</sup>	0.0038	0.58	21	---	2,000	---	16,000	2,600	29,000	19,300	<610
3/3/2016 <sup>c</sup>	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

**Table 4. Extracted Vapor Analytical Results<sup>a</sup>**  
*SFPP Norwalk Pump Station, Norwalk, California*

Date Sampled	ASTM D-1946			EPA TO-3		SCAQMD 25.1	EPA TO-15 (VOCs) <sup>b</sup>				
	Methane (%v)	Carbon Dioxide (%v)	Oxygen and Argon (%v)	TPH-g (ppmv)	TVOC (ppmv)	TGNMOC (ppmv)	Benzene (ppbv)	Ethyl-benzene (ppbv)	Toluene (ppbv)	Xylenes (ppbv)	MTBE (ppbv)
12/8/2017	0.0040	0.77	21	---	250	---	3,600	350	3,000	3,700	<81
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
1/11/2019	0.0061	1.5	19	--	46	--	190	25	160	350	<11
2/7/2019	0.0023	0.82	21	--	74	--	240	67	280	990	<10
3/12/2019	<0.0034	0.58	22	--	31	--	110	31	130	570	<4.9
4/4/2019	0.0044	0.80	21	--	160	--	2,400	400	2,000	2,730	550
5/7/2019	0.023	0.78	21	--	120	--	1,900	330	1,500	2,520	410
6/4/2019	0.0037	0.64	21	--	110	--	1,000	260	880	1,550	<19

Notes:

<sup>a</sup> Influent vapor samples were collected from the manifold conveying soil vapors extracted from the south-central and southeastern areas.

<sup>b</sup> Other detected VOCs are included in the laboratory analytical reports in Appendix A.

<sup>c</sup> 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

RTO = regenerative thermal oxidizer

SCAQMD = South Coast Air Quality Management District

SVE = soil vapor extraction

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 South-Central and Southeastern Areas (gallons)	Groundwater Removed from West Side Barrier Area (gallons)	Total Groundwater Removed (gallons)	Influent TPH-Total Concentration (µg/L)	Estimated Hydrocarbon Mass Removed from South-Central, Southeastern, and West Side Barrier Areas (pounds) <sup>a</sup>	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 <sup>b</sup>	4,283,026	405,954	4,688,980	--	520	0
2009 Totals	2,309,627	0	2,309,627	--	105	0
2010 Totals <sup>c</sup>	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
2018 Totals	2,854,384	0	2,854,384	--	37	0
1/1/2019	0	0	0	460	0.000	0
1/2/2019	0	0	0	460	0.000	0
1/3/2019	0	0	0	460	0.000	0
1/4/2019	762	0	762	460	0.003	0
1/5/2019	48	0	48	460	0.000	0
1/6/2019	0	0	0	460	0.000	0
1/7/2019	0	0	0	460	0.000	0
1/8/2019	422	0	422	460	0.002	0
1/9/2019	4	0	4	460	0.000	0
1/10/2019	1,658	0	1,658	460	0.006	0
1/11/2019	5,956	0	5,956	460	0.023	0
1/12/2019	9,308	0	9,308	460	0.036	0
1/13/2019	8,930	0	8,930	460	0.034	0
1/14/2019	6,554	0	6,554	460	0.025	0
1/15/2019	6,040	0	6,040	460	0.023	0
1/16/2019	9,660	0	9,660	460	0.037	0

**Table 5. Groundwater Remediation System Operation Summary**

SFPP Norwalk Pump Station, Norwalk, California

System Inspection Date	Groundwater Removed from South-Central and Southeastern Areas (gallons)	Groundwater Removed from West Side Barrier Area (gallons)	Total Groundwater Removed (gallons)	Influent TPH-Total Concentration (µg/L)	Estimated Hydrocarbon Mass Removed from South-Central, Southeastern, and West Side Barrier Areas (pounds) <sup>a</sup>	Product Recovery (gallons)
1/17/2019	9,224	0	9,224	460	0.035	0
1/18/2019	8,924	0	8,924	460	0.034	0
1/19/2019	8,792	0	8,792	460	0.034	0
1/20/2019	9,114	0	9,114	460	0.035	0
1/21/2019	8,788	0	8,788	460	0.034	0
1/22/2019	8,894	0	8,894	460	0.034	0
1/23/2019	9,924	0	9,924	460	0.038	0
1/24/2019	9,006	0	9,006	460	0.035	0
1/25/2019	9,134	0	9,134	460	0.035	0
1/26/2019	8,084	0	8,084	460	0.031	0
1/27/2019	7,808	0	7,808	460	0.030	0
1/28/2019	11,720	0	11,720	460	0.045	0
1/29/2019	3,960	0	3,960	410	0.014	0
1/30/2019	7,932	0	7,932	410	0.027	0
1/31/2019	8,912	0	8,912	410	0.030	0
2/1/2019	8,714	0	8,714	410	0.030	0
2/2/2019	9,806	0	9,806	410	0.033	0
2/3/2019	9,048	0	9,048	410	0.031	0
2/4/2019	8,392	0	8,392	410	0.029	0
2/5/2019	8,246	0	8,246	410	0.028	0
2/6/2019	7,650	0	7,650	410	0.026	0
2/7/2019	6,984	0	6,984	340	0.020	0
2/8/2019	6,008	0	6,008	340	0.017	0
2/9/2019	6,138	0	6,138	340	0.017	0
2/10/2019	6,162	0	6,162	340	0.017	0
2/11/2019	6,414	0	6,414	340	0.018	0
2/12/2019	6,362	0	6,362	340	0.018	0
2/13/2019	4,756	0	4,756	340	0.013	0
2/14/2019	8,044	0	8,044	340	0.023	0
2/15/2019	4,956	0	4,956	340	0.014	0
2/16/2019	5,084	0	5,084	340	0.014	0
2/17/2019	4,964	0	4,964	340	0.014	0
2/18/2019	5,200	0	5,200	340	0.015	0
2/19/2019	6,930	0	6,930	340	0.020	0
2/20/2019	10,478	0	10,478	340	0.030	0
2/21/2019	11,862	0	11,862	340	0.034	0
2/22/2019	12,282	0	12,282	340	0.035	0
2/23/2019	11,806	0	11,806	340	0.033	0
2/24/2019	11,616	0	11,616	340	0.033	0

**Table 5. Groundwater Remediation System Operation Summary**  
*SFPP Norwalk Pump Station, Norwalk, California*

System Inspection Date	Groundwater Removed from South-Central and Southeastern Areas (gallons)	Groundwater Removed from West Side Barrier Area (gallons)	Total Groundwater Removed (gallons)	Influent TPH-Total Concentration (µg/L)	Estimated Hydrocarbon Mass Removed from South-Central, Southeastern, and West Side Barrier Areas (pounds) <sup>a</sup>	Product Recovery (gallons)
2/25/2019	11,594	0	11,594	340	0.033	0
2/26/2019	3,532	0	3,532	340	0.010	0
2/27/2019	3,324	0	3,324	340	0.009	0
2/28/2019	2,822	0	2,822	340	0.008	0
3/1/2019	11,514	0	11,514	340	0.033	0
3/2/2019	12,656	0	12,656	340	0.036	0
3/3/2019	11,272	0	11,272	340	0.032	0
3/4/2019	10,892	0	10,892	340	0.031	0
3/5/2019	10,360	0	10,360	340	0.029	0
3/6/2019	11,784	0	11,784	340	0.033	0
3/7/2019	7,390	0	7,390	340	0.021	0
3/8/2019	6,346	0	6,346	420	0.022	0
3/9/2019	10,706	0	10,706	420	0.037	0
3/10/2019	8,138	0	8,138	420	0.028	0
3/11/2019	10,532	0	10,532	420	0.037	0
3/12/2019	6,852	0	6,852	420	0.024	0
3/13/2019	10,718	0	10,718	420	0.038	0
3/14/2019	10,230	0	10,230	420	0.036	0
3/15/2019	10,202	0	10,202	420	0.036	0
3/16/2019	10,152	0	10,152	420	0.036	0
3/17/2019	10,046	0	10,046	420	0.035	0
3/18/2019	9,712	0	9,712	420	0.034	0
3/19/2019	5,790	0	5,790	420	0.020	0
3/20/2019	0	0	0	420	0.000	0
3/21/2019	0	0	0	420	0.000	0
3/22/2019	0	0	0	420	0.000	0
3/23/2019	0	0	0	420	0.000	0
3/24/2019	0	0	0	420	0.000	0
3/25/2019	0	0	0	420	0.000	0
3/26/2019	244	0	244	420	0.001	0
3/27/2019	0	0	0	420	0.000	0
3/28/2019	0	0	0	420	0.000	0
3/29/2019	0	0	0	420	0.000	0
3/30/2019	0	0	0	420	0.000	0
3/31/2019	0	0	0	420	0.000	0
<b>First Quarter 2019 Total</b>	<b>574,268</b>	<b>0</b>	<b>574,268</b>	<b>--</b>	<b>1.9</b>	<b>0</b>
4/1/2019	0	0	0	420	0.000	0
4/2/2019	0	0	0	420	0.000	0
4/3/2019	0	0	0	420	0.000	0

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*SFPP Norwalk Pump Station, Norwalk, California*

System Inspection Date	Groundwater Removed from South-Central and Southeastern Areas (gallons)	Groundwater Removed from West Side Barrier Area (gallons)	Total Groundwater Removed (gallons)	Influent TPH-Total Concentration (µg/L)	Estimated Hydrocarbon Mass Removed from South-Central, Southeastern, and West Side Barrier Areas (pounds) <sup>a</sup>	Product Recovery (gallons)
4/4/2019	3,550	0	3,550	420	0.012	0
4/5/2019	10,880	0	10,880	420	0.038	0
4/6/2019	10,822	0	10,822	420	0.038	0
4/7/2019	10,824	0	10,824	420	0.038	0
4/8/2019	10,638	0	10,638	420	0.037	0
4/9/2019	6,748	0	6,748	420	0.024	0
4/10/2019	0	0	0	420	0.000	0
4/11/2019	1,100	0	1,100	420	0.004	0
4/12/2019	0	0	0	420	0.000	0
4/13/2019	0	0	0	420	0.000	0
4/14/2019	0	0	0	420	0.000	0
4/15/2019	0	0	0	420	0.000	0
4/16/2019	344	0	344	420	0.001	0
4/17/2019	0	0	0	420	0.000	0
4/18/2019	0	0	0	420	0.000	0
4/19/2019	0	0	0	420	0.000	0
4/20/2019	0	0	0	420	0.000	0
4/21/2019	0	0	0	420	0.000	0
4/22/2019	0	0	0	420	0.000	0
4/23/2019	780	0	780	420	0.003	0
4/24/2019	12,454	0	12,454	420	0.044	0
4/25/2019	12,986	0	12,986	420	0.045	0
4/26/2019	16,062	0	16,062	420	0.056	0
4/27/2019	16,496	0	16,496	420	0.058	0
4/28/2019	16,078	0	16,078	420	0.056	0
4/29/2019	15,516	0	15,516	350	0.045	0
4/30/2019	16,164	0	16,164	350	0.047	0
5/1/2019	15,418	0	15,418	350	0.045	0
5/2/2019	15,902	0	15,902	350	0.046	0
5/3/2019	15,368	0	15,368	350	0.045	0
5/4/2019	14,268	0	14,268	350	0.042	0
5/5/2019	15,312	0	15,312	350	0.045	0
5/6/2019	11,004	0	11,004	350	0.032	0
5/7/2019	10,332	0	10,332	350	0.030	0
5/8/2019	10,544	0	10,544	350	0.031	0
5/9/2019	10,570	0	10,570	350	0.031	0
5/10/2019	10,910	0	10,910	350	0.032	0
5/11/2019	10,260	0	10,260	350	0.030	0
5/12/2019	10,372	0	10,372	350	0.030	0

**Table 5. Groundwater Remediation System Operation Summary**  
*SFPP Norwalk Pump Station, Norwalk, California*

System Inspection Date	Groundwater Removed from South-Central and Southeastern Areas (gallons)	Groundwater Removed from West Side Barrier Area (gallons)	Total Groundwater Removed (gallons)	Influent TPH-Total Concentration (µg/L)	Estimated Hydrocarbon Mass Removed from South-Central, Southeastern, and West Side Barrier Areas (pounds) <sup>a</sup>	Product Recovery (gallons)
5/13/2019	9,442	0	9,442	350	0.028	0
5/14/2019	10,194	0	10,194	350	0.030	0
5/15/2019	10,426	0	10,426	350	0.030	0
5/16/2019	10,412	0	10,412	350	0.030	0
5/17/2019	10,138	0	10,138	350	0.030	0
5/18/2019	9,950	0	9,950	350	0.029	0
5/19/2019	9,752	0	9,752	350	0.028	0
5/20/2019	9,614	0	9,614	350	0.028	0
5/21/2019	9,688	0	9,688	350	0.028	0
5/22/2019	9,564	0	9,564	350	0.028	0
5/23/2019	9,440	0	9,440	350	0.028	0
5/24/2019	9,430	0	9,430	350	0.027	0
5/25/2019	9,340	0	9,340	350	0.027	0
5/26/2019	9,254	0	9,254	350	0.027	0
5/27/2019	9,348	0	9,348	350	0.027	0
5/28/2019	8,716	0	8,716	420	0.030	0
5/29/2019	8,932	0	8,932	420	0.031	0
5/30/2019	9,584	0	9,584	420	0.034	0
5/31/2019	10,294	0	10,294	420	0.036	0
6/1/2019	9,988	0	9,988	420	0.035	0
6/2/2019	10,374	0	10,374	420	0.036	0
6/3/2019	10,010	0	10,010	420	0.035	0
6/4/2019	9,966	0	9,966	420	0.035	0
6/5/2019	10,156	0	10,156	420	0.036	0
6/6/2019	10,336	0	10,336	420	0.036	0
6/7/2019	10,240	0	10,240	420	0.036	0
6/8/2019	10,036	0	10,036	420	0.035	0
6/9/2019	10,250	0	10,250	420	0.036	0
6/10/2019	9,964	0	9,964	420	0.035	0
6/11/2019	11,208	0	11,208	420	0.039	0
6/12/2019	14,434	0	14,434	420	0.051	0
6/13/2019	14,240	0	14,240	420	0.050	0
6/14/2019	13,820	0	13,820	420	0.048	0
6/15/2019	13,972	0	13,972	420	0.049	0
6/16/2019	13,848	0	13,848	420	0.048	0
6/17/2019	13,328	0	13,328	420	0.047	0
6/18/2019	12,428	0	12,428	420	0.043	0
6/19/2019	13,120	0	13,120	420	0.046	0
6/20/2019	10,718	0	10,718	460	0.041	0

**Table 5. Groundwater Remediation System Operation Summary**

SFPP Norwalk Pump Station, Norwalk, California

System Inspection Date	Groundwater Removed from South-Central and Southeastern Areas (gallons)	Groundwater Removed from West Side Barrier Area (gallons)	Total Groundwater Removed (gallons)	Influent TPH-Total Concentration (µg/L)	Estimated Hydrocarbon Mass Removed from South-Central, Southeastern, and West Side Barrier Areas (pounds) <sup>a</sup>	Product Recovery (gallons)
6/21/2019	11,894	0	11,894	460	0.046	0
6/22/2019	12,448	0	12,448	460	0.048	0
6/23/2019	12,296	0	12,296	460	0.047	0
6/24/2019	12,122	0	12,122	460	0.046	0
6/25/2019	11,962	0	11,962	460	0.046	0
6/26/2019	12,092	0	12,092	460	0.046	0
6/27/2019	11,884	0	11,884	460	0.046	0
6/28/2019	11,992	0	11,992	460	0.046	0
6/29/2019	11,934	0	11,934	460	0.046	0
6/30/2019	12,218	0	12,218	460	0.047	0
<b>Second Quarter 2019 Total</b>	<b>848,498</b>	<b>0</b>	<b>848,498</b>	<b>--</b>	<b>2.8</b>	<b>0</b>
<b>Cumulative Totals</b>	<b>79,908,301</b>	<b>26,902,652</b>	<b>106,810,953</b>	<b>--</b>	<b>18,452</b>	<b>14,426</b>

Notes:

<sup>a</sup> 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.

<sup>b</sup> Groundwater removal in the West Side Barrier area was discontinued in August 2008.

<sup>c</sup> 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<sup>a</sup>**

SFPP Norwalk Pump Station, Norwalk, California

Date Sampled	EPA 8015M					EPA 8260B Volatile Organic Compounds (VOCs) <sup>b</sup>									
	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<sup>a</sup>**

SFPP Norwalk Pump Station, Norwalk, California

Date Sampled	EPA 8015M					EPA 8260B Volatile Organic Compounds (VOCs) <sup>b</sup>									
	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<sup>a</sup>**

SFPP Norwalk Pump Station, Norwalk, California

Date Sampled	EPA 8015M					EPA 8260B Volatile Organic Compounds (VOCs) <sup>b</sup>								
	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 <sup>c</sup>	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<sup>a</sup>**

SFPP Norwalk Pump Station, Norwalk, California

Date Sampled	EPA 8015M					EPA 8260B Volatile Organic Compounds (VOCs) <sup>b</sup>									
	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	--	-- <sup>d</sup>	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<sup>a</sup>**

SFPP Norwalk Pump Station, Norwalk, California

Date Sampled	EPA 8015M					EPA 8260B Volatile Organic Compounds (VOCs) <sup>b</sup>									
	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<sup>a</sup>**

SFPP Norwalk Pump Station, Norwalk, California

Date Sampled	EPA 8015M					EPA 8260B Volatile Organic Compounds (VOCs) <sup>b</sup>								
	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<sup>a</sup>**

SFPP Norwalk Pump Station, Norwalk, California

Date Sampled	EPA 8015M					EPA 8260B Volatile Organic Compounds (VOCs) <sup>b</sup>									
	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	
1/29/2019	100	250	64	410	--	<1.0	<1.0	<2.0	<2.0	2.6	<5.0	1.7	<1.0	<1.0	
2/7/2019	36 J	210	93	340	--	<1.0	<1.0	<2.0	2.0 J	1.1	22	0.82 J	<1.0	<1.0	
3/8/2019	38 J	270	110	420	--	<1.0	<1.0	<2.0	<2.0	1.7	22	3.8	<1.0	<1.0	
4/29/2019	33 J	220	97	350	--	<1.0	<1.0	<2.0	<2.0	1.2	1,100	2.7	<1.0	<1.0	
5/28/2019	31 J	270	120	420	--	<1.0	<1.0	<2.0	<2.0	1.8	16	2.6	<1.0	<1.0	
6/20/2019	170	210	82	460	--	86	1.1	1.9 J	11	2.8	220	4.5	<1.0	<1.0	

Notes:

<sup>a</sup> Influent samples were collected from the manifold conveying groundwater extracted from the south-central and southeastern areas.

<sup>b</sup> Other detected VOCs are included in the laboratory analytical reports in Appendix A.

<sup>c</sup> TPH-fp result from extracted groundwater sample collected on July 10, 2008.

<sup>d</sup> 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"

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

B = Analyte detected in the associated method blank

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

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 <sup>a</sup> (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
<b>First Quarter 2016 Total</b>	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
<b>Second Quarter 2016 Total</b>	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 <sup>a</sup> (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
<b>Third Quarter 2016 Total</b>	<b>4,775</b>	<b>1,793</b>	<b>78.7</b>	--	--
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
<b>Fourth Quarter 2016 Total</b>	<b>5,302</b>	<b>527</b>	<b>62.7</b>	--	--
<b>2016 Totals</b>	<b>5,302</b>	<b>5,302</b>	--	--	--
<b>First Quarter 2017 Total</b>	<b>5,302</b>	<b>0</b>	--	--	--
6/27/2017	5,302	0	0.0	220	6
6/30/2017	5,368	66	22.0	207	7
<b>Second Quarter 2017 Total</b>	<b>5,368</b>	<b>66</b>	--	--	--

**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 <sup>a</sup> (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
<b>Third Quarter 2017 Total</b>	<b>7,255</b>	<b>1,887</b>	<b>89.1</b>	<b>--</b>	<b>--</b>
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
<b>Fourth Quarter 2017 Total</b>	<b>8,580</b>	<b>1,325</b>	<b>56.5</b>		

**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 <sup>a</sup> (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
<b>First Quarter 2018 Total</b>	<b>10,078</b>	<b>1,498</b>	<b>74.3</b>	<b>--</b>	<b>--</b>
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
<b>Second Quarter 2018 Total</b>	<b>11,842</b>	<b>1,764</b>	<b>78.2</b>	<b>--</b>	<b>--</b>

**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 <sup>a</sup> (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
<b>Third Quarter 2018 Total</b>	<b>13,567</b>	<b>1,725</b>	<b>81.7</b>	--	--
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
<b>Fourth Quarter 2018 Total</b>	<b>14,216</b>	<b>649</b>	<b>27.9</b>	--	--

**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 <sup>a</sup> (scfm)	BS-01 Sparge Leg Pressure (psi)
1/14/2019	14,219	3	0.9	150	20
1/15/2019	14,241	22	91.7	150	20
1/22/2019	14,241	0	0.0	150	2
2/11/2019	14,311	70	14.6	150	1
2/21/2019	14,335	24	10.0	150	2
2/26/2019	14,453	118	98.3	301	7
3/5/2019	14,620	167	99.4	338	6
3/7/2019	14,671	51	100.0	454	5
3/12/2019	14,788	117	97.5	465	4
3/19/2019	14,954	166	98.8	394	4
3/26/2019	15,122	168	100	350	5
<b>First Quarter 2019 Total</b>	<b>15,122</b>	<b>906</b>	<b>44.4</b>	--	--
4/2/2019	15,197	75	44.6	155	8
4/9/2019	15,366	169	100	280	2
4/23/2019	15,366	0	0	150	2
4/29/2019	15,508	142	99	297	2
5/7/2019	15,691	183	95	149	2
5/14/2019	15,857	166	99	267	3
5/21/2019	16,025	168	100	401	8
5/30/2019	16,238	213	99	444	8
6/4/2019	16,360	122	100	158	2
6/11/2019	16,527	167	99	308	2
6/18/2019	16,696	169	100	338	5
6/27/2019	16,895	199	92.1	445	9
<b>Second Quarter 2019 Total</b>	<b>16,696</b>	<b>1,773</b>	<b>79.4</b>	--	--
<b>Cumulative Totals</b>	<b>16,696</b>	--	<b>54.9</b>	--	--

Notes:

<sup>a</sup> 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 Laboratory Soil Vapor Analytical Results – June 2019**

SFPP Norwalk Pump Station, Norwalk, California

Analyte Type	Analyte	Unit	Current Residential Soil Gas Screening Level <sup>a, b</sup>	Current Commercial Soil Gas Screening Level <sup>a, b</sup>	SVM-1-5 6/11/2019 SVM-1 4.5-5.5	SVM-1-15 6/11/2019 SVM-1 14-15	SVM-2-5 6/11/2019 SVM-2 4.5-5.5	SVM-3-5 6/12/2019 SVM-3 4.5-5.5	SVM-3-15 6/12/2019 SVM-3 14.5-15.5	SVM-5-5 6/11/2019 SVM-5 4.5-5.5	SVM-5-15 6/11/2019 SVM-5 15-16	SVM-6-7 6/11/2019 SVM-6 6-7	SVM-6-15 6/11/2019 SVM-6 15-16	SVM-7-7 6/11/2019 SVM-7 6.5-7.5	SVM-7-13 6/11/2019 SVM-7 13-14
Field Measurements	Pressure	inches H <sub>2</sub> O	---	---	0.0	0.0	0.0	0.0	0.0	0.0	1.31	0.79	0.0	-0.09	0.15
	PID	ppmv	---	---	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
COPCs <sup>c</sup>	1,2,4-Trimethylbenzene	µg/L	63	262	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
	1,2-Dichloroethane	µg/L	0.11	0.47	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	1,3,5-Trimethylbenzene	µg/L	63	262	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
	2-Propanol (leak test compound)	µg/L	---	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
	Benzene	µg/L	0.097	0.42	<0.00075	<0.00075	<0.00075	<0.00075	<0.00075	<0.00075	<0.00075	<0.00075	<0.00075	<0.00075	<0.00075
	Ethylbenzene	µg/L	1.1	4.9	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
	Isopropylbenzene	µg/L	---	---	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
	m,p-Xylenes	µg/L	100	440	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
	Methyl tert-butyl ether (MTBE)	µg/L	11	47	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
	Naphthalene	µg/L	0.083	0.36	<0.00075	<0.00075	<0.00075	<0.00075	<0.00075	<0.00075	<b>0.0019</b>	<0.00075	<0.00075	<0.00075	<0.00075
	n-Butylbenzene	µg/L	---	---	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
	n-Propylbenzene	µg/L	1000	4400	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
	o-Xylene	µg/L	100	440	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
	sec-Butylbenzene	µg/L	---	---	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
	tert-Butanol (TBA)	µg/L	---	---	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Toluene	µg/L	310	1300	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	
Other Detected Compounds	Acetone	µg/L	32000	140000	<b>0.0064</b>	<0.005	<0.005	<0.005	<0.005	<0.005	<b>0.0072</b>	<0.005	<0.005	<b>0.005</b>	<b>0.0058</b>
	Chloroform	µg/L	0.12	0.53	<0.005	<0.005	<0.005	<b>0.024</b>	<b>0.028</b>	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
	Chloromethane	µg/L	---	---	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
	Ethanol	µg/L	---	---	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
	Methylene Chloride	µg/L	---	---	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
	Tetrachloroethylene (PCE)	µg/L	0.46	2.0	<0.0025	<0.0025	<0.0025	<b>0.0027</b>	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025
	TPH-G (C4-C12)	µg/L	630	2600	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
Fixed Gases	Methane	% v/v	---	---	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
	Oxygen	% v/v	---	---	<b>16</b>	<b>16</b>	<b>16</b>	<b>19</b>	<b>18</b>	<b>18</b>	<b>18</b>	<b>17</b>	<b>17</b>	<b>17</b>	<b>17</b>
	Carbon Dioxide	% v/v	---	---	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2

Notes:

<sup>a</sup> Source for the Indoor Air Screening Levels: DTSC, 2019. *Human Health Risk Assessment (HHRA) Note: Human and Ecological Risk Office (HERO) HHRA Note Number: 3, DTSC-modified Screening Levels (DTSC-SLs)*. April. DTSC has developed modified screening levels based on U.S. Environmental Protection Agency (EPA) Regional Screening Levels (RSLs) for use in the human health risk assessment process at hazardous waste sites and permitted facilities.

<https://dtsc.ca.gov/wp-content/uploads/sites/31/2019/04/HHRA-Note-3-2019-04.pdf>

<sup>b</sup> 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](http://www.dtsc.ca.gov/AssessingRisk/upload/Final_VIG_Oct_2011.pdf).

<sup>c</sup> Chemicals of potential concern identified from the 2006 soil gas investigation and HHRA (Geomatrix, 2006. *Vapor Intrusion Sampling and Human Health Risk Assessment, DFSP Norwalk Facility, Norwalk, California*. December.

**SVM-1-5** Light blue highlighting indicates offsite soil vapor probe locations.  
**10** Yellow highlighting indicates concentration exceeds human health screening level under residential scenario.

6/11/2019 + 6/12/2019 = 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

COPC = chemical of potential concern

TPH-g = total petroleum hydrocarbons quantified as gasoline

**Table 8. Field Measurements and Laboratory Soil Vapor Analytical Results – June 2019**

SFPP Norwalk Pump Station, Norwalk, California

Analyte Type	Analyte	Unit	Current Residential Soil Gas Screening Level <sup>a, b</sup>	Current Commercial Soil Gas Screening Level <sup>a, b</sup>	SVM-8-5 6/11/2019 SVM-8 4.5-5.5	SVM-8-15 6/11/2019 SVM-8 14.5-15.5	SVM-10-15 6/11/2019 SVM-10 15-16	SVM-11-7 6/12/2019 SVM-11 7-7.5	SVM-11-15 6/12/2019 SVM-11 15-15.5	SVM-11-22 6/12/2019 SVM-11 21-21.5	SVM-12-7 6/12/2019 SVM-12 7-7.5	SVM-12-15 6/12/2019 SVM-12 15-15.5	SVM-12-22 6/12/2019 SVM-12 22-22.5	SVM-13-7 6/12/2019 SVM-13 7-7.5	SVM-13-15 6/12/2019 SVM-13 15.5-16
Field Measurements	Pressure	inches H <sub>2</sub> O	---	---	-0.15	0.0	0.0	-0.32	-0.14	-0.38	0.0	0.0	0.0	-2.91	-14.7
	PID	ppmv	---	---	0.1	0.0	0.0	0.0	0.0	1.1	0.0	0.0	0.0	10.5	2.1
COPCs <sup>c</sup>	1,2,4-Trimethylbenzene	µg/L	63	262	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<b>0.0051</b>	<0.005	<0.005	<0.005	<b>0.0068</b>
	1,2-Dichloroethane	µg/L	0.11	0.47	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	1,3,5-Trimethylbenzene	µg/L	63	262	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
	2-Propanol (leak test compound)	µg/L	---	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
	Benzene	µg/L	0.097	0.42	<0.00075	<0.00075	<b>0.00077</b>	<0.00075	<0.00075	<0.00075	<b>0.0012</b>	<b>0.0009</b>	<b>0.0017</b>	<b>0.0012</b>	<b>0.001</b>
	Ethylbenzene	µg/L	1.1	4.9	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
	Isopropylbenzene	µg/L	---	---	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
	m,p-Xylenes	µg/L	100	440	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<b>0.0079</b>	<b>0.0052</b>	<b>0.0052</b>	<b>0.0091</b>	<b>0.0093</b>
	Methyl tert-butyl ether (MTBE)	µg/L	11	47	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
	Naphthalene	µg/L	0.083	0.36	<0.00075	<0.00075	<0.00075	<0.00075	<0.00075	<0.00075	<0.00075	<0.00075	<0.00075	<b>0.0022</b>	<b>0.0064</b>
	n-Butylbenzene	µg/L	---	---	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
	n-Propylbenzene	µg/L	1000	4400	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
	o-Xylene	µg/L	100	440	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
	sec-Butylbenzene	µg/L	---	---	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
	tert-Butanol (TBA)	µg/L	---	---	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Toluene	µg/L	310	1300	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<b>0.0051</b>	<b>0.0052</b>
Other Detected Compounds	Acetone	µg/L	32000	140000	<0.005	<0.005	<0.005	<0.005	<b>0.0092</b>	<b>0.0062</b>	<b>0.0059</b>	<0.005	<b>0.012</b>	<b>0.0058</b>	<b>0.0055</b>
	Chloroform	µg/L	0.12	0.53	<0.005	<0.005	<0.005	<0.005	<0.005	<b>0.034</b>	<b>0.019</b>	<0.005	<0.005	<0.005	<0.005
	Chloromethane	µg/L	---	---	<0.005	<0.005	<0.005	<0.005	<0.005	<b>0.0083</b>	<0.005	<0.005	<0.005	<0.005	<0.005
	Ethanol	µg/L	---	---	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
	Methylene Chloride	µg/L	---	---	<0.005	<0.005	<0.005	<0.005	<b>0.0096</b>	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
	Tetrachloroethylene (PCE)	µg/L	0.46	2.0	<0.0025	<0.0025	<b>0.0043</b>	<0.0025	<0.0025	<b>0.074</b>	<b>0.0028</b>	<0.0025	<b>0.016</b>	<0.0025	<0.0025
	TPH-G (C4-C12)	µg/L	630	2600	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
Fixed Gases	Methane	% v/v	---	---	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
	Oxygen	% v/v	---	---	<b>18</b>	<b>19</b>	<b>14</b>	<b>18</b>	<b>18</b>	<b>11</b>	<b>17</b>	<b>16</b>	<b>13</b>	<b>18</b>	<b>18</b>
	Carbon Dioxide	% v/v	---	---	<0.2	<0.2	<b>2.2</b>	<b>0.54</b>	<b>0.34</b>	<b>4.7</b>	<b>0.96</b>	<b>0.87</b>	<b>2.9</b>	<0.2	<0.2

Notes:

<sup>a</sup> Source for the Indoor Air Screening Levels: DTSC, 2019. *Human Health Risk Assessment (HHRA) Note: Human and Ecological Risk Office (HERO) HHRA Note Number: 3, DTSC-modified Screening Levels (DTSC-SLs)*. April. DTSC has developed modified screening levels based on U.S. Environmental Protection Agency (EPA) Regional Screening Levels (RSLs) for use in the human health risk assessment process at hazardous waste sites and permitted facilities.

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<sup>b</sup> 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](http://www.dtsc.ca.gov/AssessingRisk/upload/Final_VIG_Oct_2011.pdf).

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**SVM-1-5** Light blue highlighting indicates offsite soil vapor probe locations.  
**10** Yellow highlighting indicates concentration exceeds human health screening level under residential scenario.

6/11/2019 + 6/12/2019 = 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

COPC = chemical of potential concern

TPH-g = total petroleum hydrocarbons quantified as gasoline

**Table 8. Field Measurements and Laboratory Soil Vapor Analytical Results – June 2019**

SFPP Norwalk Pump Station, Norwalk, California

Analyte Type	Analyte	Unit	Current Residential Soil Gas Screening Level <sup>a, b</sup>	Current Commercial Soil Gas Screening Level <sup>a, b</sup>	SVM-13-22 6/12/2019 SVM-13 22.5-23	SVM-14R-8 6/12/2019 SVM-14R 7-8	SVM-14R-15 6/12/2019 SVM-14R 15-16	SVM-14R-22 6/12/2019 SVM-14R 22.5-23.5	SVM-14R-22DUP 6/12/2019 SVM-14R 22.5-23.5	SVM-15-7 6/11/2019 SVM-15 7-7.5	SVM-15-15 6/11/2019 SVM-15 15-15.5	SVM-15-22 6/11/2019 SVM-15 22-22.5	SVM-16-7 6/11/2019 SVM-16 7-7.5	SVM-16-16 6/11/2019 SVM-16 15.5-16	SVM-16-16DUP 6/11/2019 SVM-16 15.5-16
Field Measurements	Pressure	inches H <sub>2</sub> O	---	---	-18.1	-1.0	-21.6	37.9	37.9	0.0	0.16	3.18	3.18	0.0	0.0
	PID	ppmv	---	---	4.3	0.0	0.1	0.2	0.2	0.0	0.2	0.0	0.0	0.0	0.0
COPCs <sup>c</sup>	1,2,4-Trimethylbenzene	µg/L	63	262	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
	1,2-Dichloroethane	µg/L	0.11	0.47	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	1,3,5-Trimethylbenzene	µg/L	63	262	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
	2-Propanol (leak test compound)	µg/L	---	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
	Benzene	µg/L	0.097	0.42	<b>0.001</b>	<0.00075	<0.00075	<b>0.00088</b>	<b>0.00083</b>	<0.00075	<b>0.00077</b>	<0.00075	<0.00075	<0.00075	<0.00075
	Ethylbenzene	µg/L	1.1	4.9	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
	Isopropylbenzene	µg/L	---	---	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
	m,p-Xylenes	µg/L	100	440	<b>0.0055</b>	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
	Methyl tert-butyl ether (MTBE)	µg/L	11	47	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
	Naphthalene	µg/L	0.083	0.36	<b>0.0032</b>	<0.00075	<0.00075	<0.00075	<0.00075	<0.00075	<0.00075	<0.00075	<0.00075	<0.00075	<0.00075
	n-Butylbenzene	µg/L	---	---	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
	n-Propylbenzene	µg/L	1000	4400	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
	o-Xylene	µg/L	100	440	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
	sec-Butylbenzene	µg/L	---	---	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
	tert-Butanol (TBA)	µg/L	---	---	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Toluene	µg/L	310	1300	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<b>0.0053</b>	<0.005	<0.005	<0.005	<0.005	
Other Detected Compounds	Acetone	µg/L	32000	140000	<b>0.009</b>	<b>0.0095</b>	<0.005	<b>0.0052</b>	<b>0.0052</b>	<0.005	<0.005	<b>0.012</b>	<0.005	<0.005	<0.005
	Chloroform	µg/L	0.12	0.53	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
	Chloromethane	µg/L	---	---	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
	Ethanol	µg/L	---	---	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<b>0.011</b>	<b>0.014</b>	<0.005	<0.005	<0.005
	Methylene Chloride	µg/L	---	---	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<b>0.0092</b>	<0.005	<0.005	<0.005
	Tetrachloroethylene (PCE)	µg/L	0.46	2.0	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025
	TPH-G (C4-C12)	µg/L	630	2600	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
Fixed Gases	Methane	% v/v	---	---	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
	Oxygen	% v/v	---	---	<b>18</b>	<b>18</b>	<b>17</b>	<b>18</b>	<b>18</b>	<b>17</b>	<b>16</b>	<b>17</b>	<b>18</b>	<b>18</b>	<b>18</b>
	Carbon Dioxide	% v/v	---	---	<b>0.22</b>	<b>0.49</b>	<b>1.2</b>	<b>0.37</b>	<b>0.29</b>	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2

Notes:

<sup>a</sup> Source for the Indoor Air Screening Levels: DTSC, 2019. *Human Health Risk Assessment (HHRA) Note: Human and Ecological Risk Office (HERO) HHRA Note Number: 3, DTSC-modified Screening Levels (DTSC-SLs)*. April. DTSC has developed modified screening levels based on U.S. Environmental Protection Agency (EPA) Regional Screening Levels (RSLs) for use in the human health risk assessment process at hazardous waste sites and permitted facilities.

<https://dtsc.ca.gov/wp-content/uploads/sites/31/2019/04/HHRA-Note-3-2019-04.pdf>

<sup>b</sup> 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](http://www.dtsc.ca.gov/AssessingRisk/upload/Final_VIG_Oct_2011.pdf).

<sup>c</sup> Chemicals of potential concern identified from the 2006 soil gas investigation and HHRA (Geomatrix, 2006. *Vapor Intrusion Sampling and Human Health Risk Assessment, DFSP Norwalk Facility, Norwalk, California*. December.

**SVM-1-5** Light blue highlighting indicates offsite soil vapor probe locations.

**10** Yellow highlighting indicates concentration exceeds human health screening level under residential scenario.

**6/11/2019 + 6/12/2019** = 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

COPC = chemical of potential concern

TPH-g = total petroleum hydrocarbons quantified as gasoline



**Table 8. Field Measurements and Laboratory Soil Vapor Analytical Results – June 2019**

SFPP Norwalk Pump Station, Norwalk, California

Analyte Type	Analyte	Unit	Current Residential Soil Gas Screening Level <sup>a, b</sup>	Current Commercial Soil Gas Screening Level <sup>a, b</sup>	SVM-16-22 6/12/2019 SVM-16 22-22.5	Ambient Air 06/11/2019	Ambient Air 06/12/2019
Field Measurements	Pressure	inches H <sub>2</sub> O	---	---	0.0	---	---
	PID	ppmv	---	---	0.0	---	---
COPCs <sup>c</sup>	1,2,4-Trimethylbenzene	µg/L	63	262	<0.005	<0.005	<0.005
	1,2-Dichloroethane	µg/L	0.11	0.47	<0.001	<0.001	<0.001
	1,3,5-Trimethylbenzene	µg/L	63	262	<0.005	<0.005	<0.005
	2-Propanol (leak test compound)	µg/L	---	---	<0.05	<0.05	<0.05
	Benzene	µg/L	0.097	0.42	<0.00075	<b>0.00089</b>	<0.00075
	Ethylbenzene	µg/L	1.1	4.9	<0.005	<0.005	<0.005
	Isopropylbenzene	µg/L	---	---	<0.005	<0.005	<0.005
	m,p-Xylenes	µg/L	100	440	<0.005	<0.005	<0.005
	Methyl tert-butyl ether (MTBE)	µg/L	11	47	<0.005	<0.005	<0.005
	Naphthalene	µg/L	0.083	0.36	<0.00075	<0.00075	<0.00075
	n-Butylbenzene	µg/L	---	---	<0.005	<0.005	<0.005
	n-Propylbenzene	µg/L	1000	4400	<0.005	<0.005	<0.005
	o-Xylene	µg/L	100	440	<0.005	<0.005	<0.005
	sec-Butylbenzene	µg/L	---	---	<0.005	<0.005	<0.005
	tert-Butanol (TBA)	µg/L	---	---	<5	<5	<5
Toluene	µg/L	310	1300	<0.005	<0.005	<0.005	
Other Detected Compounds	Acetone	µg/L	32000	140000	<0.005	<b>0.01</b>	<b>0.012</b>
	Chloroform	µg/L	0.12	0.53	<b>0.01</b>	<0.005	<0.005
	Chloromethane	µg/L	---	---	<0.005	<0.005	<0.005
	Ethanol	µg/L	---	---	<0.005	<b>0.015</b>	<b>0.0063</b>
	Methylene Chloride	µg/L	---	---	<0.005	<0.005	<0.005
	Tetrachloroethylene (PCE)	µg/L	0.46	2.0	<b>0.012</b>	<0.0025	<0.0025
	TPH-G (C4-C12)	µg/L	630	2600	<20	<20	<20
Fixed Gases	Methane	% v/v	---	---	<0.2	<b>&lt;0.2</b>	---
	Oxygen	% v/v	---	---	<b>10</b>	<b>18</b>	---
	Carbon Dioxide	% v/v	---	---	<b>6.8</b>	<b>&lt;0.2</b>	---

Notes:

<sup>a</sup> Source for the Indoor Air Screening Levels: DTSC, 2019. *Human Health Risk Assessment (HHRA) Note: Human and Ecological Risk Office (HERO) HHRA Note Number: 3, DTSC-modified Screening Levels (DTSC-SLs)*. April. DTSC has developed modified screening levels based on U.S. Environmental Protection Agency (EPA) Regional Screening Levels (RSLs) for use in the human health risk assessment process at hazardous waste sites and permitted facilities.

<https://dtsc.ca.gov/wp-content/uploads/sites/31/2019/04/HHRA-Note-3-2019-04.pdf>

<sup>b</sup> 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](http://www.dtsc.ca.gov/AssessingRisk/upload/Final_VIG_Oct_2011.pdf).

<sup>c</sup> Chemicals of potential concern identified from the 2006 soil gas investigation and HHRA (Geomatrix, 2006. *Vapor Intrusion Sampling and Human Health Risk Assessment, DFSP Norwalk Facility, Norwalk, California*. December.

**SVM-1-5** Light blue highlighting indicates offsite soil vapor probe locations.  
**10** Yellow highlighting indicates concentration exceeds human health screening level under residential scenario.

**6/11/2019 + 6/12/2019** = 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

COPC = chemical of potential concern

TPH-g = total petroleum hydrocarbons quantified as gasoline

**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	Measured Depth to Groundwater	Measured Depth to Product	Apparent Product Thickness	Corrected Groundwater Elevation	Gauged By
		(feet msl)	(feet btoc)	(feet btoc)	(feet)	(feet msl)	
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	Measured Depth to Groundwater	Measured Depth to Product	Apparent Product Thickness	Corrected Groundwater Elevation	Gauged By
		(feet msl)	(feet btoc)	(feet btoc)	(feet)	(feet msl)	
	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	
4/23/2019	77.16	29.72	---	---	47.44	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	
4/16/2019	73.35	30.55	--	--	42.80	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	Measured Depth to Groundwater	Measured Depth to Product	Apparent Product Thickness	Corrected Groundwater Elevation	Gauged By
		(feet msl)	(feet btoc)	(feet btoc)	(feet)	(feet msl)	
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	Measured Depth to Groundwater	Measured Depth to Product	Apparent Product Thickness	Corrected Groundwater Elevation	Gauged By
		(feet msl)	(feet btoc)	(feet btoc)	(feet)	(feet msl)	
	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
	4/16/2019	77.24	36.19	---	---	41.05	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	Measured Depth to Groundwater	Measured Depth to Product	Apparent Product Thickness	Corrected Groundwater Elevation	Gauged By
		(feet msl)	(feet btoc)	(feet btoc)	(feet)	(feet msl)	
	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
4/16/2019	77.48	38.43	---	---	39.05	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	Measured Depth to Groundwater	Measured Depth to Product	Apparent Product Thickness	Corrected Groundwater Elevation	Gauged By
		(feet msl)	(feet btoc)	(feet btoc)	(feet)	(feet msl)	
	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	
4/16/2019	78.14	36.89	---	---	41.25	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	Measured Depth to Groundwater	Measured Depth to Product	Apparent Product Thickness	Corrected Groundwater Elevation	Gauged By
		(feet msl)	(feet btoc)	(feet btoc)	(feet)	(feet msl)	
	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
	4/23/2019	76.66	33.56	---	---	43.10	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	Measured Depth to Groundwater	Measured Depth to Product	Apparent Product Thickness	Corrected Groundwater Elevation	Gauged By
		(feet msl)	(feet btoc)	(feet btoc)	(feet)	(feet msl)	
	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
	4/16/2019	74.17	NM	---	---	NC	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	Measured Depth to Groundwater	Measured Depth to Product	Apparent Product Thickness	Corrected Groundwater Elevation	Gauged By
		(feet msl)	(feet btoc)	(feet btoc)	(feet)	(feet msl)	
	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	Measured Depth to Groundwater	Measured Depth to Product	Apparent Product Thickness	Corrected Groundwater Elevation	Gauged By
		(feet msl)	(feet btoc)	(feet btoc)	(feet)	(feet msl)	
	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	
4/16/2019	73.49	31.62	31.21	0.41	42.20	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	Measured Depth to Groundwater	Measured Depth to Product	Apparent Product Thickness	Corrected Groundwater Elevation	Gauged By
		(feet msl)	(feet btoc)	(feet btoc)	(feet)	(feet msl)	
	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	
4/23/2019	74.86	29.84	29.84	0.00	45.02	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	Measured Depth to Groundwater	Measured Depth to Product	Apparent Product Thickness	Corrected Groundwater Elevation	Gauged By
		(feet msl)	(feet btoc)	(feet btoc)	(feet)	(feet msl)	
	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
	4/16/2019	74.32	30.89	--	--	43.43	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	Measured Depth to Groundwater	Measured Depth to Product	Apparent Product Thickness	Corrected Groundwater Elevation	Gauged By
		(feet msl)	(feet btoc)	(feet btoc)	(feet)	(feet msl)	
	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	
4/23/2019	73.32	30.55	---	---	42.77	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	Measured Depth to Groundwater	Measured Depth to Product	Apparent Product Thickness	Corrected Groundwater Elevation	Gauged By
		(feet msl)	(feet btoc)	(feet btoc)	(feet)	(feet msl)	
	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
	4/16/2019	71.43	32.34	---	---	39.09	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	Measured Depth to Groundwater	Measured Depth to Product	Apparent Product Thickness	Corrected Groundwater Elevation	Gauged By
		(feet msl)	(feet btoc)	(feet btoc)	(feet)	(feet msl)	
	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	
4/16/2019	73.63	32.99	---	---	40.64	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	Measured Depth to Groundwater	Measured Depth to Product	Apparent Product Thickness	Corrected Groundwater Elevation	Gauged By
		(feet msl)	(feet btoc)	(feet btoc)	(feet)	(feet msl)	
	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
	4/16/2019	77.60	37.16	---	---	40.44	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	Measured Depth to Groundwater	Measured Depth to Product	Apparent Product Thickness	Corrected Groundwater Elevation	Gauged By
		(feet msl)	(feet btoc)	(feet btoc)	(feet)	(feet msl)	
	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	
4/16/2019	75.67	38.39	---	---	37.28	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	
4/16/2019	75.48	32.09	---	---	43.39	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	Measured Depth to Groundwater	Measured Depth to Product	Apparent Product Thickness	Corrected Groundwater Elevation	Gauged By
		(feet msl)	(feet btoc)	(feet btoc)	(feet)	(feet msl)	
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	
4/16/2019	71.9	31.44	--	--	40.46	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	Measured Depth to Groundwater	Measured Depth to Product	Apparent Product Thickness	Corrected Groundwater Elevation	Gauged By
		(feet msl)	(feet btoc)	(feet btoc)	(feet)	(feet msl)	
	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
	4/16/2019	78.93	37.94	---	---	40.99	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	Measured Depth to Groundwater	Measured Depth to Product	Apparent Product Thickness	Corrected Groundwater Elevation	Gauged By
		(feet msl)	(feet btoc)	(feet btoc)	(feet)	(feet msl)	
	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
	4/16/2019	78.53	37.95	---	---	40.58	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	Measured Depth to Groundwater	Measured Depth to Product	Apparent Product Thickness	Corrected Groundwater Elevation	Gauged By
		(feet msl)	(feet btoc)	(feet btoc)	(feet)	(feet msl)	
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	
4/16/2019	78.12	NM	---	---	NC	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	Measured Depth to Groundwater	Measured Depth to Product	Apparent Product Thickness	Corrected Groundwater Elevation	Gauged By
		(feet msl)	(feet btoc)	(feet btoc)	(feet)	(feet msl)	
	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	Measured Depth to Groundwater	Measured Depth to Product	Apparent Product Thickness	Corrected Groundwater Elevation	Gauged By
		(feet msl)	(feet btoc)	(feet btoc)	(feet)	(feet msl)	
	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	
4/16/2019	79.38	38.45	---	---	40.93	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	
4/16/2019	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



**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	Measured Depth to Groundwater	Measured Depth to Product	Apparent Product Thickness	Corrected Groundwater Elevation	Gauged By
		(feet msl)	(feet btoc)	(feet btoc)	(feet)	(feet msl)	
	10/17/2008	79.96	29.75	---	---	50.21	Envent
	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
	4/16/2019	76.8	36.13	---	---	40.67	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	Measured Depth to Groundwater	Measured Depth to Product	Apparent Product Thickness	Corrected Groundwater Elevation	Gauged By
		(feet msl)	(feet btoc)	(feet btoc)	(feet)	(feet msl)	
	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	Measured Depth to Groundwater	Measured Depth to Product	Apparent Product Thickness	Corrected Groundwater Elevation	Gauged By
		(feet msl)	(feet btoc)	(feet btoc)	(feet)	(feet msl)	
	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
MW-SF-10	6/29/2016	74.10	34.00	---	---	40.10	Blaine Tech
	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	
4/16/2019	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	Measured Depth to Groundwater	Measured Depth to Product	Apparent Product Thickness	Corrected Groundwater Elevation	Gauged By
		(feet msl)	(feet btoc)	(feet btoc)	(feet)	(feet msl)	
	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
	4/16/2019	78.56	38.52	---	---	40.04	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	Measured Depth to Groundwater	Measured Depth to Product	Apparent Product Thickness	Corrected Groundwater Elevation	Gauged By
		(feet msl)	(feet btoc)	(feet btoc)	(feet)	(feet msl)	
	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
	4/16/2019	78.07	37.53	---	---	40.54	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	Measured Depth to Groundwater	Measured Depth to Product	Apparent Product Thickness	Corrected Groundwater Elevation	Gauged By
		(feet msl)	(feet btoc)	(feet btoc)	(feet)	(feet msl)	
	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
	4/16/2019	73.40	32.29	---	---	41.11	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	Measured Depth to Groundwater	Measured Depth to Product	Apparent Product Thickness	Corrected Groundwater Elevation	Gauged By
		(feet msl)	(feet btoc)	(feet btoc)	(feet)	(feet msl)	
	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	
4/16/2019	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	Measured Depth to Groundwater	Measured Depth to Product	Apparent Product Thickness	Corrected Groundwater Elevation	Gauged By
		(feet msl)	(feet btoc)	(feet btoc)	(feet)	(feet msl)	
	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	
4/23/2019	78.27	36.15	---	---	42.12	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	Measured Depth to Groundwater	Measured Depth to Product	Apparent Product Thickness	Corrected Groundwater Elevation	Gauged By
		(feet msl)	(feet btoc)	(feet btoc)	(feet)	(feet msl)	
	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
	4/16/2019	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**

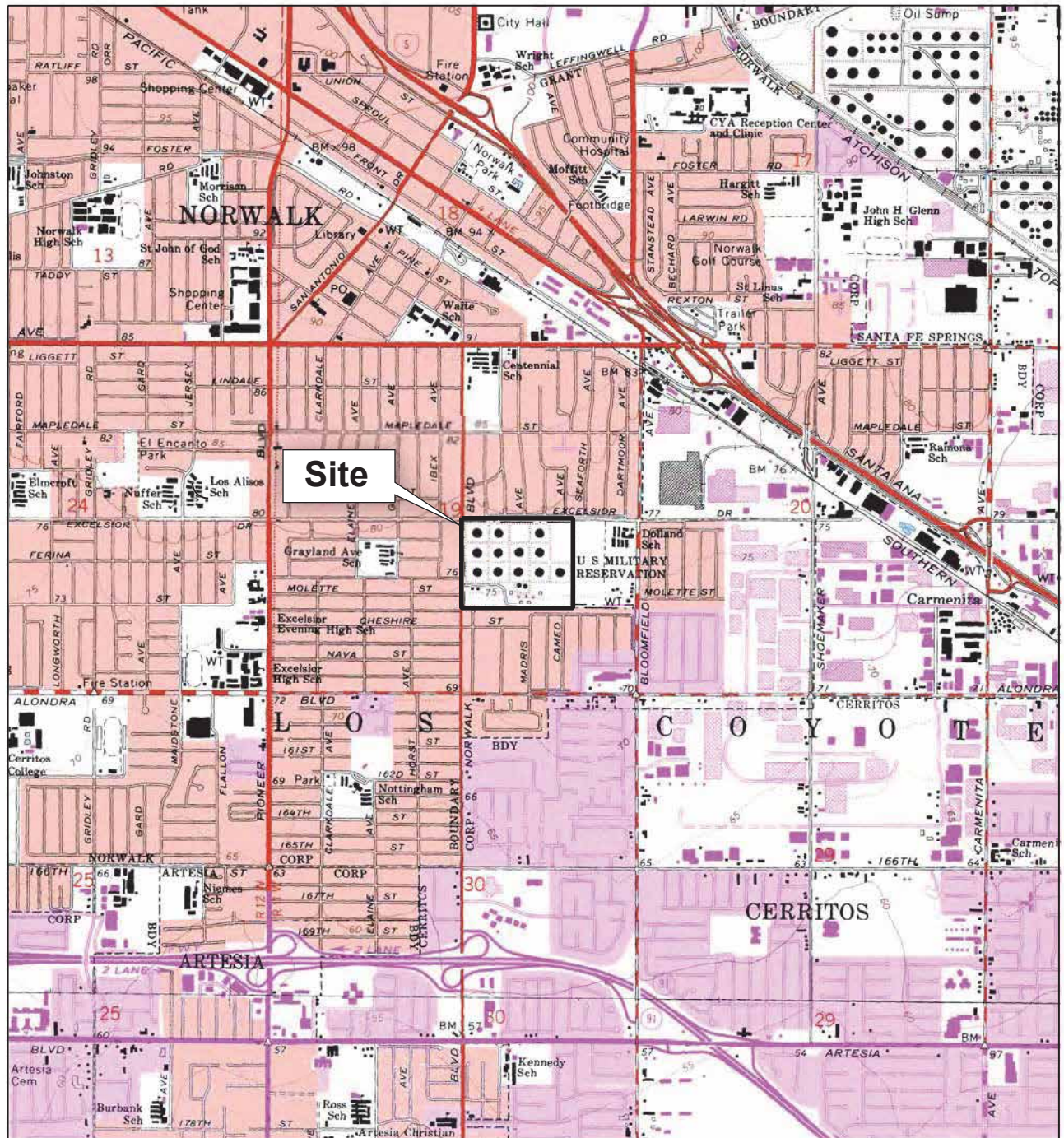
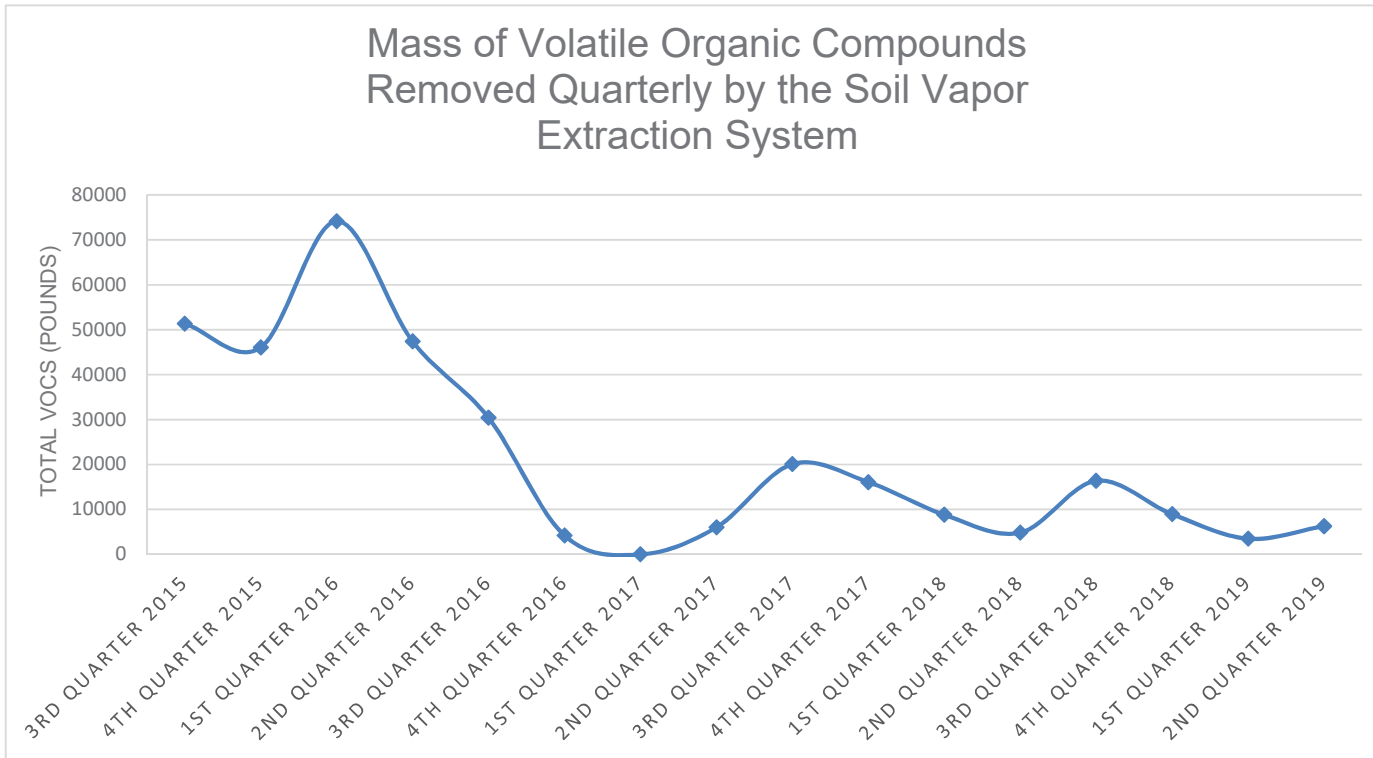


Figure 1. Site Location Map  
 SFPP Norwalk Pump Station  
 Norwalk, California

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.



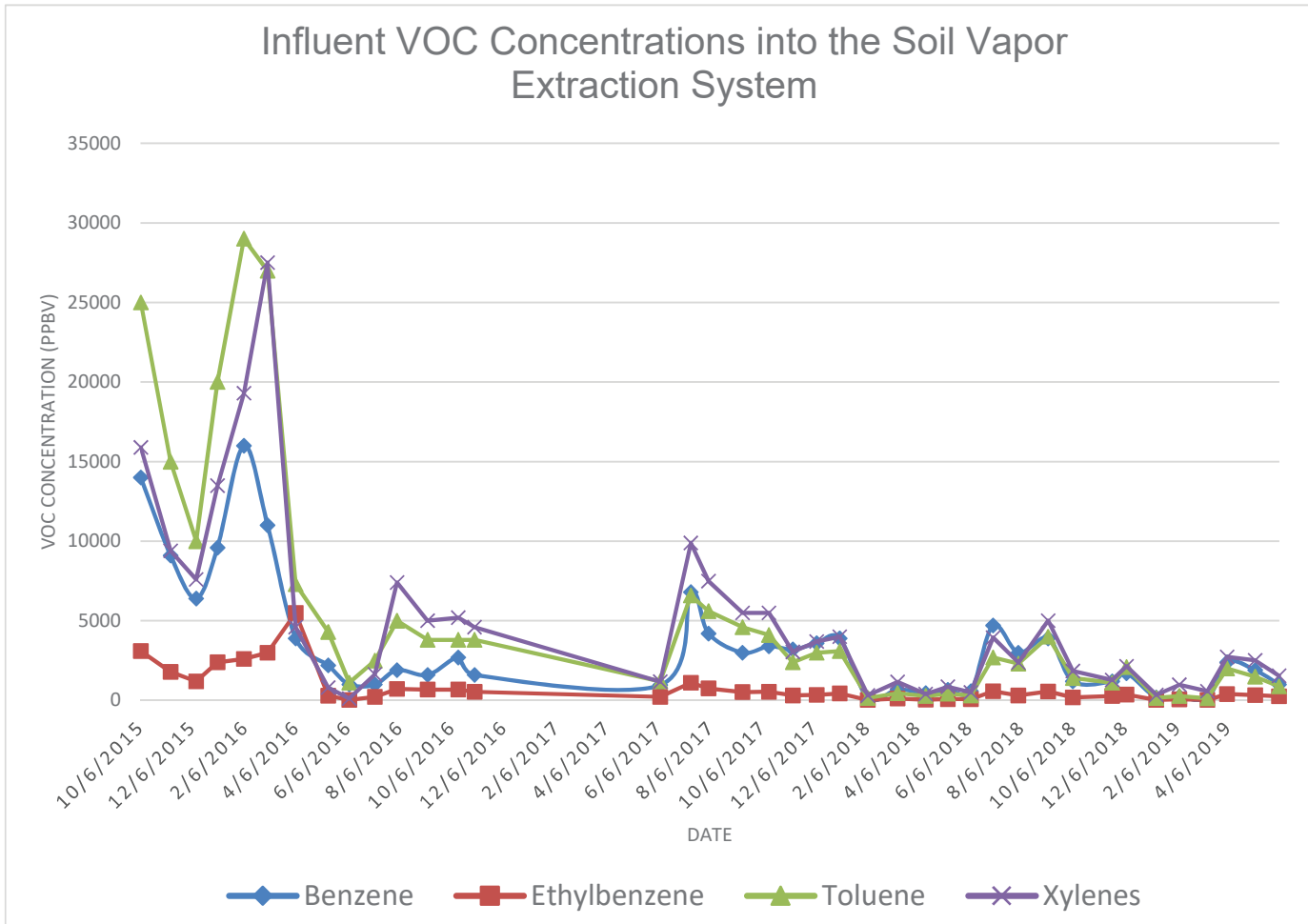




**Note:**  
VOC = volatile organic compound

**Figure 3. Mass of VOCs Removed Quarterly  
by the Soil Vapor Extraction System**  
SFPP Norwalk Pump Station  
Norwalk, California

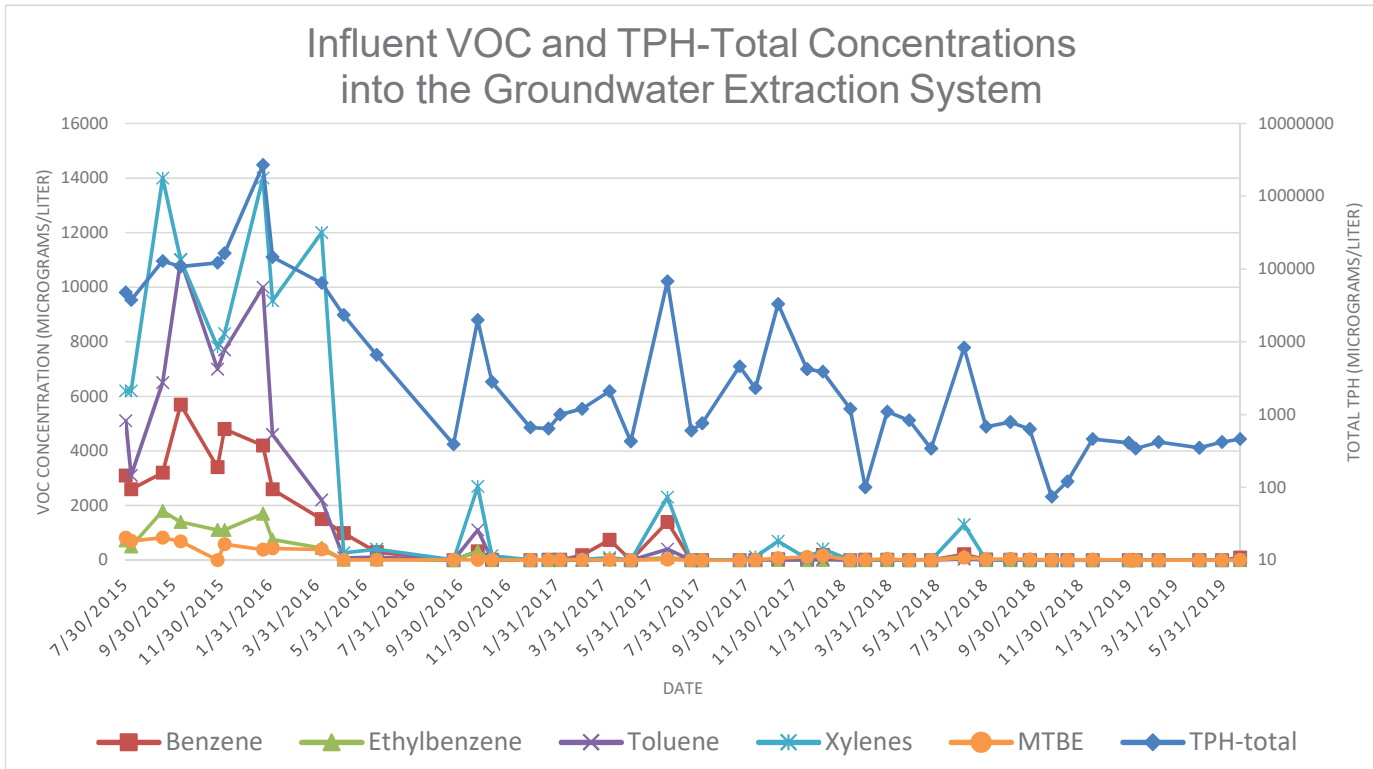




**Notes:**  
 PPBV – parts per billion by volume  
 VOC = volatile organic compound

**Figure 4. Influent VOC Concentrations into the Soil Vapor Extraction System**  
 SFPP Norwalk Pump Station  
 Norwalk, California





**Notes:**

TPH = total petroleum hydrocarbons

VOC = volatile organic compound

**Figure 5. Influent VOC and TPH-Total Concentrations  
into the Groundwater Extraction System  
SFPP Norwalk Pump Station  
Norwalk, California**



**Appendix A**  
**Laboratory Analytical Reports**





May 1, 2019

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



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

### LABORATORY TEST RESULTS

Project Reference: SFPP Norwalk  
Lab Number: K040504-01/04

Enclosed are results for sample(s) received 4/05/19 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 4/30/19.

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,

A handwritten signature in blue ink, appearing to read "Mark Johnson", is written over a white background.

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)

K040504-01/04

CHAIN OF CUSTODY RECORD  
 DATE: 4/4/18  
 PAGE: 1 of 1

<b>Section A</b> Required Client Information: Company: CH2M HILL Attention: Eric Davis Address: 1000 Wilshire Blvd. Suite 2100 Los Angeles, CA 90017 Email To: eric.davis@ch2m.com vcarino@ch2m.com Phone: 404-323-1600 Fax:		<b>Section B</b> Required Project Information: Report To: Eric Davis (eric.davis@ch2m.com) Copy To: Vladimir Carino (vcarino@ch2m.com) Purchase Order No.: Project Name: SFPP Norwalk		<b>Section C</b> Invoice Information: Attention: Eric Davis Company: CH2M Name: Address: 1000 Wilshire Blvd. Suite 2100 Los Angeles, CA 90017 Project Manager: Joann De La Ossa		<b>Section D</b> Sample Information: Sampler Name: James Dye Sampler: Signature: Sample Date: 4/4/18	
--	--	--	--	--	--	---	--

ITEM #	SAMPLE ID	LOCATION/ DESCRIPTION	MATRIX	SAMPLE TYPE (G-GRAB, C-COMP)	CONTAINER TYPE		TOTAL # OF CONTAINERS	Analysis Test			Comments
					# OF CONTAINERS	PRESERVATIVE		VOLUME (mL)	TO-15 (Total VOCs as Hexane)	TO-15 (VOCs, Target Analytes)	
01	VEFF-04-04	Effluent (stack)	Vapor	G	DATE	TIME	1	X	X		Individually Certified 6-Liter SUMMA
02	VEFF-04-04 D	Effluent (stack) (duplicate)	Vapor	G	4/4/19	0930	1	X	X		Individually Certified 6-Liter SUMMA
03	VPOST-04-04	Influent (post-dilution)	Vapor	G	4/4/19	0945	1	X	X		Individually Certified 1-Liter SUMMA
04	VINF-04-04	Influent (pre-dilution)	Vapor	G	4/4/19	0955	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											

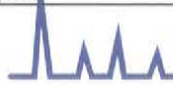
Requisitioned by (Signature and Printed Name):  Date / Time: 4/4/19 1500	Requisitioned by (Signature and Printed Name): FRED EX Date / Time: 4/4/19 1500	Turn Around Time (TAT): <input type="checkbox"/> A = Same Day <input type="checkbox"/> B = 24 Hours <input type="checkbox"/> C = 48 Hours <input type="checkbox"/> D = 72 Hours <input type="checkbox"/> E = 5 Workdays <input checked="" type="checkbox"/> F = 10 Workdays TAT Starts at 8 AM the following day if samples received after 3:00 PM.	Special Instructions:
Requisitioned by (Signature and Printed Name):  Date / Time: 4/5/19 1114	Requisitioned by (Signature and Printed Name):  Date / Time: 4/5/19 1114		

<b>Matrix:</b> W = Water O = Oil Others/Specify:	<b>Preservatives:</b> H = HCl Z = Zn[AC]2 Others/Specify:	<b>Container Type:</b> T = Tube J = Jar M = Metal V = VOA B = Tedlar P = Plastic P = Pint G = Glass C = Can A = Amber
---	--	---

Client: Jacobs  
 Attn: Eric Davis  
 Project Name: SFPP Norwalk  
 Project No.: NA  
 Date Received: 04/05/19  
 Matrix: Air  
 Reporting Units: ppmv

EPA Method TO15

Lab No.:	K040504-01			K040504-02			K040504-03			K040504-04		
Client Sample I.D.:	VEFF-04-04			VEFF-04-04D			VPOST-04-04			VINP-04-04		
Date/Time Sampled:	4/4/19 9:30			4/4/19 9:30			4/4/19 9:45			4/4/19 9:55		
Date/Time Analyzed:	4/25/19 22:43			4/25/19 23:25			4/26/19 18:15			4/26/19 18:56		
QC Batch No.:	190425MS2A1			190425MS2A1			190426MS2A1			190426MS2A1		
Analyst Initials:	DT			DT			DT			DT		
Dilution Factor:	2.1			2.1			32			30		
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	0.032	0.0048	ND	0.030	0.0047
Chloromethane	ND	0.0042	0.00046	0.0020 J	0.0042	0.00046	ND	0.063	0.0069	ND	0.061	0.0067
1,2-CI-1,1,2,2-F ethane (114)	ND	0.0021	0.00042	ND	0.0021	0.00042	ND	0.032	0.0064	ND	0.030	0.0061
Vinyl Chloride	ND	0.0021	0.00034	ND	0.0021	0.00034	ND	0.032	0.0051	ND	0.030	0.0049
Bromomethane	0.0011 J	0.0021	0.00062	0.0011 J	0.0021	0.00062	0.016 J	0.032	0.0093	0.013 J	0.030	0.0089
Chloroethane	ND	0.0021	0.0018	ND	0.0021	0.0018	ND	0.032	0.027	ND	0.030	0.025
Trichlorofluoromethane (11)	ND	0.0021	0.00045	ND	0.0021	0.00045	ND	0.032	0.0068	ND	0.030	0.0065
1,1-Dichloroethene	ND	0.0021	0.00048	ND	0.0021	0.00048	ND	0.032	0.0072	ND	0.030	0.0069
Carbon Disulfide	0.031	0.011	0.00050	0.082	0.011	0.00050	0.0093 J	0.16	0.0076	0.026 J	0.15	0.0073
1,1,2-CI 1,2,2-F ethane (113)	ND	0.0021	0.00057	ND	0.0021	0.00057	ND	0.032	0.0085	ND	0.030	0.0081
Acetone	0.017	0.011	0.00061	0.025	0.011	0.00061	0.064 J	0.16	0.0091	0.053 J	0.15	0.0087
Methylene Chloride	ND	0.0021	0.00060	ND	0.0021	0.00060	ND	0.032	0.0090	ND	0.030	0.0087
t-1,2-Dichloroethene	ND	0.0021	0.00063	ND	0.0021	0.00063	ND	0.032	0.0094	ND	0.030	0.0091
1,1-Dichloroethane	ND	0.0021	0.00029	ND	0.0021	0.00029	ND	0.032	0.0043	ND	0.030	0.0041
c-1,2-Dichloroethene	ND	0.0021	0.00041	ND	0.0021	0.00041	ND	0.032	0.0061	ND	0.030	0.0059
2-Butanone	0.0097	0.0021	0.0013	0.015	0.0021	0.0013	ND	0.032	0.020	ND	0.030	0.019
t-Butyl Methyl Ether (MTBE)	0.0044	0.0021	0.00047	0.0045	0.0021	0.00047	0.63	0.032	0.0071	0.55	0.030	0.0068
Chloroform	ND	0.0021	0.00029	ND	0.0021	0.00029	ND	0.032	0.0044	ND	0.030	0.0042
1,1,1-Trichloroethane	ND	0.0021	0.00021	ND	0.0021	0.00021	ND	0.032	0.0032	ND	0.030	0.0030
Carbon Tetrachloride	ND	0.0021	0.00037	ND	0.0021	0.00037	ND	0.032	0.0055	ND	0.030	0.0053
Benzene	0.027	0.0021	0.00020	0.025	0.0021	0.00020	2.5	0.032	0.0030	2.4	0.030	0.0029
1,2-Dichloroethane	ND	0.0021	0.00016	ND	0.0021	0.00016	ND	0.032	0.0023	ND	0.030	0.0023
Trichloroethene	ND	0.0021	0.00030	ND	0.0021	0.00030	0.017 J	0.032	0.0045	ND	0.030	0.0043
1,2-Dichloropropane	ND	0.0021	0.00038	ND	0.0021	0.00038	ND	0.032	0.0057	ND	0.030	0.0055
Bromodichloromethane	ND	0.0021	0.00013	ND	0.0021	0.00013	ND	0.032	0.0019	ND	0.030	0.0018
c-1,3-Dichloropropene	ND	0.0021	0.00025	ND	0.0021	0.00025	ND	0.032	0.0038	ND	0.030	0.0036
4-Methyl-2-Pentanone	ND	0.0021	0.00014	ND	0.0021	0.00014	ND	0.032	0.0021	ND	0.030	0.0020
Toluene	0.022	0.0021	0.00017	0.021	0.0021	0.00017	2.2	0.032	0.0025	2.0	0.030	0.0024
t-1,3-Dichloropropene	ND	0.0021	0.00022	ND	0.0021	0.00022	ND	0.032	0.0033	ND	0.030	0.0031
1,1,2-Trichloroethane	ND	0.0021	0.00034	ND	0.0021	0.00034	ND	0.032	0.0051	ND	0.030	0.0049
1,3-Dichloropropane	ND	0.0021	0.00010	ND	0.0021	0.00010	ND	0.032	0.0016	ND	0.030	0.0015
Tetrachloroethene	ND	0.0021	0.00025	ND	0.0021	0.00025	ND	0.032	0.0038	ND	0.030	0.0036
2-Hexanone	ND	0.0021	0.00043	ND	0.0021	0.00043	ND	0.032	0.0065	ND	0.030	0.0062
Dibromochloromethane	ND	0.0021	0.00038	ND	0.0021	0.00038	ND	0.032	0.0058	ND	0.030	0.0055
1,2-Dibromoethane	ND	0.0021	0.00019	ND	0.0021	0.00019	ND	0.032	0.0029	ND	0.030	0.0028
Chlorobenzene	ND	0.0021	0.00016	ND	0.0021	0.00016	0.011 J	0.032	0.0025	ND	0.030	0.0024
Ethylbenzene	0.0053	0.0021	0.00012	0.0052	0.0021	0.00012	0.52	0.032	0.0018	0.40	0.030	0.0017
p,&m-Xylene	0.031	0.0021	0.00024	0.031	0.0021	0.00024	2.9	0.032	0.0036	2.4	0.030	0.0034
o-Xylene	0.014	0.0021	0.00026	0.013	0.0021	0.00026	0.50	0.032	0.0038	0.33	0.030	0.0037



Client: Jacobs  
 Attn: Eric Davis  
 Project Name: SFPP Norwalk  
 Project No.: NA  
 Date Received: 04/05/19  
 Matrix: Air  
 Reporting Units: ppmv

EPA Method TO15

Lab No.:	K040504-01			K040504-02			K040504-03			K040504-04		
Client Sample I.D.:	VEFF-04-04			VEFF-04-04D			VPOST-04-04			VINP-04-04		
Date/Time Sampled:	4/4/19 9:30			4/4/19 9:30			4/4/19 9:45			4/4/19 9:55		
Date/Time Analyzed:	4/25/19 22:43			4/25/19 23:25			4/26/19 18:15			4/26/19 18:56		
QC Batch No.:	190425MS2A1			190425MS2A1			190426MS2A1			190426MS2A1		
Analyst Initials:	DT			DT			DT			DT		
Dilution Factor:	2.1			2.1			32			30		
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	0.0013 J	0.0021	0.00027	0.0012 J	0.0021	0.00027	0.023 J	0.032	0.0041	0.015 J	0.030	0.0039
Bromoform	ND	0.0021	0.00012	ND	0.0021	0.00012	ND	0.032	0.0018	ND	0.030	0.0017
Isopropyl benzene	0.0011 J	0.0021	0.00022	0.00050 J	0.0021	0.00022	0.019 J	0.032	0.0033	0.0058 J	0.030	0.0032
1,1,2,2-Tetrachloroethane	ND	0.0042	0.00013	ND	0.0042	0.00013	ND	0.063	0.0019	ND	0.061	0.0019
Benzyl Chloride	ND	0.0021	0.00039	ND	0.0021	0.00039	ND	0.032	0.0058	ND	0.030	0.0056
1,2,3-Trichloropropane	ND	0.0021	0.00057	ND	0.0021	0.00057	ND	0.032	0.0085	ND	0.030	0.0082
n-Propyl Benzene	0.0012 J	0.0021	0.00012	0.00076 J	0.0021	0.00012	0.050	0.032	0.0018	0.020 J	0.030	0.0018
4-Ethyl Toluene	0.0089	0.0021	0.00013	0.0083	0.0021	0.00013	0.63	0.032	0.0020	0.32	0.030	0.0019
1,3,5-Trimethylbenzene	0.0043	0.0042	0.00036	0.0040 J	0.0042	0.00036	0.36	0.063	0.0055	0.21	0.061	0.0052
4-Chlorotoluene	0.00052 J	0.0021	0.00025	ND	0.0021	0.00025	ND	0.032	0.0038	ND	0.030	0.0036
tert-Butylbenzene	ND	0.0021	0.00019	ND	0.0021	0.00019	ND	0.032	0.0029	ND	0.030	0.0027
1,2,4-Trimethylbenzene	0.0068	0.0042	0.00024	0.0062	0.0042	0.00024	0.17	0.063	0.0036	0.086	0.061	0.0034
sec-Butylbenzene	ND	0.0021	0.00020	ND	0.0021	0.00020	ND	0.032	0.0031	ND	0.030	0.0029
p-Isopropyltoluene	0.0051	0.0021	0.00027	0.0020 J	0.0021	0.00027	0.0079 J	0.032	0.0041	ND	0.030	0.0040
1,3-Dichlorobenzene	ND	0.0021	0.00026	ND	0.0021	0.00026	ND	0.032	0.0038	ND	0.030	0.0037
1,4-Dichlorobenzene	0.00035 J	0.0021	0.00031	0.00039 J	0.0021	0.00031	ND	0.032	0.0046	ND	0.030	0.0044
n-Butylbenzene	ND	0.0021	0.00015	ND	0.0021	0.00015	ND	0.032	0.0023	ND	0.030	0.0022
1,2-Dichlorobenzene	ND	0.0021	0.00026	ND	0.0021	0.00026	ND	0.032	0.0039	ND	0.030	0.0038
1,2,4-Trichlorobenzene	ND	0.0042	0.00035	ND	0.0042	0.00035	ND	0.063	0.0052	ND	0.061	0.0050
Hexachlorobutadiene	ND	0.0021	0.00012	ND	0.0021	0.00012	ND	0.032	0.0019	ND	0.030	0.0018
n-Butanol	ND	0.011	0.00040	0.0042 J	0.011	0.00040	0.034 J	0.16	0.0061	0.030 J	0.15	0.0058
n-Hexane	0.039	0.011	0.00028	0.040	0.011	0.00028	5.6	0.16	0.0042	5.2	0.15	0.0041
Isopropyl ether	ND	0.011	0.00023	ND	0.011	0.00023	ND	0.16	0.0035	ND	0.15	0.0034
t-Butyl ethyl ether	ND	0.011	0.00042	ND	0.011	0.00042	ND	0.16	0.0063	ND	0.15	0.0061
2,2-Dichloropropane	ND	0.011	0.00020	ND	0.011	0.00020	ND	0.16	0.0030	ND	0.15	0.0029
t-Amyl methyl ether	ND	0.011	0.00015	ND	0.011	0.00015	ND	0.16	0.0022	ND	0.15	0.0021
1,4-Dioxane	ND	0.011	0.00037	ND	0.011	0.00037	ND	0.16	0.0055	ND	0.15	0.0053
Naphthalene	ND	0.011	0.00081	0.00082 J	0.011	0.00081	ND	0.16	0.012	ND	0.15	0.012
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: Mark Johnson  
 Mark Johnson  
 Operations Manager

Date: 4/30/19

The cover letter is an integral part of this analytical report



Client: Jacobs  
 Attn: Eric Davis  
 Project Name: SFPP Norwalk  
 Project No.: NA  
 Date Received: 04/05/19  
 Matrix: Air  
 Reporting Units: ppmv

EPA Method TO15

Lab No.:	METHOD BLANK			METHOD BLANK									
Client Sample I.D.:	-			-									
Date/Time Sampled:	-			-									
Date/Time Analyzed:	4/25/19 11:42			4/26/19 14:52									
QC Batch No.:	190425MS2A1			190426MS2A1									
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-CI-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	ND	0.0010	0.000048	ND	0.0010	0.000048							
1,1,2-CI 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	0.000032 J	0.00020	0.000019	0.000036 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	0.000021 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: Jacobs  
 Attn: Eric Davis  
 Project Name: SFPP Norwalk  
 Project No.: NA  
 Date Received: 04/05/19  
 Matrix: Air  
 Reporting Units: ppmv

EPA Method TO15

Lab No.:	METHOD BLANK			METHOD BLANK						
Client Sample I.D.:	-			-						
Date/Time Sampled:	-			-						
Date/Time Analyzed:	4/25/19 11:42			4/26/19 14:52						
QC Batch No.:	190425MS2A1			190426MS2A1						
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: Mark Johnson  
 Mark Johnson  
 Operations Manager

Date 4/30/19

The cover letter is an integral part of this analytical report









**Client:** Jacobs  
**Attn:** Eric Davis  
**Project Name:** SFPP Norwalk  
**Project No.:** NA  
**Date Received:** 04/05/19  
**Matrix:** Air  
**Reporting Units:** ppmv

**EPA METHOD TO3**

Lab No.:	K040504-01	K040504-02	K040504-03	K040504-04				
Client Sample I.D.:	VEFF-04-04	VEFF-04-04D	VPOST-04-04	VINF-04-04				
Date/Time Sampled:	4/4/19 9:30	4/4/19 9:30	4/4/19 9:45	4/4/19 9:55				
Date/Time Analyzed:	4/8/19 13:55	4/8/19 14:17	4/8/19 15:29	4/8/19 15:52				
QC Batch No.:	190408GC11A1	190408GC11A1	190408GC11A1	190408GC11A1				
Analyst Initials:	AS	AS	AS	AS				
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	160	2.1	160	2.0

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

Reviewed/Approved By:   
 Mark Johnson  
 Operations Manager

Date 4-30-19

The cover letter is an integral part of this analytical report



QC Batch No: 190408GC11A1

Matrix: Air

Reporting Units: ppmv

**EPA METHOD TO3  
LABORATORY CONTROL SAMPLE SUMMARY**

Lab No.:	METHOD BLANK	LCS		LCSD						
Date Analyzed:	4/8/19 13:31	4/8/19 12:42		4/8/19 13:05						
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	4.42	88	4.40	88	0.5	70	130	25

ND = Not Detected (below RL)

RL = Reporting Limit

Reviewed/Approved By:  \_\_\_\_\_

Date 4-30-19 \_\_\_\_\_

Mark Johnson  
Operations Manager

The cover letter is an integral part of this analytical report



Client: Jacobs  
 Attn: Eric Davis  
 Project Name: SFPP Norwalk  
 Project No.: NA  
 Date Received: 04/05/19  
 Matrix: Air  
 Reporting Units: % v/v

ASTM D1946

Lab No.:	K040504-04						
Client Sample I.D.:	VINF-04-04						
Date/Time Sampled:	4/4/19 9:55						
Date/Time Analyzed:	4/15/19 13:58						
QC Batch No.:	190415GC8A1						
Analyst Initials:	CM/AS						
Dilution Factor:	2.0						
ANALYTE	Result % v/v	RL % v/v					
Carbon Dioxide	0.80	0.020					
Oxygen/Argon	21	1.0					
Nitrogen	78	2.0					
Methane	0.0044	0.0020					

Results normalized including non-methane hydrocarbons

ND = Not Detected (below RL)

RL = Reporting Limit

Reviewed/Approved By: Mark Johnson  
 Mark Johnson  
 Operations Manager

Date 4-25-19

The cover letter is an integral part of this analytical report



QC Batch No: 190415GC8A1  
 Matrix: Air  
 Reporting Units: % v/v

**ASTM D1946  
 LABORATORY CONTROL SAMPLE SUMMARY**

Lab No.:	METHOD BLANK			LCS		LCSD					
Date Analyzed:	4/15/19 12:59			4/15/19 11:17		4/15/19 12:30					
Analyst Initials:	CM/AS			CM/AS		CM/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	8.80	88	8.85	88	0.5	70	130	30
Oxygen/Argon	ND	0.50	15	14.8	100	15.0	101	1.1	70	130	30
Nitrogen	ND	1.0	70	67.0	96	67.5	97	0.9	70	130	30
Methane	ND	0.0010	0.10	0.112	112	0.111	111	0.5	70	130	30

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

Reviewed/Approved By:   
 Mark Johnson  
 Operations Manager

Date 4-25-19

The cover letter is an integral part of this analytical report





May 24, 2019

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



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

### LABORATORY TEST RESULTS

Project Reference: SFPP Norwalk  
Lab Number: K050804-01/04

Enclosed are results for sample(s) received 5/08/19 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 5/23/19.

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,

A handwritten signature in blue ink, appearing to read "Mark Johnson".

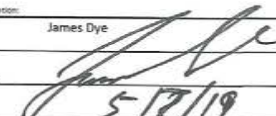
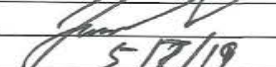
Mark Johnson  
Operations Manager  
MJohnson@AirTechLabs.com

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


K050804-01/04

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: 5/7/19  
 PAGE: 1 of 1

<b>Section A</b> Required Client Information:		<b>Section B</b> Required Project Information:		<b>Section C</b> Inspector Information:		<b>Section D</b> 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 Name: 	
Email To: eric.davis@ch2m.com vcarino@ch2m.com		Purchase Order No.:		Address: 1000 Wilshire Blvd. Suite 2100 Los Angeles, CA 90017		Signature: 	
Phone: 404-323-1600 Fax:		Project Name: SFPP Norwalk		Project Manager: Joann De La Ossa		Sample Date: 5/7/19	

ITEM #	SAMPLE ID	LOCATION/ DESCRIPTION	MATRIX	SAMPLE TYPE (OSBAR, C-COMP)	CONTAINER TYPE		TOTAL # OF CONTAINERS	Analytic Test			Comments
					# OF CONTAINERS	PRESERVATIVE		VOLUME (mL)	TO-15 (VOCs, Target Analytes)	ASTM-D 1946 (O2, Argon, CO2, CH4, H2)	
1	VEFF-05-07	Effluent (stack)	Vapor	G	5/7/19	1150	1	X	X		Individually Certified 6-Liter SUMMA
2	VEFF-05-07 D	Effluent (stack) (duplicate)	Vapor	G	5/7/19	1150	1	X	X		Individually Certified 6-Liter SUMMA
3	VPOST-05-07	Influent (post-dilution)	Vapor	G	5/7/19	1200	1	X	X		Individually Certified 1-Liter SUMMA
4	VINF-05-07	Influent (pre-dilution)	Vapor	G	5/7/19	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											

Relinquished by (Signature and Printed Name):  Date / Time: 5/7/19 1500	Relinquished by (Signature and Printed Name): Date / Time:	Turn Around Time (TAT): <input type="checkbox"/> A = Same Day <input type="checkbox"/> B = 24 Hours <input type="checkbox"/> C = 48 Hours <input type="checkbox"/> D = 72 Hours <input type="checkbox"/> E = 5 Workdays <input checked="" type="checkbox"/> F = 10 Workdays  TAT Starts at 8 AM the following day if samples received after 8:00 PM.	Special Instruction:
Relinquished by (Signature and Printed Name): FEN EX Date / Time:	Relinquished by (Signature and Printed Name): Date / Time: 5/8/19 1205		
Relinquished by (Signature and Printed Name): Date / Time:	Relinquished by (Signature and Printed Name): Date / Time:		

<b>Matrix:</b>	<b>Preservatives:</b>	<b>Container Type:</b>
W = Water O = Oil	H = HCl Z = Zn(Ac2) Others/Specify:	T = Tube J = Jar M = Metal P = Plastic C = Can
WW = Wastewater P = Product S = Soil	N = HNO3 O = NaOH T = Na2S2O3	V = VOA B = Tedlar G = Glass
	S = H2SO4 T = Na2SO3	P = Pint A = Amber

01  
02  
03  
04

Client: Jacobs  
 Attn: Eric Davis  
 Project Name: SFPP Norwalk  
 Project No.: NA  
 Date Received: 05/08/19  
 Matrix: Air  
 Reporting Units: ppmv

EPA Method TO15

Lab No.:	K050804-01			K050804-02			K050804-03			K050804-04		
Client Sample I.D.:	VEFF-05-07			VEFF-05-07D			VPOST-05-07			VINP-05-07		
Date/Time Sampled:	5/7/19 11:50			5/7/19 11:50			5/7/19 12:00			5/7/19 12:10		
Date/Time Analyzed:	5/10/19 20:43			5/10/19 21:23			5/10/19 18:22			5/10/19 20:03		
QC Batch No.:	190510MS2A1			190510MS2A1			190510MS2A1			190510MS2A1		
Analyst Initials:	DT			DT			DT			DT		
Dilution Factor:	2.1			2.1			32			32		
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	0.032	0.0048	ND	0.032	0.0048
Chloromethane	ND	0.0042	0.00046	ND	0.0042	0.00046	ND	0.063	0.0069	ND	0.063	0.0069
1,2-CI-1,1,2,2-F ethane (114)	ND	0.0021	0.00042	ND	0.0021	0.00042	ND	0.032	0.0064	ND	0.032	0.0064
Vinyl Chloride	ND	0.0021	0.00034	ND	0.0021	0.00034	ND	0.032	0.0051	ND	0.032	0.0051
Bromomethane	0.0012 J	0.0021	0.00062	0.0010 J	0.0021	0.00062	0.015 J	0.032	0.0093	0.017 J	0.032	0.0093
Chloroethane	ND	0.0021	0.0018	ND	0.0021	0.0018	ND	0.032	0.027	ND	0.032	0.027
Trichlorofluoromethane (11)	ND	0.0021	0.00045	ND	0.0021	0.00045	ND	0.032	0.0068	ND	0.032	0.0068
1,1-Dichloroethene	ND	0.0021	0.00048	ND	0.0021	0.00048	ND	0.032	0.0072	ND	0.032	0.0072
Carbon Disulfide	0.036	0.011	0.00050	0.057	0.011	0.00050	0.26	0.16	0.0076	ND	0.16	0.0076
1,1,2-CI 1,2,2-F ethane (113)	ND	0.0021	0.00057	ND	0.0021	0.00057	ND	0.032	0.0085	ND	0.032	0.0085
Acetone	0.033	0.011	0.00061	0.020	0.011	0.00061	0.069 J	0.16	0.0091	0.073 J	0.16	0.0091
Methylene Chloride	ND	0.0021	0.00060	ND	0.0021	0.00060	ND	0.032	0.0090	ND	0.032	0.0090
t-1,2-Dichloroethene	ND	0.0021	0.00063	ND	0.0021	0.00063	ND	0.032	0.0094	ND	0.032	0.0094
1,1-Dichloroethane	ND	0.0021	0.00029	ND	0.0021	0.00029	ND	0.032	0.0043	ND	0.032	0.0043
c-1,2-Dichloroethene	ND	0.0021	0.00041	ND	0.0021	0.00041	ND	0.032	0.0061	ND	0.032	0.0061
2-Butanone	0.022	0.0021	0.0013	0.014	0.0021	0.0013	ND	0.032	0.020	0.028 J	0.032	0.020
t-Butyl Methyl Ether (MTBE)	0.0015 J	0.0021	0.00047	0.0015 J	0.0021	0.00047	ND	0.032	0.0071	0.41	0.032	0.0071
Chloroform	ND	0.0021	0.00029	ND	0.0021	0.00029	ND	0.032	0.0044	ND	0.032	0.0044
1,1,1-Trichloroethane	ND	0.0021	0.00021	ND	0.0021	0.00021	ND	0.032	0.0032	ND	0.032	0.0032
Carbon Tetrachloride	ND	0.0021	0.00037	ND	0.0021	0.00037	ND	0.032	0.0055	ND	0.032	0.0055
Benzene	0.010	0.0021	0.00020	0.010	0.0021	0.00020	1.8	0.032	0.0030	1.9	0.032	0.0030
1,2-Dichloroethane	ND	0.0021	0.00016	ND	0.0021	0.00016	ND	0.032	0.0023	ND	0.032	0.0023
Trichloroethene	ND	0.0021	0.00030	ND	0.0021	0.00030	ND	0.032	0.0045	ND	0.032	0.0045
1,2-Dichloropropane	ND	0.0021	0.00038	ND	0.0021	0.00038	ND	0.032	0.0057	ND	0.032	0.0057
Bromodichloromethane	ND	0.0021	0.00013	ND	0.0021	0.00013	ND	0.032	0.0019	ND	0.032	0.0019
c-1,3-Dichloropropene	ND	0.0021	0.00025	ND	0.0021	0.00025	ND	0.032	0.0038	ND	0.032	0.0038
4-Methyl-2-Pentanone	ND	0.0021	0.00014	ND	0.0021	0.00014	ND	0.032	0.0021	ND	0.032	0.0021
Toluene	0.0097	0.0021	0.00017	0.011	0.0021	0.00017	1.4	0.032	0.0025	1.5	0.032	0.0025
t-1,3-Dichloropropene	ND	0.0021	0.00022	ND	0.0021	0.00022	ND	0.032	0.0033	ND	0.032	0.0033
1,1,2-Trichloroethane	ND	0.0021	0.00034	ND	0.0021	0.00034	ND	0.032	0.0051	ND	0.032	0.0051
1,3-Dichloropropane	ND	0.0021	0.00010	ND	0.0021	0.00010	ND	0.032	0.0016	ND	0.032	0.0016
Tetrachloroethene	ND	0.0021	0.00025	ND	0.0021	0.00025	ND	0.032	0.0038	ND	0.032	0.0038
2-Hexanone	ND	0.0021	0.00043	ND	0.0021	0.00043	ND	0.032	0.0065	ND	0.032	0.0065
Dibromochloromethane	ND	0.0021	0.00038	ND	0.0021	0.00038	ND	0.032	0.0058	ND	0.032	0.0058
1,2-Dibromoethane	ND	0.0021	0.00019	ND	0.0021	0.00019	ND	0.032	0.0029	ND	0.032	0.0029
Chlorobenzene	ND	0.0021	0.00016	ND	0.0021	0.00016	0.010 J	0.032	0.0025	ND	0.032	0.0025
Ethylbenzene	0.0025	0.0021	0.00012	0.0028	0.0021	0.00012	0.29	0.032	0.0018	0.33	0.032	0.0018
p,&m-Xylene	0.016	0.0021	0.00024	0.017	0.0021	0.00024	1.9	0.032	0.0036	2.1	0.032	0.0036
o-Xylene	0.0080	0.0021	0.00026	0.0083	0.0021	0.00026	0.33	0.032	0.0038	0.42	0.032	0.0038



Client: Jacobs  
 Attn: Eric Davis  
 Project Name: SFPP Norwalk  
 Project No.: NA  
 Date Received: 05/08/19  
 Matrix: Air  
 Reporting Units: ppmv

EPA Method TO15

Lab No.:	K050804-01			K050804-02			K050804-03			K050804-04		
Client Sample I.D.:	VEFF-05-07			VEFF-05-07D			VPOST-05-07			VINP-05-07		
Date/Time Sampled:	5/7/19 11:50			5/7/19 11:50			5/7/19 12:00			5/7/19 12:10		
Date/Time Analyzed:	5/10/19 20:43			5/10/19 21:23			5/10/19 18:22			5/10/19 20:03		
QC Batch No.:	190510MS2A1			190510MS2A1			190510MS2A1			190510MS2A1		
Analyst Initials:	DT			DT			DT			DT		
Dilution Factor:	2.1			2.1			32			32		
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	0.00081 J	0.0021	0.00027	0.0011 J	0.0021	0.00027	0.015 J	0.032	0.0041	0.018 J	0.032	0.0041
Bromoform	ND	0.0021	0.00012	ND	0.0021	0.00012	ND	0.032	0.0018	ND	0.032	0.0018
Isopropyl benzene	0.00023 J	0.0021	0.00022	0.00026 J	0.0021	0.00022	0.0055 J	0.032	0.0033	0.0062 J	0.032	0.0033
1,1,2,2-Tetrachloroethane	ND	0.0042	0.00013	ND	0.0042	0.00013	ND	0.063	0.0019	ND	0.063	0.0019
Benzyl Chloride	ND	0.0021	0.00039	ND	0.0021	0.00039	ND	0.032	0.0058	ND	0.032	0.0058
1,2,3-Trichloropropane	ND	0.0021	0.00057	ND	0.0021	0.00057	ND	0.032	0.0085	ND	0.032	0.0085
n-Propyl Benzene	0.00046 J	0.0021	0.00012	0.00049 J	0.0021	0.00012	0.0089 J	0.032	0.0018	0.013 J	0.032	0.0018
4-Ethyl Toluene	0.0050	0.0021	0.00013	0.0052	0.0021	0.00013	0.12	0.032	0.0020	0.19	0.032	0.0020
1,3,5-Trimethylbenzene	0.0026 J	0.0042	0.00036	0.0025 J	0.0042	0.00036	0.084	0.063	0.0055	0.13	0.063	0.0055
4-Chlorotoluene	ND	0.0021	0.00025	ND	0.0021	0.00025	ND	0.032	0.0038	ND	0.032	0.0038
tert-Butylbenzene	ND	0.0021	0.00019	ND	0.0021	0.00019	ND	0.032	0.0029	ND	0.032	0.0029
1,2,4-Trimethylbenzene	0.0042	0.0042	0.00024	0.0045	0.0042	0.00024	0.079	0.063	0.0036	0.097	0.063	0.0036
sec-Butylbenzene	ND	0.0021	0.00020	ND	0.0021	0.00020	ND	0.032	0.0031	ND	0.032	0.0031
p-Isopropyltoluene	0.0022	0.0021	0.00027	0.0013 J	0.0021	0.00027	0.0076 J	0.032	0.0041	0.0057 J	0.032	0.0041
1,3-Dichlorobenzene	ND	0.0021	0.00026	ND	0.0021	0.00026	ND	0.032	0.0038	ND	0.032	0.0038
1,4-Dichlorobenzene	ND	0.0021	0.00031	0.00045 J	0.0021	0.00031	ND	0.032	0.0046	ND	0.032	0.0046
n-Butylbenzene	0.00045 J	0.0021	0.00015	0.00047 J	0.0021	0.00015	ND	0.032	0.0023	0.0072 J	0.032	0.0023
1,2-Dichlorobenzene	ND	0.0021	0.00026	ND	0.0021	0.00026	ND	0.032	0.0039	ND	0.032	0.0039
1,2,4-Trichlorobenzene	ND	0.0042	0.00035	0.00070 J	0.0042	0.00035	ND	0.063	0.0052	ND	0.063	0.0052
Hexachlorobutadiene	ND	0.0021	0.00012	ND	0.0021	0.00012	ND	0.032	0.0019	ND	0.032	0.0019
t-Butanol	0.0013 J	0.011	0.00040	0.0029 J	0.011	0.00040	ND	0.16	0.0061	0.018 J	0.16	0.0061
n-Hexane	0.015	0.011	0.00028	0.014	0.011	0.00028	3.6	0.16	0.0042	3.8	0.16	0.0042
Isopropyl ether	ND	0.011	0.00023	ND	0.011	0.00023	ND	0.16	0.0035	ND	0.16	0.0035
t-Butyl ethyl ether	ND	0.011	0.00042	ND	0.011	0.00042	ND	0.16	0.0063	ND	0.16	0.0063
2,2-Dichloropropane	ND	0.011	0.00020	ND	0.011	0.00020	ND	0.16	0.0030	ND	0.16	0.0030
t-Amyl methyl ether	ND	0.011	0.00015	ND	0.011	0.00015	ND	0.16	0.0022	ND	0.16	0.0022
1,4-Dioxane	ND	0.011	0.00037	ND	0.011	0.00037	ND	0.16	0.0055	ND	0.16	0.0055
Naphthalene	0.0016 J	0.011	0.00081	0.00095 J	0.011	0.00081	ND	0.16	0.012	ND	0.16	0.012
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: Mark Johnson  
 Mark Johnson  
 Operations Manager

Date: 5/22/19

The cover letter is an integral part of this analytical report





Client: Jacobs  
 Attn: Eric Davis  
 Project Name: SFPP Norwalk  
 Project No.: NA  
 Date Received: 05/08/19  
 Matrix: Air  
 Reporting Units: ppmv

EPA Method TO15

Lab No.:	METHOD BLANK														
Client Sample I.D.:	-														
Date/Time Sampled:	-														
Date/Time Analyzed:	5/10/19 12:09														
QC Batch No.:	190510MS2A1														
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-CI-1,1,2,2-F ethane (114)	ND	0.00020	0.000040												
Vinyl Chloride	ND	0.00020	0.000032												
Bromomethane	ND	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-CI 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	0.000037 J	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	0.000099												
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												



Client: Jacobs  
 Attn: Eric Davis  
 Project Name: SFPP Norwalk  
 Project No.: NA  
 Date Received: 05/08/19  
 Matrix: Air  
 Reporting Units: ppmv

EPA Method TO15

Lab No.:	METHOD BLANK													
Client Sample I.D.:	-													
Date/Time Sampled:	-													
Date/Time Analyzed:	5/10/19 12:09													
QC Batch No.:	190510MS2A1													
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: Mark Johnson  
 Mark Johnson  
 Operations Manager

Date: 5/22/19

The cover letter is an integral part of this analytical report



LCS/LCSD Recovery and RPD Summary Report

QC Batch #: 190510MS2A1

Matrix: Air

EPA Method TO-14/TO-15											
Lab No:	Method Blank		LCS		LCSD						
Date/Time Analyzed:	5/10/19 12:09		5/10/19 10:03	% Rec	5/10/19 10:44	% Rec					
Data File ID:	10MAY011.D		10MAY008.D	% Rec	10MAY009.D	% Rec					
Analyst Initials:	DT		DT	% Rec	DT	% Rec					
Dilution Factor:	0.2		1.0	% Rec	1.0	% Rec	Limits				
ANALYTE	Result ppbv	Spike Amount	Result ppbv	% Rec	Result ppbv	% Rec	RPD	Low %Rec	High %Rec	Max. RPD	Pass/Fail
I,1-Dichloroethene	0.0	10.0	8.3	83	8.7	87	4.9	70	130	30	Pass
Methylene Chloride	0.0	10.0	9.5	95	9.8	98	3.2	70	130	30	Pass
Trichloroethene	0.0	10.0	8.8	88	8.9	89	1.2	70	130	30	Pass
Toluene	0.0	10.0	9.4	94	9.4	94	0.0	70	130	30	Pass
1,1,2,2-Tetrachloroethane	0.0	10.0	10.0	100	10.2	102	1.6	70	130	30	Pass

RPD = Relative Percent Difference

Reviewed/Approved By: Mark Johnson  
 Mark Johnson  
 Operations Manager

Date: 5/22/19

The cover letter is an integral part of this analytical report



Client: Jacobs  
 Attn: Eric Davis  
 Project Name: SFPP Norwalk  
 Project No.: NA  
 Date Received: 05/08/19  
 Matrix: Air  
 Reporting Units: ppmv

**EPA METHOD TO3**

Lab No.:	K050804-01	K050804-02	K050804-03	K050804-04				
Client Sample I.D.:	VEFF-05-07	VEFF-05-07D	VPOST-05-07	VINF-05-07				
Date/Time Sampled:	5/7/19 11:50	5/7/19 11:50	5/7/19 12:00	5/7/19 12:10				
Date/Time Analyzed:	5/13/19 9:55	5/13/19 10:18	5/13/19 11:28	5/13/19 11:51				
QC Batch No.:	190513GC11A1	190513GC11A1	190513GC11A1	190513GC11A1				
Analyst Initials:	AS	AS	AS	AS				
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	120	2.1	120	2.1

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

Reviewed/Approved By: Mark Johnson  
 Mark Johnson  
 Operations Manager

Date 5/22/19

The cover letter is an integral part of this analytical report











June 24, 2019

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



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

### LABORATORY TEST RESULTS

Project Reference: SFPP Norwalk  
Lab Number: K060504-01/04

Enclosed are results for sample(s) received 6/05/19 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, Nils Orliczky and Danny Hill on 6/20/19.

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,

A handwritten signature in blue ink, appearing to read "Mark Johnson".

Mark Johnson  
Operations Manager  
MJohnson@AirTechLabs.com

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



K060504-01/04  
 6/5/19

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: 6/4/19  
 PAGE: 1 of 1

<b>Section A</b> Required Client Information:		<b>Section B</b> Required Project Information:		<b>Section C</b> Invoicing Information:		<b>Section D</b> 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 Name:	
Email To: eric.davis@ch2m.com vcarino@ch2m.com		Purchase Order No.:		Address: 1000 Wilshire Blvd. Suite 2100 Los Angeles, CA 90017		Signature:	
Phone: 404-323-1600 Fax:		Project Name: SFPP Norwalk		Project Manager: Joann De La Ossa		Sample Date: 6/4/19	

ITEM #	SAMPLE ID	LOCATION/ DESCRIPTION	MATRIX	SAMPLE TYPE (E-GRAV C-COMP)	CONTAINER TYPE		TOTAL # OF CONTAINERS	Analysis Test			Comments
					# OF CONTAINERS	PRESERVATIVE		TO-3 (Total VOCs as Hexane)	TO-15 (VOCs, Target Analytes)	ASTM-D 1546 (O2/Argon, CO2, CH4, H2)	
		SAMPLING									
		DATE	TIME								
01 02 03 04	VEFF-06-04	Effluent (stack)	Vapor	G	6/4/19	1150	1	X	X		Individually Certified 6-Liter SUMMA
	VEFF-06-04 D	Effluent (stack) (duplicate)	Vapor	G	6/4/19	1150	1	X	X		Individually Certified 6-Liter SUMMA
	VPOST-06-04	Influent (post-dilution)	Vapor	G	6/4/19	1155	1	X	X		Individually Certified 1-Liter SUMMA
	VINF-06-04	Influent (pre-dilution)	Vapor	G	6/4/19	1210	1	X	X	X	Batch Certified 1-Liter Summa
5											Target analytes includes Historical VOCs and remaining ATU list per subcontract
6											
7											
8											
9											
10											

Relinquished by (Signature and Printed Name):  Date / Time: 6/4/19 1500	Relinquished by (Signature and Printed Name): FRED EX Date / Time: 6/4/19 1500	Turn Around Time (TAT): <input type="checkbox"/> A = Same Day <input type="checkbox"/> B = 24 Hours <input type="checkbox"/> C = 48 Hours <input type="checkbox"/> D = 72 Hours <input type="checkbox"/> E = 5 Workdays <input checked="" type="checkbox"/> F = 10 Workdays  TAT Starts at 8 AM the following day if samples received after 3:00 PM.	Special Instruction:
Relinquished by (Signature and Printed Name): JEN EX Date / Time: 6/5/19 1152	Relinquished by (Signature and Printed Name): J-T-F Date / Time: 6/5/19 1152		

<b>Matrix:</b> W = Water O = Oil Others/Specify:	<b>Preservatives:</b> H = HCl Z = Zn/ACZ Others/Specify:	<b>Container Type:</b> T = Tube J = Jar M = Metal V = VOA B = Tedlar P = Plastic P = Pint G = Glass C = Can A = Amber
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Client: Jacobs  
 Attn: Eric Davis  
 Project Name: SFPP Norwalk  
 Project No.: NA  
 Date Received: 06/05/19  
 Matrix: Air  
 Reporting Units: ppmv

EPA Method TO15

Lab No.:	K060504-01			K060504-02			K060504-03			K060504-04		
Client Sample I.D.:	VEFF-06-04			VEFF-06-04D			VPOST-06-04			VINP-06-04		
Date/Time Sampled:	6/4/19 11:50			6/4/19 11:50			6/4/19 11:55			6/4/19 12:10		
Date/Time Analyzed:	6/13/19 14:37			6/13/19 15:18			6/13/19 15:59			6/13/19 17:27		
QC Batch No.:	190613MS2A1			190613MS2A1			190613MS2A1			190613MS2A1		
Analyst Initials:	DT			DT			DT			DT		
Dilution Factor:	1.9			1.9			28			19		
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	0.0019	0.00030	ND	0.0019	0.00030	ND	0.028	0.0043	ND	0.019	0.0030
Chloromethane	ND	0.0039	0.00043	ND	0.0039	0.00043	ND	0.056	0.0062	ND	0.039	0.0043
1,2-CI-1,1,2,2-F ethane (114)	ND	0.0019	0.00039	ND	0.0019	0.00039	ND	0.028	0.0056	ND	0.019	0.0039
Vinyl Chloride	ND	0.0019	0.00032	ND	0.0019	0.00032	ND	0.028	0.0046	ND	0.019	0.0032
Bromomethane	0.00071 J	0.0019	0.00057	0.00075 J	0.0019	0.00057	ND	0.028	0.0082	0.0071 J	0.019	0.0057
Chloroethane	ND	0.0019	0.0016	ND	0.0019	0.0016	ND	0.028	0.024	ND	0.019	0.016
Trichlorofluoromethane (11)	ND	0.0019	0.00042	ND	0.0019	0.00042	ND	0.028	0.0060	ND	0.019	0.0042
1,1-Dichloroethene	ND	0.0019	0.00044	ND	0.0019	0.00044	ND	0.028	0.0064	ND	0.019	0.0044
Carbon Disulfide	0.043	0.0097	0.00047	0.066	0.0097	0.00047	0.020 J	0.14	0.0067	0.021 J	0.097	0.0047
1,1,2-CI 1,2,2-F ethane (113)	ND	0.0019	0.00052	ND	0.0019	0.00052	ND	0.028	0.0075	ND	0.019	0.0052
Acetone	0.016	0.0097	0.00056	0.015	0.0097	0.00056	0.034 J	0.14	0.0081	0.079 J	0.097	0.0056
Methylene Chloride	ND	0.0019	0.00055	ND	0.0019	0.00055	ND	0.028	0.0080	ND	0.019	0.0055
t-1,2-Dichloroethene	ND	0.0019	0.00058	ND	0.0019	0.00058	ND	0.028	0.0084	ND	0.019	0.0058
1,1-Dichloroethane	ND	0.0019	0.00026	ND	0.0019	0.00026	ND	0.028	0.0038	ND	0.019	0.0026
c-1,2-Dichloroethene	ND	0.0019	0.00038	ND	0.0019	0.00038	ND	0.028	0.0054	ND	0.019	0.0038
2-Butanone	0.0043	0.0019	0.0012	0.0095	0.0019	0.0012	ND	0.028	0.017	0.024	0.019	0.012
t-Butyl Methyl Ether (MTBE)	0.0015 J	0.0019	0.00043	0.0016 J	0.0019	0.00043	0.32	0.028	0.0063	ND	0.019	0.0043
Chloroform	ND	0.0019	0.00027	ND	0.0019	0.00027	ND	0.028	0.0039	ND	0.019	0.0027
1,1,1-Trichloroethane	ND	0.0019	0.00019	ND	0.0019	0.00019	ND	0.028	0.0028	ND	0.019	0.0020
Carbon Tetrachloride	ND	0.0019	0.00034	ND	0.0019	0.00034	ND	0.028	0.0049	ND	0.019	0.0034
Benzene	0.0092	0.0019	0.00019	0.0092	0.0019	0.00019	1.2	0.028	0.0027	1.0	0.019	0.0019
1,2-Dichloroethane	ND	0.0019	0.00014	ND	0.0019	0.00014	0.0044 J	0.028	0.0021	0.0026 J	0.019	0.0014
Trichloroethene	ND	0.0019	0.00027	ND	0.0019	0.00027	ND	0.028	0.0040	ND	0.019	0.0028
1,2-Dichloropropane	ND	0.0019	0.00035	ND	0.0019	0.00035	ND	0.028	0.0051	ND	0.019	0.0035
Bromodichloromethane	ND	0.0019	0.00012	ND	0.0019	0.00012	ND	0.028	0.0017	ND	0.019	0.0012
c-1,3-Dichloropropene	ND	0.0019	0.00023	ND	0.0019	0.00023	ND	0.028	0.0034	ND	0.019	0.0023
4-Methyl-2-Pentanone	ND	0.0019	0.00013	ND	0.0019	0.00013	ND	0.028	0.0019	ND	0.019	0.0013
Toluene	0.0085	0.0019	0.00015	0.0086	0.0019	0.00015	0.98	0.028	0.0022	0.88	0.019	0.0015
t-1,3-Dichloropropene	ND	0.0019	0.00020	ND	0.0019	0.00020	ND	0.028	0.0029	ND	0.019	0.0020
1,1,2-Trichloroethane	ND	0.0019	0.00031	ND	0.0019	0.00031	ND	0.028	0.0045	ND	0.019	0.0031
1,3-Dichloropropane	ND	0.0019	0.000097	ND	0.0019	0.000097	ND	0.028	0.0014	ND	0.019	0.00097
Tetrachloroethene	ND	0.0019	0.00023	ND	0.0019	0.00023	ND	0.028	0.0034	ND	0.019	0.0023
2-Hexanone	ND	0.0019	0.00040	ND	0.0019	0.00040	ND	0.028	0.0058	ND	0.019	0.0040
Dibromochloromethane	ND	0.0019	0.00035	ND	0.0019	0.00035	ND	0.028	0.0051	ND	0.019	0.0035
1,2-Dibromoethane	ND	0.0019	0.00018	ND	0.0019	0.00018	ND	0.028	0.0026	ND	0.019	0.0018
Chlorobenzene	ND	0.0019	0.00015	ND	0.0019	0.00015	ND	0.028	0.0022	ND	0.019	0.0015
Ethylbenzene	0.0022	0.0019	0.00011	0.0024	0.0019	0.00011	0.25	0.028	0.0016	0.26	0.019	0.0011
p,&m-Xylene	0.019	0.0019	0.00022	0.019	0.0019	0.00022	1.6	0.028	0.0032	1.3	0.019	0.0022
o-Xylene	0.0091	0.0019	0.00024	0.0087	0.0019	0.00024	0.30	0.028	0.0034	0.25	0.019	0.0024



Client: Jacobs  
 Attn: Eric Davis  
 Project Name: SFPP Norwalk  
 Project No.: NA  
 Date Received: 06/05/19  
 Matrix: Air  
 Reporting Units: ppmv

EPA Method TO15

Lab No.:	K060504-01			K060504-02			K060504-03			K060504-04		
Client Sample I.D.:	VEFF-06-04			VEFF-06-04D			VPOST-06-04			VINP-06-04		
Date/Time Sampled:	6/4/19 11:50			6/4/19 11:50			6/4/19 11:55			6/4/19 12:10		
Date/Time Analyzed:	6/13/19 14:37			6/13/19 15:18			6/13/19 15:59			6/13/19 17:27		
QC Batch No.:	190613MS2A1			190613MS2A1			190613MS2A1			190613MS2A1		
Analyst Initials:	DT			DT			DT			DT		
Dilution Factor:	1.9			1.9			28			19		
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	0.00047 J	0.0019	0.00025	0.00072 J	0.0019	0.00025	0.012 J	0.028	0.0036	0.011 J	0.019	0.0025
Bromoform	ND	0.0019	0.00011	ND	0.0019	0.00011	ND	0.028	0.0016	ND	0.019	0.0011
Isopropyl benzene	ND	0.0019	0.00020	ND	0.0019	0.00020	0.014 J	0.028	0.0029	0.0045 J	0.019	0.0020
1,1,2,2-Tetrachloroethane	ND	0.0039	0.00012	ND	0.0039	0.00012	ND	0.056	0.0017	ND	0.039	0.0012
Benzyl Chloride	ND	0.0019	0.00036	ND	0.0019	0.00036	ND	0.028	0.0052	ND	0.019	0.0036
1,2,3-Trichloropropane	ND	0.0019	0.00052	ND	0.0019	0.00052	ND	0.028	0.0075	ND	0.019	0.0052
n-Propyl Benzene	0.00056 J	0.0019	0.00011	0.00062 J	0.0019	0.00011	0.029	0.028	0.0016	0.020	0.019	0.0011
4-Ethyl Toluene	0.0055	0.0019	0.00012	0.0057	0.0019	0.00012	0.33	0.028	0.0018	0.26	0.019	0.0012
1,3,5-Trimethylbenzene	0.0027 J	0.0039	0.00034	0.0028 J	0.0039	0.00034	0.20	0.056	0.0048	0.18	0.039	0.0034
4-Chlorotoluene	ND	0.0019	0.00023	ND	0.0019	0.00023	ND	0.028	0.0033	ND	0.019	0.0023
tert-Butylbenzene	ND	0.0019	0.00018	ND	0.0019	0.00018	ND	0.028	0.0025	ND	0.019	0.0018
1,2,4-Trimethylbenzene	0.0044	0.0039	0.00022	0.0045	0.0039	0.00022	0.058	0.056	0.0032	0.057	0.039	0.0022
sec-Butylbenzene	ND	0.0019	0.00019	ND	0.0019	0.00019	ND	0.028	0.0027	ND	0.019	0.0019
p-Isopropyltoluene	0.00074 J	0.0019	0.00025	0.00097 J	0.0019	0.00025	0.0059 J	0.028	0.0037	0.0047 J	0.019	0.0025
1,3-Dichlorobenzene	ND	0.0019	0.00024	ND	0.0019	0.00024	ND	0.028	0.0034	ND	0.019	0.0024
1,4-Dichlorobenzene	ND	0.0019	0.00028	ND	0.0019	0.00028	ND	0.028	0.0041	ND	0.019	0.0028
n-Butylbenzene	0.00057 J	0.0019	0.00014	ND	0.0019	0.00014	0.018 J	0.028	0.0021	0.0051 J	0.019	0.0014
1,2-Dichlorobenzene	ND	0.0019	0.00024	ND	0.0019	0.00024	ND	0.028	0.0035	ND	0.019	0.0024
1,2,4-Trichlorobenzene	ND	0.0039	0.00032	ND	0.0039	0.00032	ND	0.056	0.0046	ND	0.039	0.0032
Hexachlorobutadiene	ND	0.0019	0.00011	ND	0.0019	0.00011	ND	0.028	0.0016	ND	0.019	0.0011
t-Butanol	0.0012 J	0.0097	0.00037	0.0036 J	0.0097	0.00037	0.030 J	0.14	0.0054	0.038 J	0.097	0.0037
n-Hexane	0.014	0.0097	0.00026	0.014	0.0097	0.00026	2.9	0.14	0.0038	2.9	0.097	0.0026
Isopropyl ether	ND	0.0097	0.00022	ND	0.0097	0.00022	ND	0.14	0.0031	ND	0.097	0.0022
t-Butyl ethyl ether	ND	0.0097	0.00039	ND	0.0097	0.00039	ND	0.14	0.0056	ND	0.097	0.0039
2,2-Dichloropropane	ND	0.0097	0.00018	ND	0.0097	0.00018	ND	0.14	0.0027	ND	0.097	0.0018
t-Amyl methyl ether	ND	0.0097	0.00014	ND	0.0097	0.00014	ND	0.14	0.0020	ND	0.097	0.0014
1,4-Dioxane	ND	0.0097	0.00034	ND	0.0097	0.00034	ND	0.14	0.0049	ND	0.097	0.0034
Naphthalene	ND	0.0097	0.00075	ND	0.0097	0.00075	ND	0.14	0.011	ND	0.097	0.0075
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: Mark Johnson  
 Mark Johnson  
 Operations Manager

Date: 6/20/19

The cover letter is an integral part of this analytical report



Client: Jacobs  
 Attn: Eric Davis  
 Project Name: SFPP Norwalk  
 Project No.: NA  
 Date Received: 06/05/19  
 Matrix: Air  
 Reporting Units: ppmv

EPA Method TO15

Lab No.:	Method Blank													
Client Sample I.D.:	-													
Date/Time Sampled:	-													
Date/Time Analyzed:	6/13/19 4:23													
QC Batch No.:	190613MS2A1													
Analyst Initials:	DT													
Dilution Factor:	1.0													
ANALYTE	Result ppmv	RL ppmv	MDL ppmv											
Dichlorodifluoromethane (12)	ND	0.0010	0.00015											
Chloromethane	ND	0.0020	0.00022											
1,2-CI-1,1,2,2-F ethane (114)	ND	0.0010	0.00020											
Vinyl Chloride	ND	0.0010	0.00016											
Bromomethane	ND	0.0010	0.00029											
Chloroethane	ND	0.0010	0.00084											
Trichlorofluoromethane (11)	ND	0.0010	0.00022											
1,1-Dichloroethene	ND	0.0010	0.00023											
Carbon Disulfide	ND	0.0050	0.00024											
1,1,2-CI 1,2,2-F ethane (113)	ND	0.0010	0.00027											
Acetone	ND	0.0050	0.00029											
Methylene Chloride	ND	0.0010	0.00029											
t-1,2-Dichloroethene	ND	0.0010	0.00030											
1,1-Dichloroethane	ND	0.0010	0.00014											
c-1,2-Dichloroethene	ND	0.0010	0.00019											
2-Butanone	ND	0.0010	0.00062											
t-Butyl Methyl Ether (MTBE)	ND	0.0010	0.00022											
Chloroform	ND	0.0010	0.00014											
1,1,1-Trichloroethane	ND	0.0010	0.00010											
Carbon Tetrachloride	ND	0.0010	0.00017											
Benzene	0.00011 J	0.0010	0.000096											
1,2-Dichloroethane	ND	0.0010	0.000074											
Trichloroethene	ND	0.0010	0.00014											
1,2-Dichloropropane	ND	0.0010	0.00018											
Bromodichloromethane	ND	0.0010	0.000060											
c-1,3-Dichloropropene	ND	0.0010	0.00012											
4-Methyl-2-Pentanone	ND	0.0010	0.000067											
Toluene	ND	0.0010	0.000079											
t-1,3-Dichloropropene	ND	0.0010	0.00010											
1,1,2-Trichloroethane	ND	0.0010	0.00016											
1,3-Dichloropropane	ND	0.0010	0.000050											
Tetrachloroethene	ND	0.0010	0.00012											
2-Hexanone	ND	0.0010	0.00021											
Dibromochloromethane	ND	0.0010	0.00018											
1,2-Dibromoethane	ND	0.0010	0.000091											
Chlorobenzene	ND	0.0010	0.000078											
Ethylbenzene	ND	0.0010	0.000057											
p,&m-Xylene	ND	0.0010	0.00011											
o-Xylene	ND	0.0010	0.00012											



Client: Jacobs  
 Attn: Eric Davis  
 Project Name: SFPP Norwalk  
 Project No.: NA  
 Date Received: 06/05/19  
 Matrix: Air  
 Reporting Units: ppmv

EPA Method TO15

Lab No.:	Method Blank													
Client Sample I.D.:	-													
Date/Time Sampled:	-													
Date/Time Analyzed:	6/13/19 4:23													
QC Batch No.:	190613MS2A1													
Analyst Initials:	DT													
Dilution Factor:	1.0													
ANALYTE	Result ppmv	RL ppmv	MDL ppmv											
Styrene	ND	0.0010	0.00013											
Bromoform	ND	0.0010	0.000056											
Isopropyl benzene	ND	0.0010	0.00010											
1,1,2,2-Tetrachloroethane	ND	0.0020	0.000061											
Benzyl Chloride	ND	0.0010	0.00018											
1,2,3-Trichloropropane	ND	0.0010	0.00027											
n-Propyl Benzene	ND	0.0010	0.000058											
4-Ethyl Toluene	ND	0.0010	0.000063											
1,3,5-Trimethylbenzene	ND	0.0020	0.00017											
4-Chlorotoluene	ND	0.0010	0.00012											
tert-Butylbenzene	ND	0.0010	0.000091											
1,2,4-Trimethylbenzene	ND	0.0020	0.00011											
sec-Butylbenzene	ND	0.0010	0.000097											
p-Isopropyltoluene	ND	0.0010	0.00013											
1,3-Dichlorobenzene	ND	0.0010	0.00012											
1,4-Dichlorobenzene	ND	0.0010	0.00015											
n-Butylbenzene	ND	0.0010	0.000073											
1,2-Dichlorobenzene	ND	0.0010	0.00012											
1,2,4-Trichlorobenzene	ND	0.0020	0.00017											
Hexachlorobutadiene	ND	0.0010	0.000059											
t-Butanol	ND	0.0050	0.00019											
n-Hexane	ND	0.0050	0.00013											
Isopropyl ether	ND	0.0050	0.00011											
t-Butyl ethyl ether	ND	0.0050	0.00020											
2,2-Dichloropropane	ND	0.0050	0.000095											
t-Amyl methyl ether	ND	0.0050	0.000071											
1,4-Dioxane	ND	0.0050	0.00017											
Naphthalene	ND	0.0050	0.00038											
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: Mark Johnson  
 Mark Johnson  
 Operations Manager

Date: 6/20/19

The cover letter is an integral part of this analytical report



LCS/LCSD Recovery and RPD Summary Report

QC Batch #: 190613MS2A1

Matrix: Air

EPA Method TO-14/TO-15											
Lab No:	Method Blank		LCS		LCSD						
Date/Time Analyzed:	6/13/19 4:23		6/13/19 3:40		6/13/19 7:58						
Data File ID:	13JUN006.D		13JUN005.D		13JUN009.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	9.3	93	9.0	90	3.7	70	130	30	Pass
Methylene Chloride	0.0	10.0	10.3	103	10.3	103	0.4	70	130	30	Pass
Trichloroethene	0.0	10.0	10.0	100	9.7	97	3.3	70	130	30	Pass
Toluene	0.0	10.0	10.1	101	9.9	99	1.4	70	130	30	Pass
1,1,2,2-Tetrachloroethane	0.0	10.0	10.0	100	10.2	102	2.1	70	130	30	Pass

RPD = Relative Percent Difference

Reviewed/Approved By: Mark Johnson   
 Mark Johnson  
 Operations Manager

Date: 6/20/19

The cover letter is an integral part of this analytical report



Client: Jacobs  
 Attn: Eric Davis  
 Project Name: SFPP Norwalk  
 Project No.: NA  
 Date Received: 06/05/19  
 Matrix: Air  
 Reporting Units: ppmv

**EPA METHOD TO3**

Lab No.:	K060504-01	K060504-02	K060504-03	K060504-04				
Client Sample I.D.:	VEFF-06-04	VEFF-06-04D	VPOST-06-04	VINF-06-04				
Date/Time Sampled:	6/4/19 11:50	6/4/19 11:50	6/4/19 11:55	6/4/19 12:10				
Date/Time Analyzed:	6/7/19 14:30	6/7/19 14:53	6/7/19 15:16	6/7/19 15:39				
QC Batch No.:	190607GC11A1	190607GC11A1	190607GC11A1	190607GC11A1				
Analyst Initials:	AS	AS	AS	AS				
Dilution Factor:	1.9	1.9	1.9	1.9				
ANALYTE	Result ppmv	RL ppmv	Result ppmv	RL ppmv	Result ppmv	RL ppmv	Result ppmv	RL ppmv
TVOC as Hexane	ND	1.9	ND	1.9	120	1.9	110	1.9

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

Reviewed/Approved By: Mark Johnson  
 Mark Johnson  
 Operations Manager

Date 6/20/19

The cover letter is an integral part of this analytical report







Client: Jacobs  
 Attn: Eric Davis  
 Project Name: SFPP Norwalk  
 Project No.: NA  
 Date Received: 06/05/19  
 Matrix: Air  
 Reporting Units: % v/v

ASTM D1946

Lab No.:	K060504-04						
Client Sample I.D.:	VINF-06-04						
Date/Time Sampled:	6/4/19 12:10						
Date/Time Analyzed:	6/7/19 13:26						
QC Batch No.:	190607GC8A1						
Analyst Initials:	CM/AS						
Dilution Factor:	1.9						
ANALYTE	Result % v/v	RL % v/v					
Carbon Dioxide	0.64	0.019					
Oxygen/Argon	21	0.97					
Nitrogen	78	1.9					
Methane	0.0037	0.0019					

Results normalized including non-methane hydrocarbons

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

Reviewed/Approved By: Mark Johnson  
 Mark Johnson  
 Operations Manager

Date: 6/20/19

The cover letter is an integral part of this analytical report





May 06, 2019

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

TEL:

FAX:

Workorder No.: N035345

RE: SFPP Norwalk

Attention: Eric Davis

Enclosed are the results for sample(s) received on April 30, 2019 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

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**CLIENT:** CH2MHill  
**Project:** SFPP Norwalk  
**Lab Order:** N035345

**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.

Samples were 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.

Analytical comments for EPA 8260B:

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria on analyte Tert-Butanol possibly due to matrix interference. The associated Laboratory Control Sample (LCS) recovery was acceptable.



**CLIENT:** CH2MHill  
**Project:** SFPP Norwalk  
**Lab Order:** N035345  
**Contract No:**

**Work Order Sample Summary**

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N035345-001A	INF-04-29	Wastewater	4/29/2019 12:35:00 PM	4/30/2019	5/6/2019
N035345-001B	INF-04-29	Wastewater	4/29/2019 12:35:00 PM	4/30/2019	5/6/2019
N035345-001C	INF-04-29	Wastewater	4/29/2019 12:35:00 PM	4/30/2019	5/6/2019



**ASSET Laboratories**

**ANALYTICAL RESULTS**

Print Date: 06-May-19

**CLIENT:** CH2MHill  
**Lab Order:** N035345  
**Project:** SFPP Norwalk  
**Lab ID:** N035345-001

**Client Sample ID:** INF-04-29  
**Collection Date:** 4/29/2019 12:35:00 PM  
**Matrix:** WASTEWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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**VOLATILE ORGANIC COMPOUNDS BY GC/MS**

**EPA 8260B**

RunID: CA01638-MS10_190501B	QC Batch: CA19VW028	PrepDate:	Analyst: AW			
1,1,1,2-Tetrachloroethane	ND	0.38	1.0	ug/L	1	5/1/2019 08:31 PM
1,1,1-Trichloroethane	ND	0.38	1.0	ug/L	1	5/1/2019 08:31 PM
1,1,2,2-Tetrachloroethane	ND	0.34	1.0	ug/L	1	5/1/2019 08:31 PM
1,1,2-Trichloroethane	ND	0.29	1.0	ug/L	1	5/1/2019 08:31 PM
1,1-Dichloroethane	ND	0.45	0.50	ug/L	1	5/1/2019 08:31 PM
1,1-Dichloroethene	ND	0.34	1.0	ug/L	1	5/1/2019 08:31 PM
1,1-Dichloropropene	ND	0.32	1.0	ug/L	1	5/1/2019 08:31 PM
1,2,3-Trichlorobenzene	ND	0.28	1.0	ug/L	1	5/1/2019 08:31 PM
1,2,3-Trichloropropane	ND	0.26	1.0	ug/L	1	5/1/2019 08:31 PM
1,2,4-Trichlorobenzene	ND	0.21	1.0	ug/L	1	5/1/2019 08:31 PM
1,2,4-Trimethylbenzene	ND	0.33	1.0	ug/L	1	5/1/2019 08:31 PM
1,2-Dibromo-3-chloropropane	ND	0.67	2.0	ug/L	1	5/1/2019 08:31 PM
1,2-Dibromoethane	ND	0.31	1.0	ug/L	1	5/1/2019 08:31 PM
1,2-Dichlorobenzene	ND	0.29	1.0	ug/L	1	5/1/2019 08:31 PM
1,2-Dichloroethane	ND	0.29	0.50	ug/L	1	5/1/2019 08:31 PM
1,2-Dichloropropane	ND	0.24	1.0	ug/L	1	5/1/2019 08:31 PM
1,3,5-Trimethylbenzene	ND	0.27	1.0	ug/L	1	5/1/2019 08:31 PM
1,3-Dichlorobenzene	ND	0.28	1.0	ug/L	1	5/1/2019 08:31 PM
1,3-Dichloropropane	ND	0.32	1.0	ug/L	1	5/1/2019 08:31 PM
1,4-Dichlorobenzene	ND	0.32	1.0	ug/L	1	5/1/2019 08:31 PM
2,2-Dichloropropane	ND	0.32	1.0	ug/L	1	5/1/2019 08:31 PM
2-Butanone	5.8	4.9	10	J ug/L	1	5/1/2019 08:31 PM
2-Chlorotoluene	ND	0.28	1.0	ug/L	1	5/1/2019 08:31 PM
4-Chlorotoluene	ND	0.30	1.0	ug/L	1	5/1/2019 08:31 PM
4-Isopropyltoluene	ND	0.33	1.0	ug/L	1	5/1/2019 08:31 PM
4-Methyl-2-pentanone	ND	3.2	10	ug/L	1	5/1/2019 08:31 PM
Acetone	ND	9.7	10	ug/L	1	5/1/2019 08:31 PM
Benzene	ND	0.34	1.0	ug/L	1	5/1/2019 08:31 PM
Bromobenzene	ND	0.25	1.0	ug/L	1	5/1/2019 08:31 PM
Bromochloromethane	ND	0.41	1.0	ug/L	1	5/1/2019 08:31 PM
Bromodichloromethane	ND	0.38	1.0	ug/L	1	5/1/2019 08:31 PM
Bromoform	ND	0.39	1.0	ug/L	1	5/1/2019 08:31 PM
Bromomethane	ND	0.79	1.0	ug/L	1	5/1/2019 08:31 PM
Carbon disulfide	ND	0.81	1.0	ug/L	1	5/1/2019 08:31 PM
Carbon tetrachloride	ND	0.40	0.50	ug/L	1	5/1/2019 08:31 PM
Chlorobenzene	ND	0.30	1.0	ug/L	1	5/1/2019 08:31 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



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**ANALYTICAL RESULTS**

Print Date: 06-May-19

**CLIENT:** CH2MHill  
**Lab Order:** N035345  
**Project:** SFPP Norwalk  
**Lab ID:** N035345-001

**Client Sample ID:** INF-04-29  
**Collection Date:** 4/29/2019 12:35:00 PM  
**Matrix:** WASTEWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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**VOLATILE ORGANIC COMPOUNDS BY GC/MS**

**EPA 8260B**

RunID: CA01638-MS10_190501B	QC Batch: CA19VW028	PrepDate:	Analyst: AW			
Chloroethane	ND	0.97	1.0	ug/L	1	5/1/2019 08:31 PM
Chloroform	ND	0.27	1.0	ug/L	1	5/1/2019 08:31 PM
Chloromethane	ND	0.36	1.0	ug/L	1	5/1/2019 08:31 PM
cis-1,2-Dichloroethene	ND	0.32	1.0	ug/L	1	5/1/2019 08:31 PM
cis-1,3-Dichloropropene	ND	0.28	1.0	ug/L	1	5/1/2019 08:31 PM
Di-isopropyl ether	2.7	0.079	1.0	ug/L	1	5/1/2019 08:31 PM
Dibromochloromethane	ND	0.41	1.0	ug/L	1	5/1/2019 08:31 PM
Dibromomethane	ND	0.28	1.0	ug/L	1	5/1/2019 08:31 PM
Dichlorodifluoromethane	ND	0.29	1.0	ug/L	1	5/1/2019 08:31 PM
Ethyl tert-butyl ether	ND	0.30	1.0	ug/L	1	5/1/2019 08:31 PM
Ethylbenzene	ND	0.31	1.0	ug/L	1	5/1/2019 08:31 PM
Freon-113	ND	0.35	1.0	ug/L	1	5/1/2019 08:31 PM
Hexachlorobutadiene	ND	0.30	1.0	ug/L	1	5/1/2019 08:31 PM
Isopropylbenzene	ND	0.26	1.0	ug/L	1	5/1/2019 08:31 PM
m,p-Xylene	ND	0.23	1.0	ug/L	1	5/1/2019 08:31 PM
Methylene chloride	ND	1.9	2.0	ug/L	1	5/1/2019 08:31 PM
MTBE	1.2	0.34	1.0	ug/L	1	5/1/2019 08:31 PM
n-Butylbenzene	ND	0.34	1.0	ug/L	1	5/1/2019 08:31 PM
n-Propylbenzene	ND	0.32	1.0	ug/L	1	5/1/2019 08:31 PM
Naphthalene	ND	0.42	1.0	ug/L	1	5/1/2019 08:31 PM
o-Xylene	ND	0.31	1.0	ug/L	1	5/1/2019 08:31 PM
sec-Butylbenzene	ND	0.32	1.0	ug/L	1	5/1/2019 08:31 PM
Styrene	ND	0.21	1.0	ug/L	1	5/1/2019 08:31 PM
Tert-amyl methyl ether	ND	0.26	1.0	ug/L	1	5/1/2019 08:31 PM
Tert-Butanol	1100	24	50	ug/L	10	5/2/2019 03:43 PM
tert-Butylbenzene	ND	0.28	1.0	ug/L	1	5/1/2019 08:31 PM
Tetrachloroethene	ND	0.30	1.0	ug/L	1	5/1/2019 08:31 PM
Toluene	ND	0.46	2.0	ug/L	1	5/1/2019 08:31 PM
trans-1,2-Dichloroethene	ND	0.40	1.0	ug/L	1	5/1/2019 08:31 PM
trans-1,3-Dichloropropene	ND	0.25	1.0	ug/L	1	5/1/2019 08:31 PM
Trichloroethene	ND	0.37	1.0	ug/L	1	5/1/2019 08:31 PM
Trichlorofluoromethane	ND	0.37	1.0	ug/L	1	5/1/2019 08:31 PM
Vinyl chloride	ND	0.29	0.50	ug/L	1	5/1/2019 08:31 PM
Xylenes, Total	ND	1.5	2.0	ug/L	1	5/1/2019 08:31 PM
Surr: 1,2-Dichloroethane-d4	111	0	72-119	%REC	1	5/1/2019 08:31 PM
Surr: 1,2-Dichloroethane-d4	110	0	72-119	%REC	10	5/2/2019 03:43 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



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**ANALYTICAL RESULTS**

Print Date: 06-May-19

**CLIENT:** CH2MHill  
**Lab Order:** N035345  
**Project:** SFPP Norwalk  
**Lab ID:** N035345-001

**Client Sample ID:** INF-04-29  
**Collection Date:** 4/29/2019 12:35:00 PM  
**Matrix:** WASTEWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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**VOLATILE ORGANIC COMPOUNDS BY GC/MS**

**EPA 8260B**

RunID:	CA01638-MS10_190501B	QC Batch:	CA19VW028	PrepDate:	Analyst:	AW	
Surr:	4-Bromofluorobenzene	96.8	0	76-119	%REC	10	5/2/2019 03:43 PM
Surr:	4-Bromofluorobenzene	101	0	76-119	%REC	1	5/1/2019 08:31 PM
Surr:	Dibromofluoromethane	112	0	85-115	%REC	10	5/2/2019 03:43 PM
Surr:	Dibromofluoromethane	109	0	85-115	%REC	1	5/1/2019 08:31 PM
Surr:	Toluene-d8	101	0	81-120	%REC	1	5/1/2019 08:31 PM
Surr:	Toluene-d8	107	0	81-120	%REC	10	5/2/2019 03:43 PM

**TPH EXTRACTABLE BY GC/FID**

**EPA 3510C**

**EPA 8015B**

RunID:	NV00922-GC3_190502C	QC Batch:	73674	PrepDate:	5/2/2019	Analyst:	LLR
TPH-Diesel (C13-C22)	220	16	26	ug/L	1	5/3/2019 03:29 PM	
TPH-Oil (C23-C36)	97	14	26	ug/L	1	5/3/2019 03:29 PM	
Surr: Octacosane	73.8	0	26-152	%REC	1	5/3/2019 03:29 PM	
Surr: p-Terphenyl	72.5	0	57-132	%REC	1	5/3/2019 03:29 PM	

**GASOLINE RANGE ORGANICS BY GC/FID**

**EPA 8015B**

RunID:	NV00922-GC4_190501B	QC Batch:	E19VW026	PrepDate:	Analyst:	QBM
TPH-Gasoline (C4-C12)	33	21	50	J ug/L	1	5/2/2019 05:32 AM
Surr: Chlorobenzene - d5	102	0	74-138	%REC	1	5/2/2019 05:32 AM

**TOTAL TPH**

**EPA 8015B**

RunID:	NV00922-GC3_190502C	QC Batch:	R133646	PrepDate:	Analyst:	LLR
Total TPH	350	21	100	ug/L	1	5/2/2019

<b>Qualifiers:</b>	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



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**CLIENT:** CH2MHill  
**Work Order:** N035345  
**Project:** SFPP Norwalk

**ANALYTICAL QC SUMMARY REPORT**

**TestCode: 8015\_W\_FP\_SFPP**

Sample ID: <b>MB-73674</b>	SampType: <b>MBLK</b>	TestCode: <b>8015_W_FP_</b>	Units: <b>ug/L</b>	Prep Date: <b>5/2/2019</b>	RunNo: <b>133646</b>						
Client ID: <b>PBW</b>	Batch ID: <b>73674</b>	TestNo: <b>EPA 8015B EPA 3510C</b>		Analysis Date: <b>5/3/2019</b>	SeqNo: <b>3373765</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH-Diesel (C13-C22)	ND	25									
TPH-Oil (C23-C36)	ND	25									
Surr: Octacosane	63.831		80.00		79.8	26	152				
Surr: p-Terphenyl	63.685		80.00		79.6	57	132				

Sample ID: <b>MB-73674</b>	SampType: <b>MBLK</b>	TestCode: <b>8015_W_FP_</b>	Units: <b>ug/L</b>	Prep Date: <b>5/2/2019</b>	RunNo: <b>133670</b>						
Client ID: <b>PBW</b>	Batch ID: <b>73674</b>	TestNo: <b>EPA 8015B EPA 3510C</b>		Analysis Date: <b>5/3/2019</b>	SeqNo: <b>3374978</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH-Diesel (C13-C22)	ND	25									
TPH-Oil (C23-C36)	16.409	25									J
Surr: Octacosane	88.942		80.00		111	26	152				
Surr: p-Terphenyl	75.353		80.00		94.2	57	132				

**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



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**CLIENT:** CH2MHill  
**Work Order:** N035345  
**Project:** SFPP Norwalk

## ANALYTICAL QC SUMMARY REPORT

**TestCode: 8015\_W\_SFPPTOT**

Sample ID: <b>MB-R133646</b>	SampType: <b>MBLK</b>	TestCode: <b>8015_W_SFP</b>	Units: <b>ug/L</b>	Prep Date:	RunNo: <b>133646</b>						
Client ID: <b>PBW</b>	Batch ID: <b>R133646</b>	TestNo: <b>EPA 8015B</b>		Analysis Date: <b>5/2/2019</b>	SeqNo: <b>3374029</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total TPH	23.000	100									J

**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                 |



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"Serving Clients with Passion and Professionalism"

**CLIENT:** CH2MHill  
**Work Order:** N035345  
**Project:** SFPP Norwalk

## ANALYTICAL QC SUMMARY REPORT

**TestCode: 8015GAS\_WSFPP**

Sample ID: <b>E190501LCS2</b>	SampType: <b>LCS</b>	TestCode: <b>8015GAS_WS</b> Units: <b>ug/L</b>	Prep Date:	RunNo: <b>133611</b>							
Client ID: <b>LCSW</b>	Batch ID: <b>E19VW026</b>	TestNo: <b>EPA 8015B</b>	Analysis Date: <b>5/1/2019</b>	SeqNo: <b>3371415</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH-Gasoline (C4-C12)	997.000	50	1000	0	99.7	67	136				
Surr: Chlorobenzene - d5	46203.000		50000		92.4	74	138				

Sample ID: <b>E190501MB2</b>	SampType: <b>MBLK</b>	TestCode: <b>8015GAS_WS</b> Units: <b>ug/L</b>	Prep Date:	RunNo: <b>133611</b>							
Client ID: <b>PBW</b>	Batch ID: <b>E19VW026</b>	TestNo: <b>EPA 8015B</b>	Analysis Date: <b>5/1/2019</b>	SeqNo: <b>3371416</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH-Gasoline (C4-C12)	23.000	50									J
Surr: Chlorobenzene - d5	49168.000		50000		98.3	74	138				

Sample ID: <b>N035307-001CMS</b>	SampType: <b>MS</b>	TestCode: <b>8015GAS_WS</b> Units: <b>ug/L</b>	Prep Date:	RunNo: <b>133611</b>							
Client ID: <b>ZZZZZ</b>	Batch ID: <b>E19VW026</b>	TestNo: <b>EPA 8015B</b>	Analysis Date: <b>5/2/2019</b>	SeqNo: <b>3371423</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH-Gasoline (C4-C12)	979.000	50	1000	24.00	95.5	67	136				
Surr: Chlorobenzene - d5	47581.000		50000		95.2	74	138				

Sample ID: <b>N035307-001CMSD</b>	SampType: <b>MSD</b>	TestCode: <b>8015GAS_WS</b> Units: <b>ug/L</b>	Prep Date:	RunNo: <b>133611</b>							
Client ID: <b>ZZZZZ</b>	Batch ID: <b>E19VW026</b>	TestNo: <b>EPA 8015B</b>	Analysis Date: <b>5/2/2019</b>	SeqNo: <b>3371424</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH-Gasoline (C4-C12)	923.000	50	1000	24.00	89.9	67	136	979.0	5.89	30	
Surr: Chlorobenzene - d5	44709.000		50000		89.4	74	138		0	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                 |



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"Serving Clients with Passion and Professionalism"

**CLIENT:** CH2MHill  
**Work Order:** N035345  
**Project:** SFPP Norwalk

## ANALYTICAL QC SUMMARY REPORT

**TestCode: 8260\_WP\_SFPP**

Sample ID: <b>CA190501-LCS</b>	SampType: <b>LCS</b>	TestCode: <b>8260_WP_SF</b>	Units: <b>ug/L</b>	Prep Date:	RunNo: <b>133602</b>						
Client ID: <b>LCSW</b>	Batch ID: <b>CA19VW028</b>	TestNo: <b>EPA 8260B</b>		Analysis Date: <b>5/1/2019</b>	SeqNo: <b>3371007</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1,1,2-Tetrachloroethane	19.130	1.0	20.00	0	95.7	81	129				
1,1,1-Trichloroethane	20.020	1.0	20.00	0	100	67	132				
1,1,2,2-Tetrachloroethane	18.210	1.0	20.00	0	91.1	63	128				
1,1,2-Trichloroethane	19.370	1.0	20.00	0	96.9	75	125				
1,1-Dichloroethane	19.880	0.50	20.00	0	99.4	69	133				
1,1-Dichloroethene	17.500	1.0	20.00	0	87.5	68	130				
1,1-Dichloropropene	21.830	1.0	20.00	0	109	73	132				
1,2,3-Trichlorobenzene	20.270	1.0	20.00	0	101	67	137				
1,2,3-Trichloropropane	19.210	1.0	20.00	0	96.0	73	124				
1,2,4-Trichlorobenzene	19.950	1.0	20.00	0	99.8	66	134				
1,2,4-Trimethylbenzene	19.980	1.0	20.00	0	99.9	74	132				
1,2-Dibromo-3-chloropropane	17.430	2.0	20.00	0	87.2	50	132				
1,2-Dibromoethane	18.890	1.0	20.00	0	94.4	80	121				
1,2-Dichlorobenzene	19.790	1.0	20.00	0	99.0	71	122				
1,2-Dichloroethane	20.010	0.50	20.00	0	100	69	132				
1,2-Dichloropropane	21.220	1.0	20.00	0	106	75	125				
1,3,5-Trimethylbenzene	19.660	1.0	20.00	0	98.3	74	131				
1,3-Dichlorobenzene	20.220	1.0	20.00	0	101	75	124				
1,3-Dichloropropane	20.380	1.0	20.00	0	102	73	126				
1,4-Dichlorobenzene	19.620	1.0	20.00	0	98.1	74	123				
2,2-Dichloropropane	21.570	1.0	20.00	0	108	69	137				
2-Butanone	167.580	10	200.0	0	83.8	49	136				
2-Chlorotoluene	21.040	1.0	20.00	0	105	73	126				
4-Chlorotoluene	18.920	1.0	20.00	0	94.6	74	128				
4-Isopropyltoluene	19.090	1.0	20.00	0	95.4	73	130				
4-Methyl-2-pentanone	200.550	10	200.0	0	100	58	134				
Acetone	171.660	10	200.0	0	85.8	40	135				
Benzene	20.000	1.0	20.00	0	100	81	122				
Bromobenzene	20.810	1.0	20.00	0	104	76	124				
Bromochloromethane	17.720	1.0	20.00	0	88.6	65	129				

**Qualifiers:**

- |  |  |  |
|--|--|--|
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"Serving Clients with Passion and Professionalism"

**CLIENT:** CH2MHill  
**Work Order:** N035345  
**Project:** SFPP Norwalk

## ANALYTICAL QC SUMMARY REPORT

**TestCode: 8260\_WP\_SFPP**

Sample ID: <b>CA190501-LCS</b>	SampType: <b>LCS</b>	TestCode: <b>8260_WP_SF</b>	Units: <b>ug/L</b>	Prep Date:	RunNo: <b>133602</b>
Client ID: <b>LCSW</b>	Batch ID: <b>CA19VW028</b>	TestNo: <b>EPA 8260B</b>		Analysis Date: <b>5/1/2019</b>	SeqNo: <b>3371007</b>

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Bromodichloromethane	18.620	1.0	20.00	0	93.1	76	121				
Bromoform	20.970	1.0	20.00	0	105	69	128				
Bromomethane	24.150	1.0	20.00	0	121	53	141				
Carbon disulfide	17.800	1.0	20.00	0	89.0	75	125				
Carbon tetrachloride	20.290	0.50	20.00	0	101	66	138				
Chlorobenzene	20.600	1.0	20.00	0	103	81	122				
Chloroethane	21.990	1.0	20.00	0	110	58	133				
Chloroform	18.450	1.0	20.00	0	92.2	69	128				
Chloromethane	20.440	1.0	20.00	0	102	56	131				
cis-1,2-Dichloroethene	18.530	1.0	20.00	0	92.6	72	126				
cis-1,3-Dichloropropene	18.490	1.0	20.00	0	92.5	69	131				
Di-isopropyl ether	17.530	1.0	20.00	0	87.6	70	130				
Dibromochloromethane	19.620	1.0	20.00	0	98.1	66	133				
Dibromomethane	20.090	1.0	20.00	0	100	76	125				
Dichlorodifluoromethane	19.860	1.0	20.00	0	99.3	53	153				
Ethyl tert-butyl ether	18.030	1.0	20.00	0	90.2	70	130				
Ethylbenzene	21.530	1.0	20.00	0	108	73	127				
Freon-113	19.420	1.0	20.00	0	97.1	75	125				
Hexachlorobutadiene	20.220	1.0	20.00	0	101	67	131				
Isopropylbenzene	18.610	1.0	20.00	0	93.0	75	127				
m,p-Xylene	39.390	1.0	40.00	0	98.5	76	128				
Methylene chloride	17.150	2.0	20.00	0	85.8	63	137				
MTBE	16.390	1.0	20.00	0	82.0	65	123				
n-Butylbenzene	19.450	1.0	20.00	0	97.3	69	137				
n-Propylbenzene	19.200	1.0	20.00	0	96.0	72	129				
Naphthalene	16.750	1.0	20.00	0	83.8	54	138				
o-Xylene	18.160	1.0	20.00	0	90.8	80	121				
sec-Butylbenzene	19.070	1.0	20.00	0	95.4	72	127				
Styrene	19.460	1.0	20.00	0	97.3	65	134				
Tert-amyl methyl ether	18.240	1.0	20.00	0	91.2	70	130				

**Qualifiers:**

- |  |  |  |
|--|--|--|
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"Serving Clients with Passion and Professionalism"

**CLIENT:** CH2MHill  
**Work Order:** N035345  
**Project:** SFPP Norwalk

## ANALYTICAL QC SUMMARY REPORT

**TestCode: 8260\_WP\_SFPP**

Sample ID: <b>CA190501-LCS</b>	SampType: <b>LCS</b>	TestCode: <b>8260_WP_SF</b>	Units: <b>ug/L</b>	Prep Date:	RunNo: <b>133602</b>						
Client ID: <b>LCSW</b>	Batch ID: <b>CA19VW028</b>	TestNo: <b>EPA 8260B</b>		Analysis Date: <b>5/1/2019</b>	SeqNo: <b>3371007</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Tert-Butanol	83.800	5.0	100.0	0	83.8	70	130				
tert-Butylbenzene	18.770	1.0	20.00	0	93.8	70	129				
Tetrachloroethene	20.840	1.0	20.00	0	104	66	128				
Toluene	19.500	2.0	20.00	0	97.5	77	122				
trans-1,2-Dichloroethene	18.660	1.0	20.00	0	93.3	63	137				
trans-1,3-Dichloropropene	20.090	1.0	20.00	0	100	59	135				
Trichloroethene	18.690	1.0	20.00	0	93.5	70	127				
Trichlorofluoromethane	22.380	1.0	20.00	0	112	57	129				
Vinyl chloride	21.570	0.50	20.00	0	108	50	134				
Xylenes, Total	57.550	2.0	60.00	0	95.9	75	125				
Surr: 1,2-Dichloroethane-d4	24.320		25.00		97.3	72	119				
Surr: 4-Bromofluorobenzene	27.850		25.00		111	76	119				
Surr: Dibromofluoromethane	24.230		25.00		96.9	85	115				
Surr: Toluene-d8	25.610		25.00		102	81	120				

Sample ID: <b>CA190501-LCSD</b>	SampType: <b>LCSD</b>	TestCode: <b>8260_WP_SF</b>	Units: <b>ug/L</b>	Prep Date:	RunNo: <b>133602</b>						
Client ID: <b>LCSS02</b>	Batch ID: <b>CA19VW028</b>	TestNo: <b>EPA 8260B</b>		Analysis Date: <b>5/1/2019</b>	SeqNo: <b>3371008</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1,1,2-Tetrachloroethane	19.380	1.0	20.00	0	96.9	81	129	19.13	1.30	20	
1,1,1-Trichloroethane	19.000	1.0	20.00	0	95.0	67	132	20.02	5.23	20	
1,1,2,2-Tetrachloroethane	18.610	1.0	20.00	0	93.0	63	128	18.21	2.17	20	
1,1,2-Trichloroethane	19.370	1.0	20.00	0	96.9	75	125	19.37	0	20	
1,1-Dichloroethane	19.960	0.50	20.00	0	99.8	69	133	19.88	0.402	20	
1,1-Dichloroethene	16.460	1.0	20.00	0	82.3	68	130	17.50	6.12	20	
1,1-Dichloropropene	20.600	1.0	20.00	0	103	73	132	21.83	5.80	20	
1,2,3-Trichlorobenzene	20.610	1.0	20.00	0	103	67	137	20.27	1.66	20	
1,2,3-Trichloropropane	19.460	1.0	20.00	0	97.3	73	124	19.21	1.29	20	
1,2,4-Trichlorobenzene	20.210	1.0	20.00	0	101	66	134	19.95	1.29	20	
1,2,4-Trimethylbenzene	19.070	1.0	20.00	0	95.4	74	132	19.98	4.66	20	

**Qualifiers:**

- |  |  |  |
|--|--|--|
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| 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**  
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**CLIENT:** CH2MHill  
**Work Order:** N035345  
**Project:** SFPP Norwalk

## ANALYTICAL QC SUMMARY REPORT

**TestCode: 8260\_WP\_SFPP**

Sample ID: <b>CA190501-LCSD</b>	SampType: <b>LCSD</b>	TestCode: <b>8260_WP_SF</b>	Units: <b>ug/L</b>	Prep Date:	RunNo: <b>133602</b>
Client ID: <b>LCSS02</b>	Batch ID: <b>CA19VW028</b>	TestNo: <b>EPA 8260B</b>		Analysis Date: <b>5/1/2019</b>	SeqNo: <b>3371008</b>

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,2-Dibromo-3-chloropropane	18.780	2.0	20.00	0	93.9	50	132	17.43	7.46	20	
1,2-Dibromoethane	19.380	1.0	20.00	0	96.9	80	121	18.89	2.56	20	
1,2-Dichlorobenzene	19.350	1.0	20.00	0	96.8	71	122	19.79	2.25	20	
1,2-Dichloroethane	20.420	0.50	20.00	0	102	69	132	20.01	2.03	20	
1,2-Dichloropropane	20.270	1.0	20.00	0	101	75	125	21.22	4.58	20	
1,3,5-Trimethylbenzene	18.320	1.0	20.00	0	91.6	74	131	19.66	7.06	20	
1,3-Dichlorobenzene	19.790	1.0	20.00	0	99.0	75	124	20.22	2.15	20	
1,3-Dichloropropane	20.020	1.0	20.00	0	100	73	126	20.38	1.78	20	
1,4-Dichlorobenzene	19.900	1.0	20.00	0	99.5	74	123	19.62	1.42	20	
2,2-Dichloropropane	19.500	1.0	20.00	0	97.5	69	137	21.57	10.1	20	
2-Butanone	179.030	10	200.0	0	89.5	49	136	167.6	6.61	20	
2-Chlorotoluene	20.160	1.0	20.00	0	101	73	126	21.04	4.27	20	
4-Chlorotoluene	18.090	1.0	20.00	0	90.4	74	128	18.92	4.49	20	
4-Isopropyltoluene	18.010	1.0	20.00	0	90.1	73	130	19.09	5.82	20	
4-Methyl-2-pentanone	211.070	10	200.0	0	106	58	134	200.6	5.11	20	
Acetone	183.140	10	200.0	0	91.6	40	135	171.7	6.47	20	
Benzene	19.470	1.0	20.00	0	97.4	81	122	20.00	2.69	20	
Bromobenzene	19.610	1.0	20.00	0	98.0	76	124	20.81	5.94	20	
Bromochloromethane	18.580	1.0	20.00	0	92.9	65	129	17.72	4.74	20	
Bromodichloromethane	18.150	1.0	20.00	0	90.8	76	121	18.62	2.56	20	
Bromoform	20.350	1.0	20.00	0	102	69	128	20.97	3.00	20	
Bromomethane	25.320	1.0	20.00	0	127	53	141	24.15	4.73	20	
Carbon disulfide	17.510	1.0	20.00	0	87.6	75	125	17.80	1.64	20	
Carbon tetrachloride	19.460	0.50	20.00	0	97.3	66	138	20.29	4.18	20	
Chlorobenzene	20.070	1.0	20.00	0	100	81	122	20.60	2.61	20	
Chloroethane	22.540	1.0	20.00	0	113	58	133	21.99	2.47	20	
Chloroform	18.980	1.0	20.00	0	94.9	69	128	18.45	2.83	20	
Chloromethane	19.810	1.0	20.00	0	99.0	56	131	20.44	3.13	20	
cis-1,2-Dichloroethene	19.100	1.0	20.00	0	95.5	72	126	18.53	3.03	20	
cis-1,3-Dichloropropene	18.820	1.0	20.00	0	94.1	69	131	18.49	1.77	20	

**Qualifiers:**

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|--|--|--|
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| 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**  
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"Serving Clients with Passion and Professionalism"

**CLIENT:** CH2MHill  
**Work Order:** N035345  
**Project:** SFPP Norwalk

## ANALYTICAL QC SUMMARY REPORT

**TestCode: 8260\_WP\_SFPP**

Sample ID: CA190501-LCSD	SampType: LCSD	TestCode: 8260_WP_SF	Units: ug/L	Prep Date:	RunNo: 133602						
Client ID: LCSS02	Batch ID: CA19VW028	TestNo: EPA 8260B		Analysis Date: 5/1/2019	SeqNo: 3371008						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Di-isopropyl ether	18.160	1.0	20.00	0	90.8	70	130	17.53	3.53	20	
Dibromochloromethane	19.000	1.0	20.00	0	95.0	66	133	19.62	3.21	20	
Dibromomethane	21.500	1.0	20.00	0	108	76	125	20.09	6.78	20	
Dichlorodifluoromethane	18.690	1.0	20.00	0	93.5	53	153	19.86	6.07	20	
Ethyl tert-butyl ether	18.410	1.0	20.00	0	92.0	70	130	18.03	2.09	20	
Ethylbenzene	20.980	1.0	20.00	0	105	73	127	21.53	2.59	20	
Freon-113	18.860	1.0	20.00	0	94.3	75	125	19.42	2.93	20	
Hexachlorobutadiene	18.350	1.0	20.00	0	91.8	67	131	20.22	9.70	20	
Isopropylbenzene	17.930	1.0	20.00	0	89.7	75	127	18.61	3.72	20	
m,p-Xylene	38.500	1.0	40.00	0	96.2	76	128	39.39	2.29	20	
Methylene chloride	18.350	2.0	20.00	0	91.8	63	137	17.15	6.76	20	
MTBE	17.860	1.0	20.00	0	89.3	65	123	16.39	8.58	20	
n-Butylbenzene	18.310	1.0	20.00	0	91.6	69	137	19.45	6.04	20	
n-Propylbenzene	18.080	1.0	20.00	0	90.4	72	129	19.20	6.01	20	
Naphthalene	17.530	1.0	20.00	0	87.6	54	138	16.75	4.55	20	
o-Xylene	18.070	1.0	20.00	0	90.4	80	121	18.16	0.497	20	
sec-Butylbenzene	18.370	1.0	20.00	0	91.9	72	127	19.07	3.74	20	
Styrene	19.490	1.0	20.00	0	97.5	65	134	19.46	0.154	20	
Tert-amyl methyl ether	18.150	1.0	20.00	0	90.8	70	130	18.24	0.495	20	
Tert-Butanol	91.560	5.0	100.0	0	91.6	70	130	83.80	8.85	20	
tert-Butylbenzene	18.410	1.0	20.00	0	92.0	70	129	18.77	1.94	20	
Tetrachloroethene	19.250	1.0	20.00	0	96.2	66	128	20.84	7.93	20	
Toluene	19.350	2.0	20.00	0	96.8	77	122	19.50	0.772	20	
trans-1,2-Dichloroethene	17.900	1.0	20.00	0	89.5	63	137	18.66	4.16	20	
trans-1,3-Dichloropropene	20.960	1.0	20.00	0	105	59	135	20.09	4.24	20	
Trichloroethene	17.920	1.0	20.00	0	89.6	70	127	18.69	4.21	20	
Trichlorofluoromethane	21.400	1.0	20.00	0	107	57	129	22.38	4.48	20	
Vinyl chloride	21.720	0.50	20.00	0	109	50	134	21.57	0.693	20	
Xylenes, Total	56.570	2.0	60.00	0	94.3	75	125	57.55	1.72	20	
Surr: 1,2-Dichloroethane-d4	23.650		25.00		94.6	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                 |



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"Serving Clients with Passion and Professionalism"



CLIENT: CH2MHill  
 Work Order: N035345  
 Project: SFPP Norwalk

## ANALYTICAL QC SUMMARY REPORT

TestCode: 8260\_WP\_SFPP

Sample ID: <b>CA190501-LCSD</b>	SampType: <b>LCSD</b>	TestCode: <b>8260_WP_SF</b>	Units: <b>ug/L</b>	Prep Date:	RunNo: <b>133602</b>						
Client ID: <b>LCSS02</b>	Batch ID: <b>CA19VW028</b>	TestNo: <b>EPA 8260B</b>	Analysis Date: <b>5/1/2019</b>	SeqNo: <b>3371008</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Surr: 4-Bromofluorobenzene	27.490		25.00		110	76	119		0		
Surr: Dibromofluoromethane	24.680		25.00		98.7	85	115		0		
Surr: Toluene-d8	25.680		25.00		103	81	120		0		

Sample ID: <b>N035344-001A-MS</b>	SampType: <b>MS</b>	TestCode: <b>8260_WP_SF</b>	Units: <b>ug/L</b>	Prep Date:	RunNo: <b>133602</b>						
Client ID: <b>ZZZZZ</b>	Batch ID: <b>CA19VW028</b>	TestNo: <b>EPA 8260B</b>	Analysis Date: <b>5/1/2019</b>	SeqNo: <b>3371009</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1,1,2-Tetrachloroethane	19.500	1.0	20.00	0	97.5	81	129				
1,1,1-Trichloroethane	19.710	1.0	20.00	0	98.6	67	132				
1,1,2,2-Tetrachloroethane	18.100	1.0	20.00	0	90.5	63	128				
1,1,2-Trichloroethane	18.560	1.0	20.00	0	92.8	75	125				
1,1-Dichloroethane	19.530	0.50	20.00	0	97.6	69	133				
1,1-Dichloroethene	16.730	1.0	20.00	0	83.6	68	130				
1,1-Dichloropropene	21.370	1.0	20.00	0	107	73	132				
1,2,3-Trichlorobenzene	21.740	1.0	20.00	0	109	67	137				
1,2,3-Trichloropropane	18.350	1.0	20.00	0	91.8	73	124				
1,2,4-Trichlorobenzene	20.430	1.0	20.00	0	102	66	134				
1,2,4-Trimethylbenzene	20.390	1.0	20.00	0	102	74	132				
1,2-Dibromo-3-chloropropane	18.690	2.0	20.00	0	93.5	50	132				
1,2-Dibromoethane	20.070	1.0	20.00	0	100	80	121				
1,2-Dichlorobenzene	20.440	1.0	20.00	0	102	71	122				
1,2-Dichloroethane	20.050	0.50	20.00	0	100	69	132				
1,2-Dichloropropane	20.650	1.0	20.00	0	103	75	125				
1,3,5-Trimethylbenzene	19.290	1.0	20.00	0	96.5	74	131				
1,3-Dichlorobenzene	20.850	1.0	20.00	0	104	75	124				
1,3-Dichloropropane	19.940	1.0	20.00	0	99.7	73	126				
1,4-Dichlorobenzene	19.950	1.0	20.00	0	99.8	74	123				
2,2-Dichloropropane	19.900	1.0	20.00	0	99.5	69	137				
2-Butanone	153.390	10	200.0	6.960	73.2	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                 |



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**CLIENT:** CH2MHill  
**Work Order:** N035345  
**Project:** SFPP Norwalk

## ANALYTICAL QC SUMMARY REPORT

**TestCode: 8260\_WP\_SFPP**

Sample ID: <b>N035344-001A-MS</b>	SampType: <b>MS</b>	TestCode: <b>8260_WP_SF</b>	Units: <b>ug/L</b>	Prep Date:	RunNo: <b>133602</b>
Client ID: <b>ZZZZZ</b>	Batch ID: <b>CA19VW028</b>	TestNo: <b>EPA 8260B</b>		Analysis Date: <b>5/1/2019</b>	SeqNo: <b>3371009</b>

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
2-Chlorotoluene	21.430	1.0	20.00	0	107	73	126				
4-Chlorotoluene	19.290	1.0	20.00	0	96.5	74	128				
4-Isopropyltoluene	19.130	1.0	20.00	0	95.7	73	130				
4-Methyl-2-pentanone	201.340	10	200.0	0	101	58	134				
Acetone	129.460	10	200.0	0	64.7	40	135				
Benzene	20.080	1.0	20.00	0	100	81	122				
Bromobenzene	20.590	1.0	20.00	0	103	76	124				
Bromochloromethane	18.090	1.0	20.00	0	90.4	65	129				
Bromodichloromethane	18.800	1.0	20.00	0	94.0	76	121				
Bromoform	21.100	1.0	20.00	0	106	69	128				
Bromomethane	25.390	1.0	20.00	0	127	53	141				
Carbon disulfide	17.780	1.0	20.00	0	88.9	75	125				
Carbon tetrachloride	20.210	0.50	20.00	0	101	66	138				
Chlorobenzene	20.600	1.0	20.00	0	103	81	122				
Chloroethane	21.350	1.0	20.00	0	107	58	133				
Chloroform	18.000	1.0	20.00	0	90.0	69	128				
Chloromethane	19.910	1.0	20.00	0	99.6	56	131				
cis-1,2-Dichloroethene	18.090	1.0	20.00	0	90.4	72	126				
cis-1,3-Dichloropropene	19.350	1.0	20.00	0	96.8	69	131				
Di-isopropyl ether	20.210	1.0	20.00	1.860	91.8	70	130				
Dibromochloromethane	18.650	1.0	20.00	0	93.3	66	133				
Dibromomethane	21.000	1.0	20.00	0	105	76	125				
Dichlorodifluoromethane	18.380	1.0	20.00	0	91.9	53	153				
Ethyl tert-butyl ether	17.870	1.0	20.00	0	89.4	70	130				
Ethylbenzene	21.850	1.0	20.00	0	109	73	127				
Freon-113	19.960	1.0	20.00	0	99.8	75	125				
Hexachlorobutadiene	19.710	1.0	20.00	0	98.6	67	131				
Isopropylbenzene	18.810	1.0	20.00	0	94.1	75	127				
m,p-Xylene	39.800	1.0	40.00	0	99.5	76	128				
Methylene chloride	17.360	2.0	20.00	0	86.8	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                 |



**ASSET LABORATORIES**  
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"Serving Clients with Passion and Professionalism"

CLIENT: CH2MHill  
 Work Order: N035345  
 Project: SFPP Norwalk

## ANALYTICAL QC SUMMARY REPORT

TestCode: 8260\_WP\_SFPP

Sample ID: N035344-001A-MS		SampType: MS		TestCode: 8260_WP_SF		Units: ug/L		Prep Date:		RunNo: 133602	
Client ID: ZZZZZZ		Batch ID: CA19VW028		TestNo: EPA 8260B		Analysis Date: 5/1/2019		SeqNo: 3371009			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
MTBE	17.510	1.0	20.00	1.240	81.4	65	123				
n-Butylbenzene	19.650	1.0	20.00	0	98.2	69	137				
n-Propylbenzene	19.450	1.0	20.00	0	97.3	72	129				
Naphthalene	17.520	1.0	20.00	0	87.6	54	138				
o-Xylene	18.540	1.0	20.00	0	92.7	80	121				
sec-Butylbenzene	19.250	1.0	20.00	0	96.2	72	127				
Styrene	19.970	1.0	20.00	0	99.8	65	134				
Tert-amyl methyl ether	18.490	1.0	20.00	0	92.5	70	130				
Tert-Butanol	562.980	5.0	100.0	597.0	-34.1	70	130				S
tert-Butylbenzene	18.670	1.0	20.00	0	93.4	70	129				
Tetrachloroethene	21.460	1.0	20.00	0	107	66	128				
Toluene	19.410	2.0	20.00	0	97.0	77	122				
trans-1,2-Dichloroethene	17.340	1.0	20.00	0	86.7	63	137				
trans-1,3-Dichloropropene	19.760	1.0	20.00	0	98.8	59	135				
Trichloroethene	18.980	1.0	20.00	0	94.9	70	127				
Trichlorofluoromethane	21.390	1.0	20.00	0	107	57	129				
Vinyl chloride	20.500	0.50	20.00	0	103	50	134				
Xylenes, Total	58.340	2.0	60.00	0	97.2	75	125				
Surr: 1,2-Dichloroethane-d4	23.620		25.00		94.5	72	119				
Surr: 4-Bromofluorobenzene	26.730		25.00		107	76	119				
Surr: Dibromofluoromethane	23.910		25.00		95.6	85	115				
Surr: Toluene-d8	25.740		25.00		103	81	120				

Sample ID: N035344-001A-MSD		SampType: MSD		TestCode: 8260_WP_SF		Units: ug/L		Prep Date:		RunNo: 133602	
Client ID: ZZZZZZ		Batch ID: CA19VW028		TestNo: EPA 8260B		Analysis Date: 5/1/2019		SeqNo: 3371010			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1,1,2-Tetrachloroethane	19.480	1.0	20.00	0	97.4	81	129	19.50	0.103	20	
1,1,1-Trichloroethane	20.290	1.0	20.00	0	101	67	132	19.71	2.90	20	
1,1,2,2-Tetrachloroethane	19.740	1.0	20.00	0	98.7	63	128	18.10	8.67	20	

**Qualifiers:**

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



**ASSET LABORATORIES**  
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**CLIENT:** CH2MHill  
**Work Order:** N035345  
**Project:** SFPP Norwalk

## ANALYTICAL QC SUMMARY REPORT

**TestCode: 8260\_WP\_SFPP**

Sample ID: <b>N035344-001A-MSD</b> SampType: <b>MSD</b> TestCode: <b>8260_WP_SF</b> Units: <b>ug/L</b> Prep Date:		RunNo: <b>133602</b>									
Client ID: <b>ZZZZZ</b> Batch ID: <b>CA19VW028</b> TestNo: <b>EPA 8260B</b> Analysis Date: <b>5/1/2019</b>		SeqNo: <b>3371010</b>									
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1,2-Trichloroethane	19.380	1.0	20.00	0	96.9	75	125	18.56	4.32	20	
1,1-Dichloroethane	19.090	0.50	20.00	0	95.4	69	133	19.53	2.28	20	
1,1-Dichloroethene	16.360	1.0	20.00	0	81.8	68	130	16.73	2.24	20	
1,1-Dichloropropene	20.350	1.0	20.00	0	102	73	132	21.37	4.89	20	
1,2,3-Trichlorobenzene	21.020	1.0	20.00	0	105	67	137	21.74	3.37	20	
1,2,3-Trichloropropane	19.160	1.0	20.00	0	95.8	73	124	18.35	4.32	20	
1,2,4-Trichlorobenzene	21.110	1.0	20.00	0	106	66	134	20.43	3.27	20	
1,2,4-Trimethylbenzene	19.750	1.0	20.00	0	98.8	74	132	20.39	3.19	20	
1,2-Dibromo-3-chloropropane	19.960	2.0	20.00	0	99.8	50	132	18.69	6.57	20	
1,2-Dibromoethane	19.690	1.0	20.00	0	98.4	80	121	20.07	1.91	20	
1,2-Dichlorobenzene	19.970	1.0	20.00	0	99.8	71	122	20.44	2.33	20	
1,2-Dichloroethane	20.720	0.50	20.00	0	104	69	132	20.05	3.29	20	
1,2-Dichloropropane	20.940	1.0	20.00	0	105	75	125	20.65	1.39	20	
1,3,5-Trimethylbenzene	18.920	1.0	20.00	0	94.6	74	131	19.29	1.94	20	
1,3-Dichlorobenzene	20.080	1.0	20.00	0	100	75	124	20.85	3.76	20	
1,3-Dichloropropane	20.960	1.0	20.00	0	105	73	126	19.94	4.99	20	
1,4-Dichlorobenzene	20.400	1.0	20.00	0	102	74	123	19.95	2.23	20	
2,2-Dichloropropane	19.480	1.0	20.00	0	97.4	69	137	19.90	2.13	20	
2-Butanone	179.280	10	200.0	6.960	86.2	49	136	153.4	15.6	20	
2-Chlorotoluene	20.380	1.0	20.00	0	102	73	126	21.43	5.02	20	
4-Chlorotoluene	18.790	1.0	20.00	0	94.0	74	128	19.29	2.63	20	
4-Isopropyltoluene	18.830	1.0	20.00	0	94.2	73	130	19.13	1.58	20	
4-Methyl-2-pentanone	216.050	10	200.0	0	108	58	134	201.3	7.05	20	
Acetone	139.940	10	200.0	0	70.0	40	135	129.5	7.78	20	
Benzene	19.940	1.0	20.00	0	99.7	81	122	20.08	0.700	20	
Bromobenzene	20.000	1.0	20.00	0	100	76	124	20.59	2.91	20	
Bromochloromethane	18.950	1.0	20.00	0	94.8	65	129	18.09	4.64	20	
Bromodichloromethane	18.590	1.0	20.00	0	93.0	76	121	18.80	1.12	20	
Bromoform	22.310	1.0	20.00	0	112	69	128	21.10	5.57	20	
Bromomethane	24.660	1.0	20.00	0	123	53	141	25.39	2.92	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                 |



**ASSET LABORATORIES**  
ANALYTICAL SERVICES FOR THE ENVIRONMENT, ENERGY & WATER

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"Serving Clients with Passion and Professionalism"

**CLIENT:** CH2MHill  
**Work Order:** N035345  
**Project:** SFPP Norwalk

## ANALYTICAL QC SUMMARY REPORT

**TestCode: 8260\_WP\_SFPP**

Sample ID: <b>N035344-001A-MSD</b> SampType: <b>MSD</b> TestCode: <b>8260_WP_SF</b> Units: <b>ug/L</b> Prep Date:		RunNo: <b>133602</b>									
Client ID: <b>ZZZZZ</b> Batch ID: <b>CA19VW028</b> TestNo: <b>EPA 8260B</b> Analysis Date: <b>5/1/2019</b>		SeqNo: <b>3371010</b>									
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Carbon disulfide	17.320	1.0	20.00	0	86.6	75	125	17.78	2.62	20	
Carbon tetrachloride	19.970	0.50	20.00	0	99.8	66	138	20.21	1.19	20	
Chlorobenzene	20.360	1.0	20.00	0	102	81	122	20.60	1.17	20	
Chloroethane	21.430	1.0	20.00	0	107	58	133	21.35	0.374	20	
Chloroform	19.310	1.0	20.00	0	96.6	69	128	18.00	7.02	20	
Chloromethane	19.900	1.0	20.00	0	99.5	56	131	19.91	0.0502	20	
cis-1,2-Dichloroethene	18.620	1.0	20.00	0	93.1	72	126	18.09	2.89	20	
cis-1,3-Dichloropropene	19.580	1.0	20.00	0	97.9	69	131	19.35	1.18	20	
Di-isopropyl ether	20.410	1.0	20.00	1.860	92.8	70	130	20.21	0.985	20	
Dibromochloromethane	19.000	1.0	20.00	0	95.0	66	133	18.65	1.86	20	
Dibromomethane	21.430	1.0	20.00	0	107	76	125	21.00	2.03	20	
Dichlorodifluoromethane	19.540	1.0	20.00	0	97.7	53	153	18.38	6.12	20	
Ethyl tert-butyl ether	19.100	1.0	20.00	0	95.5	70	130	17.87	6.65	20	
Ethylbenzene	21.500	1.0	20.00	0	108	73	127	21.85	1.61	20	
Freon-113	19.480	1.0	20.00	0	97.4	75	125	19.96	2.43	20	
Hexachlorobutadiene	18.730	1.0	20.00	0	93.6	67	131	19.71	5.10	20	
Isopropylbenzene	18.680	1.0	20.00	0	93.4	75	127	18.81	0.694	20	
m,p-Xylene	39.290	1.0	40.00	0	98.2	76	128	39.80	1.29	20	
Methylene chloride	18.480	2.0	20.00	0	92.4	63	137	17.36	6.25	20	
MTBE	18.550	1.0	20.00	1.240	86.6	65	123	17.51	5.77	20	
n-Butylbenzene	19.210	1.0	20.00	0	96.0	69	137	19.65	2.26	20	
n-Propylbenzene	18.570	1.0	20.00	0	92.8	72	129	19.45	4.63	20	
Naphthalene	18.370	1.0	20.00	0	91.9	54	138	17.52	4.74	20	
o-Xylene	18.140	1.0	20.00	0	90.7	80	121	18.54	2.18	20	
sec-Butylbenzene	18.800	1.0	20.00	0	94.0	72	127	19.25	2.37	20	
Styrene	19.430	1.0	20.00	0	97.2	65	134	19.97	2.74	20	
Tert-amyl methyl ether	19.660	1.0	20.00	0	98.3	70	130	18.49	6.13	20	
Tert-Butanol	653.340	5.0	100.0	597.0	56.3	70	130	563.0	14.9	20	S
tert-Butylbenzene	18.390	1.0	20.00	0	92.0	70	129	18.67	1.51	20	
Tetrachloroethene	19.490	1.0	20.00	0	97.5	66	128	21.46	9.62	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                 |



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"Serving Clients with Passion and Professionalism"

**CLIENT:** CH2MHill  
**Work Order:** N035345  
**Project:** SFPP Norwalk

## ANALYTICAL QC SUMMARY REPORT

**TestCode: 8260\_WP\_SFPP**

Sample ID: <b>N035344-001A-MSD</b>	SampType: <b>MSD</b>	TestCode: <b>8260_WP_SF</b>	Units: <b>ug/L</b>	Prep Date:	RunNo: <b>133602</b>						
Client ID: <b>ZZZZZ</b>	Batch ID: <b>CA19VW028</b>	TestNo: <b>EPA 8260B</b>		Analysis Date: <b>5/1/2019</b>	SeqNo: <b>3371010</b>						
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	19.41	1.14	20	
trans-1,2-Dichloroethene	18.290	1.0	20.00	0	91.4	63	137	17.34	5.33	20	
trans-1,3-Dichloropropene	19.950	1.0	20.00	0	99.8	59	135	19.76	0.957	20	
Trichloroethene	19.180	1.0	20.00	0	95.9	70	127	18.98	1.05	20	
Trichlorofluoromethane	21.360	1.0	20.00	0	107	57	129	21.39	0.140	20	
Vinyl chloride	21.480	0.50	20.00	0	107	50	134	20.50	4.67	20	
Xylenes, Total	57.430	2.0	60.00	0	95.7	75	125	58.34	1.57	20	
Surr: 1,2-Dichloroethane-d4	24.150		25.00		96.6	72	119		0		
Surr: 4-Bromofluorobenzene	27.160		25.00		109	76	119		0		
Surr: Dibromofluoromethane	23.680		25.00		94.7	85	115		0		
Surr: Toluene-d8	25.890		25.00		104	81	120		0		

Sample ID: <b>CA190501-MB2</b>	SampType: <b>MBLK</b>	TestCode: <b>8260_WP_SF</b>	Units: <b>ug/L</b>	Prep Date:	RunNo: <b>133602</b>						
Client ID: <b>PBW</b>	Batch ID: <b>CA19VW028</b>	TestNo: <b>EPA 8260B</b>		Analysis Date: <b>5/1/2019</b>	SeqNo: <b>3371460</b>						
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									

**Qualifiers:**

- |  |  |  |
|--|--|--|
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"Serving Clients with Passion and Professionalism"

**CLIENT:** CH2MHill  
**Work Order:** N035345  
**Project:** SFPP Norwalk

## ANALYTICAL QC SUMMARY REPORT

**TestCode: 8260\_WP\_SFPP**

Sample ID: <b>CA190501-MB2</b>	SampType: <b>MBLK</b>	TestCode: <b>8260_WP_SF</b>	Units: <b>ug/L</b>	Prep Date:	RunNo: <b>133602</b>						
Client ID: <b>PBW</b>	Batch ID: <b>CA19VW028</b>	TestNo: <b>EPA 8260B</b>		Analysis Date: <b>5/1/2019</b>	SeqNo: <b>3371460</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
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									
Di-isopropyl ether	ND	1.0									
Dibromochloromethane	ND	1.0									
Dibromomethane	ND	1.0									

**Qualifiers:**

- |  |  |  |
|--|--|--|
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| 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                 |



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"Serving Clients with Passion and Professionalism"

**CLIENT:** CH2MHill  
**Work Order:** N035345  
**Project:** SFPP Norwalk

## ANALYTICAL QC SUMMARY REPORT

**TestCode: 8260\_WP\_SFPP**

Sample ID: <b>CA190501-MB2</b>	SampType: <b>MBLK</b>	TestCode: <b>8260_WP_SF</b>	Units: <b>ug/L</b>	Prep Date:	RunNo: <b>133602</b>						
Client ID: <b>PBW</b>	Batch ID: <b>CA19VW028</b>	TestNo: <b>EPA 8260B</b>		Analysis Date: <b>5/1/2019</b>	SeqNo: <b>3371460</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

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	28.220		25.00		113	72	119				
Surr: 4-Bromofluorobenzene	25.560		25.00		102	76	119				
Surr: Dibromofluoromethane	27.780		25.00		111	85	115				
Surr: Toluene-d8	25.690		25.00		103	81	120				

**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                 |



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**CLIENT:** CH2MHill  
**Work Order:** N035345  
**Project:** SFPP Norwalk

## ANALYTICAL QC SUMMARY REPORT

**TestCode: 8260\_WP\_SFPP**

Sample ID: <b>CA190502-LCS</b>	SampType: <b>LCS</b>	TestCode: <b>8260_WP_SF</b>	Units: <b>ug/L</b>	Prep Date:	RunNo: <b>133615</b>
Client ID: <b>LCSW</b>	Batch ID: <b>CA19VW029</b>	TestNo: <b>EPA 8260B</b>		Analysis Date: <b>5/2/2019</b>	SeqNo: <b>3373057</b>

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1,1,2-Tetrachloroethane	19.800	1.0	20.00	0	99.0	81	129				
1,1,1-Trichloroethane	20.720	1.0	20.00	0	104	67	132				
1,1,2,2-Tetrachloroethane	18.160	1.0	20.00	0	90.8	63	128				
1,1,2-Trichloroethane	20.110	1.0	20.00	0	101	75	125				
1,1-Dichloroethane	20.430	0.50	20.00	0	102	69	133				
1,1-Dichloroethene	18.160	1.0	20.00	0	90.8	68	130				
1,1-Dichloropropene	22.390	1.0	20.00	0	112	73	132				
1,2,3-Trichlorobenzene	20.160	1.0	20.00	0	101	67	137				
1,2,3-Trichloropropane	18.570	1.0	20.00	0	92.8	73	124				
1,2,4-Trichlorobenzene	19.780	1.0	20.00	0	98.9	66	134				
1,2,4-Trimethylbenzene	20.420	1.0	20.00	0	102	74	132				
1,2-Dibromo-3-chloropropane	18.680	2.0	20.00	0	93.4	50	132				
1,2-Dibromoethane	18.950	1.0	20.00	0	94.8	80	121				
1,2-Dichlorobenzene	20.650	1.0	20.00	0	103	71	122				
1,2-Dichloroethane	21.230	0.50	20.00	0	106	69	132				
1,2-Dichloropropane	21.880	1.0	20.00	0	109	75	125				
1,3,5-Trimethylbenzene	20.030	1.0	20.00	0	100	74	131				
1,3-Dichlorobenzene	20.720	1.0	20.00	0	104	75	124				
1,3-Dichloropropane	18.910	1.0	20.00	0	94.6	73	126				
1,4-Dichlorobenzene	20.400	1.0	20.00	0	102	74	123				
2,2-Dichloropropane	21.230	1.0	20.00	0	106	69	137				
2-Butanone	153.680	10	200.0	0	76.8	49	136				
2-Chlorotoluene	21.700	1.0	20.00	0	108	73	126				
4-Chlorotoluene	20.000	1.0	20.00	0	100	74	128				
4-Isopropyltoluene	19.960	1.0	20.00	0	99.8	73	130				
4-Methyl-2-pentanone	183.640	10	200.0	0	91.8	58	134				
Acetone	139.420	10	200.0	0	69.7	40	135				
Benzene	21.360	1.0	20.00	0	107	81	122				
Bromobenzene	21.560	1.0	20.00	0	108	76	124				
Bromochloromethane	18.100	1.0	20.00	0	90.5	65	129				

**Qualifiers:**

- |  |  |  |
|--|--|--|
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| 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**  
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"Serving Clients with Passion and Professionalism"

**CLIENT:** CH2MHill  
**Work Order:** N035345  
**Project:** SFPP Norwalk

## ANALYTICAL QC SUMMARY REPORT

**TestCode: 8260\_WP\_SFPP**

Sample ID: <b>CA190502-LCS</b>	SampType: <b>LCS</b>	TestCode: <b>8260_WP_SF</b>	Units: <b>ug/L</b>	Prep Date:	RunNo: <b>133615</b>
Client ID: <b>LCSW</b>	Batch ID: <b>CA19VW029</b>	TestNo: <b>EPA 8260B</b>		Analysis Date: <b>5/2/2019</b>	SeqNo: <b>3373057</b>

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Bromodichloromethane	19.650	1.0	20.00	0	98.2	76	121				
Bromoform	19.200	1.0	20.00	0	96.0	69	128				
Bromomethane	26.010	1.0	20.00	0	130	53	141				
Carbon disulfide	19.130	1.0	20.00	0	95.7	75	125				
Carbon tetrachloride	20.720	0.50	20.00	0	104	66	138				
Chlorobenzene	21.180	1.0	20.00	0	106	81	122				
Chloroethane	23.040	1.0	20.00	0	115	58	133				
Chloroform	19.510	1.0	20.00	0	97.6	69	128				
Chloromethane	22.330	1.0	20.00	0	112	56	131				
cis-1,2-Dichloroethene	18.730	1.0	20.00	0	93.6	72	126				
cis-1,3-Dichloropropene	18.550	1.0	20.00	0	92.8	69	131				
Di-isopropyl ether	17.370	1.0	20.00	0	86.9	70	130				
Dibromochloromethane	18.060	1.0	20.00	0	90.3	66	133				
Dibromomethane	22.480	1.0	20.00	0	112	76	125				
Dichlorodifluoromethane	18.840	1.0	20.00	0	94.2	53	153				
Ethyl tert-butyl ether	17.620	1.0	20.00	0	88.1	70	130				
Ethylbenzene	22.320	1.0	20.00	0	112	73	127				
Freon-113	21.330	1.0	20.00	0	107	75	125				
Hexachlorobutadiene	20.330	1.0	20.00	0	102	67	131				
Isopropylbenzene	19.110	1.0	20.00	0	95.6	75	127				
m,p-Xylene	39.350	1.0	40.00	0	98.4	76	128				
Methylene chloride	17.930	2.0	20.00	0	89.7	63	137				
MTBE	15.520	1.0	20.00	0	77.6	65	123				
n-Butylbenzene	19.900	1.0	20.00	0	99.5	69	137				
n-Propylbenzene	19.930	1.0	20.00	0	99.7	72	129				
Naphthalene	15.650	1.0	20.00	0	78.2	54	138				
o-Xylene	18.300	1.0	20.00	0	91.5	80	121				
sec-Butylbenzene	20.040	1.0	20.00	0	100	72	127				
Styrene	19.470	1.0	20.00	0	97.4	65	134				
Tert-amyl methyl ether	18.360	1.0	20.00	0	91.8	70	130				

**Qualifiers:**

- |  |  |  |
|--|--|--|
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"Serving Clients with Passion and Professionalism"

CLIENT: CH2MHill  
 Work Order: N035345  
 Project: SFPP Norwalk

## ANALYTICAL QC SUMMARY REPORT

TestCode: 8260\_WP\_SFPP

Sample ID: CA190502-LCS		SampType: LCS		TestCode: 8260_WP_SF		Units: ug/L		Prep Date:		RunNo: 133615	
Client ID: LCSW		Batch ID: CA19VW029		TestNo: EPA 8260B		Analysis Date: 5/2/2019				SeqNo: 3373057	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Tert-Butanol	76.530	5.0	100.0	0	76.5	70	130				
tert-Butylbenzene	19.660	1.0	20.00	0	98.3	70	129				
Tetrachloroethene	21.160	1.0	20.00	0	106	66	128				
Toluene	20.580	2.0	20.00	0	103	77	122				
trans-1,2-Dichloroethene	19.820	1.0	20.00	0	99.1	63	137				
trans-1,3-Dichloropropene	20.900	1.0	20.00	0	104	59	135				
Trichloroethene	19.850	1.0	20.00	0	99.2	70	127				
Trichlorofluoromethane	22.800	1.0	20.00	0	114	57	129				
Vinyl chloride	22.230	0.50	20.00	0	111	50	134				
Xylenes, Total	57.650	2.0	60.00	0	96.1	75	125				
Surr: 1,2-Dichloroethane-d4	23.610		25.00		94.4	72	119				
Surr: 4-Bromofluorobenzene	26.720		25.00		107	76	119				
Surr: Dibromofluoromethane	23.790		25.00		95.2	85	115				
Surr: Toluene-d8	26.050		25.00		104	81	120				

Sample ID: CA190502-LCSD		SampType: LCSD		TestCode: 8260_WP_SF		Units: ug/L		Prep Date:		RunNo: 133615	
Client ID: LCSS02		Batch ID: CA19VW029		TestNo: EPA 8260B		Analysis Date: 5/2/2019				SeqNo: 3373058	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1,1,2-Tetrachloroethane	19.490	1.0	20.00	0	97.5	81	129	19.80	1.58	20	
1,1,1-Trichloroethane	19.710	1.0	20.00	0	98.6	67	132	20.72	5.00	20	
1,1,2,2-Tetrachloroethane	18.540	1.0	20.00	0	92.7	63	128	18.16	2.07	20	
1,1,2-Trichloroethane	19.450	1.0	20.00	0	97.3	75	125	20.11	3.34	20	
1,1-Dichloroethane	20.390	0.50	20.00	0	102	69	133	20.43	0.196	20	
1,1-Dichloroethene	17.490	1.0	20.00	0	87.5	68	130	18.16	3.76	20	
1,1-Dichloropropene	21.440	1.0	20.00	0	107	73	132	22.39	4.33	20	
1,2,3-Trichlorobenzene	20.230	1.0	20.00	0	101	67	137	20.16	0.347	20	
1,2,3-Trichloropropane	18.260	1.0	20.00	0	91.3	73	124	18.57	1.68	20	
1,2,4-Trichlorobenzene	19.920	1.0	20.00	0	99.6	66	134	19.78	0.705	20	
1,2,4-Trimethylbenzene	20.710	1.0	20.00	0	104	74	132	20.42	1.41	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                 |



**ASSET LABORATORIES**  
ANALYTICAL SERVICES FOR THE ENVIRONMENT, ENERGY & CHEMICALS

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 ORELAP/NELAP Cert 4046

"Serving Clients with Passion and Professionalism"

**CLIENT:** CH2MHill  
**Work Order:** N035345  
**Project:** SFPP Norwalk

## ANALYTICAL QC SUMMARY REPORT

**TestCode: 8260\_WP\_SFPP**

Sample ID: CA190502-LCSD	SampType: LCSD	TestCode: 8260_WP_SF Units: ug/L				Prep Date:			RunNo: 133615		
Client ID: LCSS02	Batch ID: CA19VW029	TestNo: EPA 8260B				Analysis Date: 5/2/2019			SeqNo: 3373058		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,2-Dibromo-3-chloropropane	19.030	2.0	20.00	0	95.2	50	132	18.68	1.86	20	
1,2-Dibromoethane	19.810	1.0	20.00	0	99.0	80	121	18.95	4.44	20	
1,2-Dichlorobenzene	19.560	1.0	20.00	0	97.8	71	122	20.65	5.42	20	
1,2-Dichloroethane	20.220	0.50	20.00	0	101	69	132	21.23	4.87	20	
1,2-Dichloropropane	20.330	1.0	20.00	0	102	75	125	21.88	7.34	20	
1,3,5-Trimethylbenzene	19.700	1.0	20.00	0	98.5	74	131	20.03	1.66	20	
1,3-Dichlorobenzene	20.380	1.0	20.00	0	102	75	124	20.72	1.65	20	
1,3-Dichloropropane	19.050	1.0	20.00	0	95.2	73	126	18.91	0.738	20	
1,4-Dichlorobenzene	20.280	1.0	20.00	0	101	74	123	20.40	0.590	20	
2,2-Dichloropropane	19.460	1.0	20.00	0	97.3	69	137	21.23	8.70	20	
2-Butanone	163.300	10	200.0	0	81.6	49	136	153.7	6.07	20	
2-Chlorotoluene	21.540	1.0	20.00	0	108	73	126	21.70	0.740	20	
4-Chlorotoluene	19.620	1.0	20.00	0	98.1	74	128	20.00	1.92	20	
4-Isopropyltoluene	19.110	1.0	20.00	0	95.6	73	130	19.96	4.35	20	
4-Methyl-2-pentanone	189.970	10	200.0	0	95.0	58	134	183.6	3.39	20	
Acetone	137.520	10	200.0	0	68.8	40	135	139.4	1.37	20	
Benzene	20.230	1.0	20.00	0	101	81	122	21.36	5.43	20	
Bromobenzene	21.320	1.0	20.00	0	107	76	124	21.56	1.12	20	
Bromochloromethane	18.520	1.0	20.00	0	92.6	65	129	18.10	2.29	20	
Bromodichloromethane	18.530	1.0	20.00	0	92.6	76	121	19.65	5.87	20	
Bromoform	20.160	1.0	20.00	0	101	69	128	19.20	4.88	20	
Bromomethane	26.470	1.0	20.00	0	132	53	141	26.01	1.75	20	
Carbon disulfide	17.960	1.0	20.00	0	89.8	75	125	19.13	6.31	20	
Carbon tetrachloride	20.250	0.50	20.00	0	101	66	138	20.72	2.29	20	
Chlorobenzene	20.230	1.0	20.00	0	101	81	122	21.18	4.59	20	
Chloroethane	23.090	1.0	20.00	0	115	58	133	23.04	0.217	20	
Chloroform	19.050	1.0	20.00	0	95.2	69	128	19.51	2.39	20	
Chloromethane	21.450	1.0	20.00	0	107	56	131	22.33	4.02	20	
cis-1,2-Dichloroethene	18.730	1.0	20.00	0	93.6	72	126	18.73	0	20	
cis-1,3-Dichloropropene	19.110	1.0	20.00	0	95.6	69	131	18.55	2.97	20	

**Qualifiers:**

- |  |  |  |
|--|--|--|
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| 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                 |



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"Serving Clients with Passion and Professionalism"

**CLIENT:** CH2MHill  
**Work Order:** N035345  
**Project:** SFPP Norwalk

## ANALYTICAL QC SUMMARY REPORT

**TestCode: 8260\_WP\_SFPP**

Sample ID: CA190502-LCSD	SampType: LCSD	TestCode: 8260_WP_SF Units: ug/L				Prep Date:			RunNo: 133615		
Client ID: LCSS02	Batch ID: CA19VW029	TestNo: EPA 8260B				Analysis Date: 5/2/2019			SeqNo: 3373058		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Di-isopropyl ether	17.880	1.0	20.00	0	89.4	70	130	17.37	2.89	20	
Dibromochloromethane	19.000	1.0	20.00	0	95.0	66	133	18.06	5.07	20	
Dibromomethane	20.360	1.0	20.00	0	102	76	125	22.48	9.90	20	
Dichlorodifluoromethane	19.230	1.0	20.00	0	96.2	53	153	18.84	2.05	20	
Ethyl tert-butyl ether	17.170	1.0	20.00	0	85.9	70	130	17.62	2.59	20	
Ethylbenzene	21.440	1.0	20.00	0	107	73	127	22.32	4.02	20	
Freon-113	19.760	1.0	20.00	0	98.8	75	125	21.33	7.64	20	
Hexachlorobutadiene	20.290	1.0	20.00	0	101	67	131	20.33	0.197	20	
Isopropylbenzene	19.380	1.0	20.00	0	96.9	75	127	19.11	1.40	20	
m,p-Xylene	38.790	1.0	40.00	0	97.0	76	128	39.35	1.43	20	
Methylene chloride	17.800	2.0	20.00	0	89.0	63	137	17.93	0.728	20	
MTBE	15.450	1.0	20.00	0	77.2	65	123	15.52	0.452	20	
n-Butylbenzene	19.510	1.0	20.00	0	97.6	69	137	19.90	1.98	20	
n-Propylbenzene	19.600	1.0	20.00	0	98.0	72	129	19.93	1.67	20	
Naphthalene	16.220	1.0	20.00	0	81.1	54	138	15.65	3.58	20	
o-Xylene	18.340	1.0	20.00	0	91.7	80	121	18.30	0.218	20	
sec-Butylbenzene	19.650	1.0	20.00	0	98.2	72	127	20.04	1.97	20	
Styrene	18.890	1.0	20.00	0	94.4	65	134	19.47	3.02	20	
Tert-amyl methyl ether	18.050	1.0	20.00	0	90.3	70	130	18.36	1.70	20	
Tert-Butanol	79.470	5.0	100.0	0	79.5	70	130	76.53	3.77	20	
tert-Butylbenzene	19.350	1.0	20.00	0	96.8	70	129	19.66	1.59	20	
Tetrachloroethene	21.650	1.0	20.00	0	108	66	128	21.16	2.29	20	
Toluene	19.950	2.0	20.00	0	99.8	77	122	20.58	3.11	20	
trans-1,2-Dichloroethene	18.040	1.0	20.00	0	90.2	63	137	19.82	9.40	20	
trans-1,3-Dichloropropene	20.430	1.0	20.00	0	102	59	135	20.90	2.27	20	
Trichloroethene	19.830	1.0	20.00	0	99.2	70	127	19.85	0.101	20	
Trichlorofluoromethane	22.240	1.0	20.00	0	111	57	129	22.80	2.49	20	
Vinyl chloride	21.080	0.50	20.00	0	105	50	134	22.23	5.31	20	
Xylenes, Total	57.130	2.0	60.00	0	95.2	75	125	57.65	0.906	20	
Surr: 1,2-Dichloroethane-d4	23.700		25.00		94.8	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                 |



**ASSET LABORATORIES**  
ANALYTICAL SERVICES FOR THE ENVIRONMENT, ENERGY & WATER

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"Serving Clients with Passion and Professionalism"

**CLIENT:** CH2MHill  
**Work Order:** N035345  
**Project:** SFPP Norwalk

## ANALYTICAL QC SUMMARY REPORT

**TestCode: 8260\_WP\_SFPP**

Sample ID: <b>CA190502-LCSD</b>	SampType: <b>LCSD</b>	TestCode: <b>8260_WP_SF</b>	Units: <b>ug/L</b>	Prep Date:	RunNo: <b>133615</b>						
Client ID: <b>LCSS02</b>	Batch ID: <b>CA19VW029</b>	TestNo: <b>EPA 8260B</b>		Analysis Date: <b>5/2/2019</b>	SeqNo: <b>3373058</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Surr: 4-Bromofluorobenzene	26.790		25.00		107	76	119		0		
Surr: Dibromofluoromethane	24.500		25.00		98.0	85	115		0		
Surr: Toluene-d8	25.670		25.00		103	81	120		0		

Sample ID: <b>CA190502-MB2</b>	SampType: <b>MBLK</b>	TestCode: <b>8260_WP_SF</b>	Units: <b>ug/L</b>	Prep Date:	RunNo: <b>133615</b>						
Client ID: <b>PBW</b>	Batch ID: <b>CA19VW029</b>	TestNo: <b>EPA 8260B</b>		Analysis Date: <b>5/2/2019</b>	SeqNo: <b>3373062</b>						
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                 |



**ASSET LABORATORIES**  
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"Serving Clients with Passion and Professionalism"

**CLIENT:** CH2MHill  
**Work Order:** N035345  
**Project:** SFPP Norwalk

## ANALYTICAL QC SUMMARY REPORT

**TestCode: 8260\_WP\_SFPP**

Sample ID: <b>CA190502-MB2</b>	SampType: <b>MBLK</b>	TestCode: <b>8260_WP_SF</b>	Units: <b>ug/L</b>	Prep Date:	RunNo: <b>133615</b>						
Client ID: <b>PBW</b>	Batch ID: <b>CA19VW029</b>	TestNo: <b>EPA 8260B</b>		Analysis Date: <b>5/2/2019</b>	SeqNo: <b>3373062</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

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                 |



**ASSET LABORATORIES**  
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 ORELAP/NELAP Cert 4046

"Serving Clients with Passion and Professionalism"

**CLIENT:** CH2MHill  
**Work Order:** N035345  
**Project:** SFPP Norwalk

## ANALYTICAL QC SUMMARY REPORT

**TestCode: 8260\_WP\_SFPP**

Sample ID: <b>CA190502-MB2</b>	SampType: <b>MBLK</b>	TestCode: <b>8260_WP_SF</b>	Units: <b>ug/L</b>	Prep Date:	RunNo: <b>133615</b>						
Client ID: <b>PBW</b>	Batch ID: <b>CA19VW029</b>	TestNo: <b>EPA 8260B</b>		Analysis Date: <b>5/2/2019</b>	SeqNo: <b>3373062</b>						
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	28.250		25.00		113	72	119				
Surr: 4-Bromofluorobenzene	25.280		25.00		101	76	119				
Surr: Dibromofluoromethane	27.490		25.00		110	85	115				
Surr: Toluene-d8	26.780		25.00		107	81	120				

**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                 |



**ASSET LABORATORIES**  
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 Las Vegas, NV 89118  
 Tel: 702-307-2659 Fax: 702-307-2691  
 Marlon Cartin (marlon@assetlaboratories.com)

CHAIN OF CUSTODY RECORD

DATE: 4/29/19  
 PAGE: 1 of 1

<b>Section A</b> Required Client Information:		<b>Section B</b> Required Project Information:		<b>Section C</b> Invoice Information:		<b>Section D</b> Sampler Information:	
Company: Kinder Morgan Energy Partners Attention: Steve Defibaugh		Report To: Eric Davis		Attention: Steve Defibaugh - Ref. AFER 81195		Sampler Name: James Dye	
Address: 1100 Town & Country Road Orange, CA 92668		Copy To: Steve Defibaugh		Company Name: Kinder Morgan Energy Partners		Sampler Signature:	
Email To: <a href="mailto:steve_defibaugh@kindermorgan.com">steve_defibaugh@kindermorgan.com</a> <a href="mailto:eric.davis@kcm.com">eric.davis@kcm.com</a>		Purchase Order No.:		Address: 1100 Town & Country Road Orange, CA 92668		Sample Date: <u>4/29/19</u>	
Phone: 714-560-4802 Fax: 714-560-4801		Project Name: SFPP Norwalk		ATL Project Manager: Marlon Cartin			

ITEM #	SAMPLE ID	LOCATION/ DESCRIPTION	MATRIX	SAMPLE TYPE (E-6100B C-COMP)	SAMPLING		TOTAL # OF CONTAINERS	SAMPLE TEMPERATURE (°F)	Analysis Test			Comments
					DATE	TIME			FULL VOCs + Organics List (8260B)	TPH-gas (04-C12) (8015B)	TPH-l (C13-C22, TPH-all (2394), Total TPH (8015B))	
1	INF-04-29	INFLUENT	WW	G	4/29/19	1235	9		X	X	X	N035345-01
2												
3												
4												
5												
6												
7												
8												
9												
10												

Retrieved by (Signature and Printed Name): <u>[Signature]</u> Date / Time: <u>4/29/19 1240</u>	Retrieved by (Signature and Printed Name): <u>[Signature]</u> Date / Time: <u>4/30/19 1050</u>	Turn Around Time (TAT): <input type="checkbox"/> A = Same Day <input type="checkbox"/> B = 24 Hours <input type="checkbox"/> C = 48 Hours <input type="checkbox"/> D = 72 Hours <input checked="" type="checkbox"/> E = 5 Workdays <input type="checkbox"/> F = 10 Workdays TAT Starts at 8 AM the following day if samples received after 5:00 PM.	Special Instruction: <u>3.5C</u> <u>2.9C JMA2</u> <u>650# 5877</u> <u>5875</u>
Retrieved by (Signature and Printed Name): <u>[Signature]</u> Date / Time: <u>4/30/19 1530</u>	Retrieved by (Signature and Printed Name): <u>[Signature]</u> Date / Time: <u>4/30/19 1530</u>		
Retrieved by (Signature and Printed Name): <u>[Signature]</u> Date / Time: <u>4/30/19 1000</u>	Retrieved by (Signature and Printed Name): <u>[Signature]</u> Date / Time: <u>5/1/19 8:10a</u>		
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: 4/30/2019 Workorder: N035345  
 Rep sample Temp (Deg C): 3.5/2.4 IR Gun ID: 2  
 Temp Blank:  Yes  No  
 Carrier name: Golden State Overnight  
 Last 4 digits of Tracking No.: 5875/5877 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 <input checked="" type="checkbox"/> | No <input type="checkbox"/> | Not Present <input type="checkbox"/>            |
| 2. Custody seals intact, signed, dated on shipping container/cooler?                    | Yes <input type="checkbox"/>            | No <input type="checkbox"/> | Not Present <input checked="" type="checkbox"/> |
| 3. Custody seals intact on sample bottles?  | Yes <input type="checkbox"/>            | No <input type="checkbox"/> | Not Present <input checked="" type="checkbox"/> |
| 4. Chain of custody present?  | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> |   |
| 5. Sampler's name present in COC?   | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> |   |
| 6. Chain of custody signed when relinquished and received?                              | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> |   |
| 7. Chain of custody agrees with sample labels?  | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> |   |
| 8. Samples in proper container/bottle?  | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> |   |
| 9. Sample containers intact?  | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> |   |
| 10. Sufficient sample volume for indicated test?  | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> |   |
| 11. All samples received within holding time?   | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> |   |
| 12. Temperature of rep sample or Temp Blank within acceptable limit?                    | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | NA <input type="checkbox"/>                     |
| 13. Water - VOA vials have zero headspace?  | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | NA <input type="checkbox"/>                     |
| 14. Water - pH acceptable upon receipt?<br>Example: pH > 12 for (CN,S); pH<2 for Metals | Yes <input type="checkbox"/>            | No <input type="checkbox"/> | NA <input checked="" type="checkbox"/>          |
| 15. Did the bottle labels indicate correct preservatives used?                          | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | NA <input type="checkbox"/>                     |
| 16. Were there Non-Conformance issues at login?<br>Was Client notified?                 | Yes <input type="checkbox"/>            | No <input type="checkbox"/> | NA <input checked="" type="checkbox"/>          |
|   | Yes <input type="checkbox"/>            | No <input type="checkbox"/> | NA <input checked="" type="checkbox"/>          |

Comments:

Checklist Completed By: YR *YRJ* 5/1/2019

Reviewed By: MBC 5/6/19

# ASSET Laboratories

## WORK ORDER Summary

06-May-19

**WorkOrder:** N035345

**Client ID:** CH2HI03

**Project:** SFPP Norwalk

**QC Level:** RTNE

**Date Received:** 4/30/2019

**Comments:**

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N035345-001A	INF-04-29	4/29/2019 12:35:00 PM	5/8/2019	Wastewater	EPA 8260B	VOLATILE ORGANIC COMPOUNDS BY GC/MS	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	V-CA
N035345-001B			5/8/2019		EPA 8015B	GASOLINE RANGE ORGANICS BY GC/FID	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	VW
N035345-001C			5/8/2019		EPA 3510C	SEPARATORY FUNNEL EXTRACTION: EXTRACTABLE FUELS	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	WW
			5/8/2019		EPA 8015B	TPH EXTRACTABLE BY GC/FID	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	WW
			5/8/2019		EPA 8015B	Total TPH	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	WW
N035345-002A	FOLDER	5/8/2019	5/8/2019		Folder	Folder	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	LAB
			5/8/2019		Folder	Folder	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	LAB



800-322-5555  
www.gso.com

**Ship From**  
ASSET LABORATORIES  
MARIANNE SANTOS  
11110 ARTESIA BLVD, SUITE B  
CERRITOS, CA 90703

**Tracking #: 544645875**

**CPS**



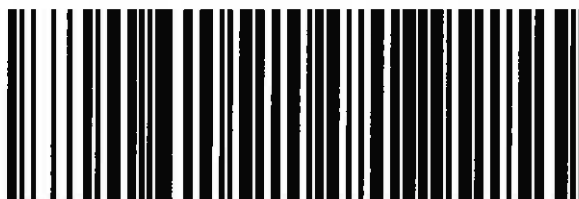
**Ship To**  
ASSET LABORATORIES  
MARLON CARTIN  
3151 W. POST RD.,  
LAS VEGAS, NV 89118

**LAS VEGAS**

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

**C89102A**

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



2025170

**LVS NV891-L 1**

Print Date: 4/30/2019 5:42 PM

Package 2 of 4

**LABEL INSTRUCTIONS:**

352

**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](http://www.gso.com).



800-322-5555  
www.gso.com

**Ship From**  
ASSET LABORATORIES  
MARIANNE SANTOS  
11110 ARTESIA BLVD. SUITE B  
CERRITOS, CA 90703

**Tracking #: 544645877**

**CPS**

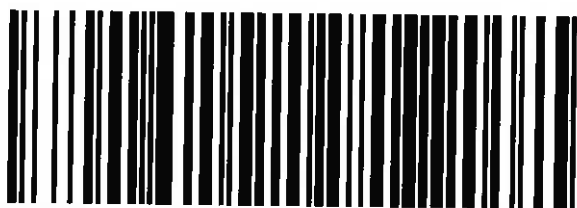


**Ship To**  
ASSET LABORATORIES  
MARLON CARTIN  
3151 W. POST RD.,  
LAS VEGAS, NV 89118

**LAS VEGAS**

**C89102A**

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



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

2025172

**LVS NV891-L 1**

Print Date: 4/30/2019 5:42 PM

Package 4 of 4

**LABEL INSTRUCTIONS:**

*2.4c*

- 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](http://www.gso.com).

June 05, 2019

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

TEL:

FAX:

Workorder No.: N035797

RE: SFPP Norwalk

Attention: Eric Davis

Enclosed are the results for sample(s) received on May 28, 2019 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

The cover letter is an integral part of this analytical report. This Laboratory Report cannot be reproduced in part or in its entirety without written permission from the client and ASSET Laboratories - Las Vegas.



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**CLIENT:** CH2MHill  
**Project:** SFPP Norwalk  
**Lab Order:** N035797

---

**CASE NARRATIVE**

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**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.

Samples were 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.



**CLIENT:** CH2MHill  
**Project:** SFPP Norwalk  
**Lab Order:** N035797  
**Contract No:**

**Work Order Sample Summary**

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N035797-001A	INF-05-28	Wastewater	5/28/2019 9:30:00 AM	5/28/2019	6/5/2019
N035797-001B	INF-05-28	Wastewater	5/28/2019 9:30:00 AM	5/28/2019	6/5/2019
N035797-001C	INF-05-28	Wastewater	5/28/2019 9:30:00 AM	5/28/2019	6/5/2019





**ASSET Laboratories**

**ANALYTICAL RESULTS**

Print Date: 05-Jun-19

**CLIENT:** CH2MHill  
**Lab Order:** N035797  
**Project:** SFPP Norwalk  
**Lab ID:** N035797-001

**Client Sample ID:** INF-05-28  
**Collection Date:** 5/28/2019 9:30:00 AM  
**Matrix:** WASTEWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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**VOLATILE ORGANIC COMPOUNDS BY GC/MS**

**EPA 8260B**

RunID:	CA01638-MS10_190604B	QC Batch:	CA19VW043	PrepDate:	Analyst:	AW
1,1,1,2-Tetrachloroethane	ND	0.38	1.0	ug/L	1	6/4/2019 12:21 PM
1,1,1-Trichloroethane	ND	0.38	1.0	ug/L	1	6/4/2019 12:21 PM
1,1,2,2-Tetrachloroethane	ND	0.34	1.0	ug/L	1	6/4/2019 12:21 PM
1,1,2-Trichloroethane	ND	0.29	1.0	ug/L	1	6/4/2019 12:21 PM
1,1-Dichloroethane	ND	0.45	0.50	ug/L	1	6/4/2019 12:21 PM
1,1-Dichloroethene	ND	0.34	1.0	ug/L	1	6/4/2019 12:21 PM
1,1-Dichloropropene	ND	0.32	1.0	ug/L	1	6/4/2019 12:21 PM
1,2,3-Trichlorobenzene	ND	0.28	1.0	ug/L	1	6/4/2019 12:21 PM
1,2,3-Trichloropropane	ND	0.26	1.0	ug/L	1	6/4/2019 12:21 PM
1,2,4-Trichlorobenzene	ND	0.21	1.0	ug/L	1	6/4/2019 12:21 PM
1,2,4-Trimethylbenzene	ND	0.33	1.0	ug/L	1	6/4/2019 12:21 PM
1,2-Dibromo-3-chloropropane	ND	0.67	2.0	ug/L	1	6/4/2019 12:21 PM
1,2-Dibromoethane	ND	0.31	1.0	ug/L	1	6/4/2019 12:21 PM
1,2-Dichlorobenzene	ND	0.29	1.0	ug/L	1	6/4/2019 12:21 PM
1,2-Dichloroethane	ND	0.29	0.50	ug/L	1	6/4/2019 12:21 PM
1,2-Dichloropropane	ND	0.24	1.0	ug/L	1	6/4/2019 12:21 PM
1,3,5-Trimethylbenzene	ND	0.27	1.0	ug/L	1	6/4/2019 12:21 PM
1,3-Dichlorobenzene	ND	0.28	1.0	ug/L	1	6/4/2019 12:21 PM
1,3-Dichloropropane	ND	0.32	1.0	ug/L	1	6/4/2019 12:21 PM
1,4-Dichlorobenzene	ND	0.32	1.0	ug/L	1	6/4/2019 12:21 PM
2,2-Dichloropropane	ND	0.32	1.0	ug/L	1	6/4/2019 12:21 PM
2-Butanone	ND	4.9	10	ug/L	1	6/4/2019 12:21 PM
2-Chlorotoluene	ND	0.28	1.0	ug/L	1	6/4/2019 12:21 PM
4-Chlorotoluene	ND	0.30	1.0	ug/L	1	6/4/2019 12:21 PM
4-Isopropyltoluene	ND	0.33	1.0	ug/L	1	6/4/2019 12:21 PM
4-Methyl-2-pentanone	ND	3.2	10	ug/L	1	6/4/2019 12:21 PM
Acetone	ND	9.7	10	ug/L	1	6/4/2019 12:21 PM
Benzene	ND	0.34	1.0	ug/L	1	6/4/2019 12:21 PM
Bromobenzene	ND	0.25	1.0	ug/L	1	6/4/2019 12:21 PM
Bromochloromethane	ND	0.41	1.0	ug/L	1	6/4/2019 12:21 PM
Bromodichloromethane	ND	0.38	1.0	ug/L	1	6/4/2019 12:21 PM
Bromoform	ND	0.39	1.0	ug/L	1	6/4/2019 12:21 PM
Bromomethane	ND	0.79	1.0	ug/L	1	6/4/2019 12:21 PM
Carbon disulfide	ND	0.81	1.0	ug/L	1	6/4/2019 12:21 PM
Carbon tetrachloride	ND	0.40	0.50	ug/L	1	6/4/2019 12:21 PM
Chlorobenzene	ND	0.30	1.0	ug/L	1	6/4/2019 12:21 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



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**ANALYTICAL RESULTS**

Print Date: 05-Jun-19

**CLIENT:** CH2MHill  
**Lab Order:** N035797  
**Project:** SFPP Norwalk  
**Lab ID:** N035797-001

**Client Sample ID:** INF-05-28  
**Collection Date:** 5/28/2019 9:30:00 AM  
**Matrix:** WASTEWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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**VOLATILE ORGANIC COMPOUNDS BY GC/MS**

**EPA 8260B**

RunID:	CA01638-MS10_190604B	QC Batch:	CA19VW043	PrepDate:	Analyst:	AW
Chloroethane	ND	0.97	1.0	ug/L	1	6/4/2019 12:21 PM
Chloroform	ND	0.27	1.0	ug/L	1	6/4/2019 12:21 PM
Chloromethane	ND	0.36	1.0	ug/L	1	6/4/2019 12:21 PM
cis-1,2-Dichloroethene	ND	0.32	1.0	ug/L	1	6/4/2019 12:21 PM
cis-1,3-Dichloropropene	ND	0.28	1.0	ug/L	1	6/4/2019 12:21 PM
Di-isopropyl ether	2.6	0.079	1.0	ug/L	1	6/4/2019 12:21 PM
Dibromochloromethane	ND	0.41	1.0	ug/L	1	6/4/2019 12:21 PM
Dibromomethane	ND	0.28	1.0	ug/L	1	6/4/2019 12:21 PM
Dichlorodifluoromethane	ND	0.29	1.0	ug/L	1	6/4/2019 12:21 PM
Ethyl tert-butyl ether	ND	0.30	1.0	ug/L	1	6/4/2019 12:21 PM
Ethylbenzene	ND	0.31	1.0	ug/L	1	6/4/2019 12:21 PM
Freon-113	ND	0.35	1.0	ug/L	1	6/4/2019 12:21 PM
Hexachlorobutadiene	ND	0.30	1.0	ug/L	1	6/4/2019 12:21 PM
Isopropylbenzene	ND	0.26	1.0	ug/L	1	6/4/2019 12:21 PM
m,p-Xylene	ND	0.23	1.0	ug/L	1	6/4/2019 12:21 PM
Methylene chloride	ND	1.9	2.0	ug/L	1	6/4/2019 12:21 PM
MTBE	1.8	0.34	1.0	ug/L	1	6/4/2019 12:21 PM
n-Butylbenzene	ND	0.34	1.0	ug/L	1	6/4/2019 12:21 PM
n-Propylbenzene	ND	0.32	1.0	ug/L	1	6/4/2019 12:21 PM
Naphthalene	ND	0.42	1.0	ug/L	1	6/4/2019 12:21 PM
o-Xylene	ND	0.31	1.0	ug/L	1	6/4/2019 12:21 PM
sec-Butylbenzene	ND	0.32	1.0	ug/L	1	6/4/2019 12:21 PM
Styrene	ND	0.21	1.0	ug/L	1	6/4/2019 12:21 PM
Tert-amyl methyl ether	ND	0.26	1.0	ug/L	1	6/4/2019 12:21 PM
Tert-Butanol	16	2.4	5.0	ug/L	1	6/4/2019 12:21 PM
tert-Butylbenzene	ND	0.28	1.0	ug/L	1	6/4/2019 12:21 PM
Tetrachloroethene	ND	0.30	1.0	ug/L	1	6/4/2019 12:21 PM
Toluene	ND	0.46	2.0	ug/L	1	6/4/2019 12:21 PM
trans-1,2-Dichloroethene	ND	0.40	1.0	ug/L	1	6/4/2019 12:21 PM
trans-1,3-Dichloropropene	ND	0.25	1.0	ug/L	1	6/4/2019 12:21 PM
Trichloroethene	ND	0.37	1.0	ug/L	1	6/4/2019 12:21 PM
Trichlorofluoromethane	ND	0.37	1.0	ug/L	1	6/4/2019 12:21 PM
Vinyl chloride	ND	0.29	0.50	ug/L	1	6/4/2019 12:21 PM
Xylenes, Total	ND	1.5	2.0	ug/L	1	6/4/2019 12:21 PM
Surr: 1,2-Dichloroethane-d4	94.8	0	72-119	%REC	1	6/4/2019 12:21 PM
Surr: 4-Bromofluorobenzene	94.9	0	76-119	%REC	1	6/4/2019 12:21 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



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**ANALYTICAL RESULTS**

Print Date: 05-Jun-19

<b>CLIENT:</b> CH2MHill	<b>Client Sample ID:</b> INF-05-28
<b>Lab Order:</b> N035797	<b>Collection Date:</b> 5/28/2019 9:30:00 AM
<b>Project:</b> SFPP Norwalk	<b>Matrix:</b> WASTEWATER
<b>Lab ID:</b> N035797-001	

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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**VOLATILE ORGANIC COMPOUNDS BY GC/MS**

**EPA 8260B**

RunID: <b>CA01638-MS10_190604B</b>	QC Batch: <b>CA19VW043</b>	PrepDate:	Analyst: <b>AW</b>
Surr: Dibromofluoromethane	90.5 0	85-115	%REC 1 6/4/2019 12:21 PM
Surr: Toluene-d8	99.9 0	81-120	%REC 1 6/4/2019 12:21 PM

**TPH EXTRACTABLE BY GC/FID**

**EPA 3510C**

**EPA 8015B**

RunID: <b>NV00922-GC3_190530A</b>	QC Batch: <b>74040</b>	PrepDate: <b>5/29/2019</b>	Analyst: <b>LLR</b>
TPH-Diesel (C13-C22)	270 15	25	ug/L 1 5/30/2019 10:21 PM
TPH-Oil (C23-C36)	120 14	25	ug/L 1 5/30/2019 10:21 PM
Surr: Octacosane	106 0	26-152	%REC 1 5/30/2019 10:21 PM
Surr: p-Terphenyl	106 0	57-132	%REC 1 5/30/2019 10:21 PM

**GASOLINE RANGE ORGANICS BY GC/FID**

**EPA 8015B**

RunID: <b>NV00922-GC4_190529B</b>	QC Batch: <b>E19VW034</b>	PrepDate:	Analyst: <b>QBM</b>
TPH-Gasoline (C4-C12)	31 21	50	J ug/L 1 5/30/2019 01:04 AM
Surr: Chlorobenzene - d5	112 0	74-138	%REC 1 5/30/2019 01:04 AM

**TOTAL TPH**

**EPA 8015B**

RunID: <b>NV00922-GC3_190530A</b>	QC Batch: <b>R134231</b>	PrepDate:	Analyst: <b>LLR</b>
Total TPH	420 21	100	ug/L 1 5/30/2019

<b>Qualifiers:</b>	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



**ASSET LABORATORIES**  
ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES

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EPA ID CA01638

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"Serving Clients with Passion and Professionalism"

**CLIENT:** CH2MHill  
**Work Order:** N035797  
**Project:** SFPP Norwalk

**ANALYTICAL QC SUMMARY REPORT**

**TestCode: 8015\_W\_FP\_SFPP**

Sample ID: <b>MB-74040</b>	SampType: <b>MBLK</b>	TestCode: <b>8015_W_FP_</b>	Units: <b>ug/L</b>	Prep Date: <b>5/29/2019</b>	RunNo: <b>134231</b>						
Client ID: <b>PBW</b>	Batch ID: <b>74040</b>	TestNo: <b>EPA 8015B EPA 3510C</b>		Analysis Date: <b>5/30/2019</b>	SeqNo: <b>3399899</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH-Diesel (C13-C22)	ND	25									
TPH-Oil (C23-C36)	ND	25									
Surr: Octacosane	98.127		80.00		123	26	152				
Surr: p-Terphenyl	98.130		80.00		123	57	132				

**Qualifiers:**

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



**ASSET LABORATORIES**  
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**CLIENT:** CH2MHill  
**Work Order:** N035797  
**Project:** SFPP Norwalk

## ANALYTICAL QC SUMMARY REPORT

**TestCode: 8015\_W\_SFPPTOT**

Sample ID: <b>MB-R134231</b>	SampType: <b>MBLK</b>	TestCode: <b>8015_W_SFP</b> Units: <b>ug/L</b>	Prep Date:	RunNo: <b>134231</b>							
Client ID: <b>PBW</b>	Batch ID: <b>R134231</b>	TestNo: <b>EPA 8015B</b>	Analysis Date: <b>5/30/2019</b>	SeqNo: <b>3400107</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total TPH	23.000	100									J

**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                 |



**ASSET LABORATORIES**  
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**CLIENT:** CH2MHill  
**Work Order:** N035797  
**Project:** SFPP Norwalk

## ANALYTICAL QC SUMMARY REPORT

**TestCode: 8015GAS\_WSFPP**

Sample ID: <b>E190529LCS2</b>	SampType: <b>LCS</b>	TestCode: <b>8015GAS_WS</b> Units: <b>ug/L</b>	Prep Date:	RunNo: <b>134222</b>							
Client ID: <b>LCSW</b>	Batch ID: <b>E19VW034</b>	TestNo: <b>EPA 8015B</b>	Analysis Date: <b>5/29/2019</b>	SeqNo: <b>3399429</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH-Gasoline (C4-C12)	917.000	50	1000	0	91.7	67	136				
Surr: Chlorobenzene - d5	48826.000		50000		97.7	74	138				

Sample ID: <b>E190529MB2</b>	SampType: <b>MBLK</b>	TestCode: <b>8015GAS_WS</b> Units: <b>ug/L</b>	Prep Date:	RunNo: <b>134222</b>							
Client ID: <b>PBW</b>	Batch ID: <b>E19VW034</b>	TestNo: <b>EPA 8015B</b>	Analysis Date: <b>5/29/2019</b>	SeqNo: <b>3399430</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH-Gasoline (C4-C12)	23.000	50									J
Surr: Chlorobenzene - d5	54826.000		50000		110	74	138				

Sample ID: <b>N035796-004BMS</b>	SampType: <b>MS</b>	TestCode: <b>8015GAS_WS</b> Units: <b>ug/L</b>	Prep Date:	RunNo: <b>134222</b>							
Client ID: <b>ZZZZZ</b>	Batch ID: <b>E19VW034</b>	TestNo: <b>EPA 8015B</b>	Analysis Date: <b>5/29/2019</b>	SeqNo: <b>3399437</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH-Gasoline (C4-C12)	867.000	50	1000	22.00	84.5	67	136				
Surr: Chlorobenzene - d5	48966.000		50000		97.9	74	138				

Sample ID: <b>N035796-004BMSD</b>	SampType: <b>MSD</b>	TestCode: <b>8015GAS_WS</b> Units: <b>ug/L</b>	Prep Date:	RunNo: <b>134222</b>							
Client ID: <b>ZZZZZ</b>	Batch ID: <b>E19VW034</b>	TestNo: <b>EPA 8015B</b>	Analysis Date: <b>5/29/2019</b>	SeqNo: <b>3399438</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH-Gasoline (C4-C12)	841.000	50	1000	22.00	81.9	67	136	867.0	3.04	30	
Surr: Chlorobenzene - d5	48968.000		50000		97.9	74	138		0	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                 |



**ASSET LABORATORIES**  
ANALYTICAL SERVICES FOR THE ENVIRONMENT AND ENERGY

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"Serving Clients with Passion and Professionalism"

**CLIENT:** CH2MHill  
**Work Order:** N035797  
**Project:** SFPP Norwalk

## ANALYTICAL QC SUMMARY REPORT

**TestCode: 8260\_WP\_SFPP**

Sample ID: <b>CA190604-MB2</b>	SampType: <b>MBLK</b>	TestCode: <b>8260_WP_SF</b>	Units: <b>ug/L</b>	Prep Date:	RunNo: <b>134312</b>						
Client ID: <b>PBW</b>	Batch ID: <b>CA19VW043</b>	TestNo: <b>EPA 8260B</b>		Analysis Date: <b>6/4/2019</b>	SeqNo: <b>3401452</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

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									
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									

**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                 |



**ASSET LABORATORIES**  
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**CLIENT:** CH2MHill  
**Work Order:** N035797  
**Project:** SFPP Norwalk

## ANALYTICAL QC SUMMARY REPORT

**TestCode: 8260\_WP\_SFPP**

Sample ID: <b>CA190604-MB2</b>	SampType: <b>MBLK</b>	TestCode: <b>8260_WP_SF</b>	Units: <b>ug/L</b>	Prep Date:	RunNo: <b>134312</b>						
Client ID: <b>PBW</b>	Batch ID: <b>CA19VW043</b>	TestNo: <b>EPA 8260B</b>		Analysis Date: <b>6/4/2019</b>	SeqNo: <b>3401452</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
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									
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									

**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                 |



**ASSET LABORATORIES**  
ANALYTICAL SERVICES FOR THE CONSTRUCTION INDUSTRY

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 ORELAP/NELAP Cert 4046

"Serving Clients with Passion and Professionalism"



**CLIENT:** CH2MHill  
**Work Order:** N035797  
**Project:** SFPP Norwalk

## ANALYTICAL QC SUMMARY REPORT

**TestCode: 8260\_WP\_SFPP**

Sample ID: <b>CA190604-MB2</b>	SampType: <b>MBLK</b>	TestCode: <b>8260_WP_SF</b>	Units: <b>ug/L</b>	Prep Date:	RunNo: <b>134312</b>						
Client ID: <b>PBW</b>	Batch ID: <b>CA19VW043</b>	TestNo: <b>EPA 8260B</b>		Analysis Date: <b>6/4/2019</b>	SeqNo: <b>3401452</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
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	23.560		25.00		94.2	72	119				
Surr: 4-Bromofluorobenzene	22.690		25.00		90.8	76	119				
Surr: Dibromofluoromethane	21.930		25.00		87.7	85	115				
Surr: Toluene-d8	24.280		25.00		97.1	81	120				

Sample ID: <b>N035797-001-MS</b>	SampType: <b>MS</b>	TestCode: <b>8260_WP_SF</b>	Units: <b>ug/L</b>	Prep Date:	RunNo: <b>134312</b>						
Client ID: <b>ZZZZZZ</b>	Batch ID: <b>CA19VW043</b>	TestNo: <b>EPA 8260B</b>		Analysis Date: <b>6/4/2019</b>	SeqNo: <b>3401455</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1,1,2-Tetrachloroethane	19.060	1.0	20.00	0	95.3	81	129				
1,1,1-Trichloroethane	20.450	1.0	20.00	0	102	67	132				
1,1,2,2-Tetrachloroethane	18.070	1.0	20.00	0	90.4	63	128				
1,1,2-Trichloroethane	18.700	1.0	20.00	0	93.5	75	125				
1,1-Dichloroethane	17.940	0.50	20.00	0	89.7	69	133				
1,1-Dichloroethene	19.800	1.0	20.00	0	99.0	68	130				
1,1-Dichloropropene	20.410	1.0	20.00	0	102	73	132				
1,2,3-Trichlorobenzene	17.280	1.0	20.00	0	86.4	67	137				
1,2,3-Trichloropropane	18.910	1.0	20.00	0	94.6	73	124				
1,2,4-Trichlorobenzene	18.610	1.0	20.00	0	93.0	66	134				
1,2,4-Trimethylbenzene	21.900	1.0	20.00	0	110	74	132				

**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                 |



**ASSET LABORATORIES**  
ANALYTICAL SERVICES FOR THE ENERGY, ENVIRONMENTAL, AND CHEMICAL INDUSTRIES

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"Serving Clients with Passion and Professionalism"

CLIENT: CH2MHill  
 Work Order: N035797  
 Project: SFPP Norwalk

## ANALYTICAL QC SUMMARY REPORT

TestCode: 8260\_WP\_SFPP

Sample ID: <b>N035797-001-MS</b>	SampType: <b>MS</b>	TestCode: <b>8260_WP_SF</b>	Units: <b>ug/L</b>	Prep Date:	RunNo: <b>134312</b>						
Client ID: <b>ZZZZZ</b>	Batch ID: <b>CA19VW043</b>	TestNo: <b>EPA 8260B</b>		Analysis Date: <b>6/4/2019</b>	SeqNo: <b>3401455</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,2-Dibromo-3-chloropropane	19.020	2.0	20.00	0	95.1	50	132				
1,2-Dibromoethane	18.250	1.0	20.00	0	91.2	80	121				
1,2-Dichlorobenzene	19.100	1.0	20.00	0	95.5	71	122				
1,2-Dichloroethane	20.080	0.50	20.00	0	100	69	132				
1,2-Dichloropropane	18.980	1.0	20.00	0	94.9	75	125				
1,3,5-Trimethylbenzene	21.370	1.0	20.00	0	107	74	131				
1,3-Dichlorobenzene	18.200	1.0	20.00	0	91.0	75	124				
1,3-Dichloropropane	18.300	1.0	20.00	0	91.5	73	126				
1,4-Dichlorobenzene	18.530	1.0	20.00	0	92.6	74	123				
2,2-Dichloropropane	20.220	1.0	20.00	0	101	69	137				
2-Butanone	109.500	10	200.0	0	54.8	49	136				
2-Chlorotoluene	19.290	1.0	20.00	0	96.5	73	126				
4-Chlorotoluene	19.310	1.0	20.00	0	96.6	74	128				
4-Isopropyltoluene	20.670	1.0	20.00	0	103	73	130				
4-Methyl-2-pentanone	188.080	10	200.0	0	94.0	58	134				
Acetone	92.070	10	200.0	0	46.0	40	135				
Benzene	18.680	1.0	20.00	0	93.4	81	122				
Bromobenzene	19.760	1.0	20.00	0	98.8	76	124				
Bromochloromethane	15.860	1.0	20.00	0	79.3	65	129				
Bromodichloromethane	19.210	1.0	20.00	0	96.0	76	121				
Bromoform	17.260	1.0	20.00	0	86.3	69	128				
Bromomethane	23.380	1.0	20.00	0	117	53	141				
Carbon disulfide	18.670	1.0	20.00	0	93.4	75	125				
Carbon tetrachloride	21.000	0.50	20.00	0	105	66	138				
Chlorobenzene	19.480	1.0	20.00	0	97.4	81	122				
Chloroethane	19.970	1.0	20.00	0	99.8	58	133				
Chloroform	18.570	1.0	20.00	0	92.8	69	128				
Chloromethane	19.780	1.0	20.00	0	98.9	56	131				
cis-1,2-Dichloroethene	18.130	1.0	20.00	0	90.7	72	126				
cis-1,3-Dichloropropene	18.280	1.0	20.00	0	91.4	69	131				

**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                 |



**ASSET LABORATORIES**  
ANALYTICAL SERVICES FOR THE ENVIRONMENT AND ENERGY

**CALIFORNIA** | P: 562.219.7435 F: 562.219.7436  
 11110 Artesia Blvd., Ste B, Cerritos, CA 90703  
 ELAP Cert 2921  
 EPA ID CA01638

**NEVADA** | P: 702.307.2659 F: 702.307.2691  
 3151 W. Post Rd., Las Vegas, NV 89118  
 ELAP Cert 2676 | NV Cert NVO0922  
 ORELAP/NELAP Cert 4046

"Serving Clients with Passion and Professionalism"

**CLIENT:** CH2MHill  
**Work Order:** N035797  
**Project:** SFPP Norwalk

## ANALYTICAL QC SUMMARY REPORT

**TestCode: 8260\_WP\_SFPP**

Sample ID: <b>N035797-001-MS</b>	SampType: <b>MS</b>	TestCode: <b>8260_WP_SF</b>	Units: <b>ug/L</b>	Prep Date:	RunNo: <b>134312</b>						
Client ID: <b>ZZZZZZ</b>	Batch ID: <b>CA19VW043</b>	TestNo: <b>EPA 8260B</b>		Analysis Date: <b>6/4/2019</b>	SeqNo: <b>3401455</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Di-isopropyl ether	19.340	1.0	20.00	2.630	83.6	70	130				
Dibromochloromethane	17.930	1.0	20.00	0	89.7	66	133				
Dibromomethane	18.800	1.0	20.00	0	94.0	76	125				
Dichlorodifluoromethane	20.450	1.0	20.00	0	102	53	153				
Ethyl tert-butyl ether	16.630	1.0	20.00	0	83.2	70	130				
Ethylbenzene	20.320	1.0	20.00	0	102	73	127				
Freon-113	23.360	1.0	20.00	0	117	75	125				
Hexachlorobutadiene	19.910	1.0	20.00	0	99.6	67	131				
Isopropylbenzene	19.790	1.0	20.00	0	99.0	75	127				
m,p-Xylene	41.390	1.0	40.00	0	103	76	128				
Methylene chloride	17.480	2.0	20.00	0	87.4	63	137				
MTBE	18.150	1.0	20.00	1.780	81.8	65	123				
n-Butylbenzene	21.040	1.0	20.00	0	105	69	137				
n-Propylbenzene	19.760	1.0	20.00	0	98.8	72	129				
Naphthalene	16.980	1.0	20.00	0	84.9	54	138				
o-Xylene	19.000	1.0	20.00	0	95.0	80	121				
sec-Butylbenzene	20.220	1.0	20.00	0	101	72	127				
Styrene	19.700	1.0	20.00	0	98.5	65	134				
Tert-amyl methyl ether	17.620	1.0	20.00	0	88.1	70	130				
Tert-Butanol	98.880	5.0	100.0	16.25	82.6	70	130				
tert-Butylbenzene	19.410	1.0	20.00	0	97.0	70	129				
Tetrachloroethene	21.500	1.0	20.00	0	108	66	128				
Toluene	20.190	2.0	20.00	0	101	77	122				
trans-1,2-Dichloroethene	17.670	1.0	20.00	0	88.4	63	137				
trans-1,3-Dichloropropene	18.370	1.0	20.00	0	91.9	59	135				
Trichloroethene	19.120	1.0	20.00	0	95.6	70	127				
Trichlorofluoromethane	21.220	1.0	20.00	0	106	57	129				
Vinyl chloride	20.600	0.50	20.00	0	103	50	134				
Xylenes, Total	60.390	2.0	60.00	0	101	75	125				
Surr: 1,2-Dichloroethane-d4	23.860		25.00		95.4	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                 |



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ORELAP/NELAP Cert 4046

"Serving Clients with Passion and Professionalism"

CLIENT: CH2MHill  
 Work Order: N035797  
 Project: SFPP Norwalk

## ANALYTICAL QC SUMMARY REPORT

TestCode: 8260\_WP\_SFPP

Sample ID: <b>N035797-001-MS</b>	SampType: <b>MS</b>	TestCode: <b>8260_WP_SF</b>	Units: <b>ug/L</b>	Prep Date:	RunNo: <b>134312</b>						
Client ID: <b>ZZZZZ</b>	Batch ID: <b>CA19VW043</b>	TestNo: <b>EPA 8260B</b>	Analysis Date: <b>6/4/2019</b>	SeqNo: <b>3401455</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Surr: 4-Bromofluorobenzene	23.920		25.00		95.7	76	119				
Surr: Dibromofluoromethane	23.690		25.00		94.8	85	115				
Surr: Toluene-d8	24.540		25.00		98.2	81	120				

Sample ID: <b>N035797-001-MSD</b>	SampType: <b>MSD</b>	TestCode: <b>8260_WP_SF</b>	Units: <b>ug/L</b>	Prep Date:	RunNo: <b>134312</b>						
Client ID: <b>ZZZZZ</b>	Batch ID: <b>CA19VW043</b>	TestNo: <b>EPA 8260B</b>	Analysis Date: <b>6/4/2019</b>	SeqNo: <b>3401456</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1,1,2-Tetrachloroethane	21.110	1.0	20.00	0	106	81	129	19.06	10.2	20	
1,1,1-Trichloroethane	21.240	1.0	20.00	0	106	67	132	20.45	3.79	20	
1,1,2,2-Tetrachloroethane	19.960	1.0	20.00	0	99.8	63	128	18.07	9.94	20	
1,1,2-Trichloroethane	19.850	1.0	20.00	0	99.2	75	125	18.70	5.97	20	
1,1-Dichloroethane	18.680	0.50	20.00	0	93.4	69	133	17.94	4.04	20	
1,1-Dichloroethene	22.470	1.0	20.00	0	112	68	130	19.80	12.6	20	
1,1-Dichloropropene	19.850	1.0	20.00	0	99.2	73	132	20.41	2.78	20	
1,2,3-Trichlorobenzene	18.530	1.0	20.00	0	92.6	67	137	17.28	6.98	20	
1,2,3-Trichloropropane	20.990	1.0	20.00	0	105	73	124	18.91	10.4	20	
1,2,4-Trichlorobenzene	19.990	1.0	20.00	0	100	66	134	18.61	7.15	20	
1,2,4-Trimethylbenzene	22.350	1.0	20.00	0	112	74	132	21.90	2.03	20	
1,2-Dibromo-3-chloropropane	19.470	2.0	20.00	0	97.4	50	132	19.02	2.34	20	
1,2-Dibromoethane	17.790	1.0	20.00	0	89.0	80	121	18.25	2.55	20	
1,2-Dichlorobenzene	19.740	1.0	20.00	0	98.7	71	122	19.10	3.30	20	
1,2-Dichloroethane	20.110	0.50	20.00	0	101	69	132	20.08	0.149	20	
1,2-Dichloropropane	19.520	1.0	20.00	0	97.6	75	125	18.98	2.81	20	
1,3,5-Trimethylbenzene	21.090	1.0	20.00	0	105	74	131	21.37	1.32	20	
1,3-Dichlorobenzene	18.940	1.0	20.00	0	94.7	75	124	18.20	3.98	20	
1,3-Dichloropropane	19.100	1.0	20.00	0	95.5	73	126	18.30	4.28	20	
1,4-Dichlorobenzene	19.500	1.0	20.00	0	97.5	74	123	18.53	5.10	20	
2,2-Dichloropropane	20.990	1.0	20.00	0	105	69	137	20.22	3.74	20	
2-Butanone	121.870	10	200.0	0	60.9	49	136	109.5	10.7	20	

**Qualifiers:**

- |  |  |  |
|--|--|--|
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| 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                 |



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CLIENT: CH2MHill  
 Work Order: N035797  
 Project: SFPP Norwalk

## ANALYTICAL QC SUMMARY REPORT

TestCode: 8260\_WP\_SFPP

Sample ID: N035797-001-MSD	SampType: MSD	TestCode: 8260_WP_SF Units: ug/L				Prep Date:			RunNo: 134312		
Client ID: ZZZZZZ	Batch ID: CA19VW043	TestNo: EPA 8260B				Analysis Date: 6/4/2019			SeqNo: 3401456		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
2-Chlorotoluene	19.420	1.0	20.00	0	97.1	73	126	19.29	0.672	20	
4-Chlorotoluene	19.650	1.0	20.00	0	98.2	74	128	19.31	1.75	20	
4-Isopropyltoluene	20.710	1.0	20.00	0	104	73	130	20.67	0.193	20	
4-Methyl-2-pentanone	203.170	10	200.0	0	102	58	134	188.1	7.71	20	
Acetone	97.890	10	200.0	0	48.9	40	135	92.07	6.13	20	
Benzene	19.040	1.0	20.00	0	95.2	81	122	18.68	1.91	20	
Bromobenzene	19.970	1.0	20.00	0	99.8	76	124	19.76	1.06	20	
Bromochloromethane	18.760	1.0	20.00	0	93.8	65	129	15.86	16.8	20	
Bromodichloromethane	19.420	1.0	20.00	0	97.1	76	121	19.21	1.09	20	
Bromoform	18.820	1.0	20.00	0	94.1	69	128	17.26	8.65	20	
Bromomethane	25.590	1.0	20.00	0	128	53	141	23.38	9.03	20	
Carbon disulfide	19.590	1.0	20.00	0	98.0	75	125	18.67	4.81	20	
Carbon tetrachloride	20.340	0.50	20.00	0	102	66	138	21.00	3.19	20	
Chlorobenzene	20.590	1.0	20.00	0	103	81	122	19.48	5.54	20	
Chloroethane	21.910	1.0	20.00	0	110	58	133	19.97	9.26	20	
Chloroform	19.830	1.0	20.00	0	99.2	69	128	18.57	6.56	20	
Chloromethane	19.620	1.0	20.00	0	98.1	56	131	19.78	0.812	20	
cis-1,2-Dichloroethene	20.670	1.0	20.00	0	103	72	126	18.13	13.1	20	
cis-1,3-Dichloropropene	19.070	1.0	20.00	0	95.4	69	131	18.28	4.23	20	
Di-isopropyl ether	21.040	1.0	20.00	2.630	92.0	70	130	19.34	8.42	20	
Dibromochloromethane	19.330	1.0	20.00	0	96.7	66	133	17.93	7.51	20	
Dibromomethane	19.880	1.0	20.00	0	99.4	76	125	18.80	5.58	20	
Dichlorodifluoromethane	20.260	1.0	20.00	0	101	53	153	20.45	0.933	20	
Ethyl tert-butyl ether	17.860	1.0	20.00	0	89.3	70	130	16.63	7.13	20	
Ethylbenzene	21.230	1.0	20.00	0	106	73	127	20.32	4.38	20	
Freon-113	23.830	1.0	20.00	0	119	75	125	23.36	1.99	20	
Hexachlorobutadiene	20.890	1.0	20.00	0	104	67	131	19.91	4.80	20	
Isopropylbenzene	19.400	1.0	20.00	0	97.0	75	127	19.79	1.99	20	
m,p-Xylene	41.630	1.0	40.00	0	104	76	128	41.39	0.578	20	
Methylene chloride	18.150	2.0	20.00	0	90.8	63	137	17.48	3.76	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               |
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**CLIENT:** CH2MHill  
**Work Order:** N035797  
**Project:** SFPP Norwalk

## ANALYTICAL QC SUMMARY REPORT

**TestCode: 8260\_WP\_SFPP**

Sample ID: <b>N035797-001-MSD</b>	SampType: <b>MSD</b>	TestCode: <b>8260_WP_SF</b>	Units: <b>ug/L</b>	Prep Date:	RunNo: <b>134312</b>						
Client ID: <b>ZZZZZZ</b>	Batch ID: <b>CA19VW043</b>	TestNo: <b>EPA 8260B</b>		Analysis Date: <b>6/4/2019</b>	SeqNo: <b>3401456</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
MTBE	19.940	1.0	20.00	1.780	90.8	65	123	18.15	9.40	20	
n-Butylbenzene	20.330	1.0	20.00	0	102	69	137	21.04	3.43	20	
n-Propylbenzene	20.510	1.0	20.00	0	103	72	129	19.76	3.72	20	
Naphthalene	18.690	1.0	20.00	0	93.5	54	138	16.98	9.59	20	
o-Xylene	20.120	1.0	20.00	0	101	80	121	19.00	5.73	20	
sec-Butylbenzene	19.960	1.0	20.00	0	99.8	72	127	20.22	1.29	20	
Styrene	21.080	1.0	20.00	0	105	65	134	19.70	6.77	20	
Tert-amyl methyl ether	19.300	1.0	20.00	0	96.5	70	130	17.62	9.10	20	
Tert-Butanol	120.650	5.0	100.0	16.25	104	70	130	98.88	19.8	20	
tert-Butylbenzene	19.990	1.0	20.00	0	100	70	129	19.41	2.94	20	
Tetrachloroethene	21.740	1.0	20.00	0	109	66	128	21.50	1.11	20	
Toluene	19.170	2.0	20.00	0	95.9	77	122	20.19	5.18	20	
trans-1,2-Dichloroethene	18.890	1.0	20.00	0	94.4	63	137	17.67	6.67	20	
trans-1,3-Dichloropropene	19.680	1.0	20.00	0	98.4	59	135	18.37	6.89	20	
Trichloroethene	20.220	1.0	20.00	0	101	70	127	19.12	5.59	20	
Trichlorofluoromethane	24.510	1.0	20.00	0	123	57	129	21.22	14.4	20	
Vinyl chloride	22.350	0.50	20.00	0	112	50	134	20.60	8.15	20	
Xylenes, Total	61.750	2.0	60.00	0	103	75	125	60.39	2.23	20	
Surr: 1,2-Dichloroethane-d4	22.890		25.00		91.6	72	119		0		
Surr: 4-Bromofluorobenzene	24.360		25.00		97.4	76	119		0		
Surr: Dibromofluoromethane	24.080		25.00		96.3	85	115		0		
Surr: Toluene-d8	24.960		25.00		99.8	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 |
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# 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: 5/28/2019 Workorder: N035797  
 Rep sample Temp (Deg C): 2.9 IR Gun ID: 2  
 Temp Blank:  Yes  No  
 Carrier name: Golden State Overnight  
 Last 4 digits of Tracking No.: 5743 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 <input checked="" type="checkbox"/> | No <input type="checkbox"/> | Not Present <input type="checkbox"/>            |
| 2. Custody seals intact, signed, dated on shipping container/cooler?                    | Yes <input type="checkbox"/>            | No <input type="checkbox"/> | Not Present <input checked="" type="checkbox"/> |
| 3. Custody seals intact on sample bottles?  | Yes <input type="checkbox"/>            | No <input type="checkbox"/> | Not Present <input checked="" type="checkbox"/> |
| 4. Chain of custody present?  | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> |   |
| 5. Sampler's name present in COC?   | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> |   |
| 6. Chain of custody signed when relinquished and received?                              | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> |   |
| 7. Chain of custody agrees with sample labels?  | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> |   |
| 8. Samples in proper container/bottle?  | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> |   |
| 9. Sample containers intact?  | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> |   |
| 10. Sufficient sample volume for indicated test?  | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> |   |
| 11. All samples received within holding time?   | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> |   |
| 12. Temperature of rep sample or Temp Blank within acceptable limit?                    | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | NA <input type="checkbox"/>                     |
| 13. Water - VOA vials have zero headspace?  | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | NA <input type="checkbox"/>                     |
| 14. Water - pH acceptable upon receipt?<br>Example: pH > 12 for (CN,S); pH<2 for Metals | Yes <input type="checkbox"/>            | No <input type="checkbox"/> | NA <input checked="" type="checkbox"/>          |
| 15. Did the bottle labels indicate correct preservatives used?                          | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | NA <input type="checkbox"/>                     |
| 16. Were there Non-Conformance issues at login?<br>Was Client notified?                 | Yes <input type="checkbox"/>            | No <input type="checkbox"/> | NA <input checked="" type="checkbox"/>          |
|   | Yes <input type="checkbox"/>            | No <input type="checkbox"/> | NA <input checked="" type="checkbox"/>          |

Comments:

Checklist Completed By: YR *YRJ* 5/29/2019

Reviewed By: MBC 5/29/2019



# ASSET Laboratories

## WORK ORDER Summary

29-May-19

**WorkOrder:** N035797

**Client ID:** CH2HI03

**Project:** SFPP Norwalk

**QC Level:** RTNE

**Date Received:** 5/28/2019

**Comments:**

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N035797-001A	INF-05-28	5/28/2019 9:30:00 AM	6/5/2019	Wastewater	EPA 8260B	VOLATILE ORGANIC COMPOUNDS BY GC/MS	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	V-CA
N035797-001B			6/5/2019		EPA 8015B	GASOLINE RANGE ORGANICS BY GC/FID	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	VW
N035797-001C			6/5/2019		EPA 3510C	SEPARATORY FUNNEL EXTRACTION: EXTRACTABLE FUELS	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	WW
			6/5/2019		EPA 8015B	TPH EXTRACTABLE BY GC/FID	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	WW
			6/5/2019		EPA 8015B	Total TPH	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	WW
N035797-002A	FOLDER	6/5/2019	6/5/2019		Folder	Folder	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	LAB
			6/5/2019		Folder	Folder	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	LAB



800-322-5555  
www.gso.com

**Ship From**

ASSET LABORATORIES  
MARIANNE SANTOS  
11110 ARTESIA BLVD. SUITE B  
CERRITOS, CA 90703

Tracking #: 544955743

CPS



**Ship To**

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

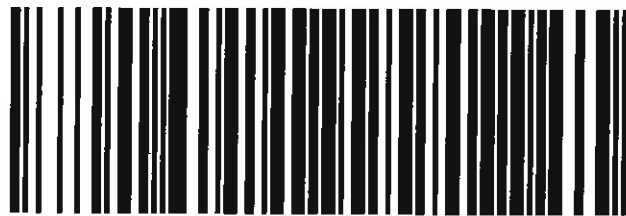
LAS VEGAS

COD: \$0.00

Weight: 0 lb(s)

Reference:

C89102A



3370017

**Delivery Instructions:**

HOLD FOR PICK-UP

Signature Type: STANDARD

LVS NV891-C51

Print Date: 5/28/2019 5:00 PM

Package 3 of 3

**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](http://www.gso.com).

2.90  
INV# 2

July 03, 2019

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

TEL:

FAX:

Workorder No.: N036179

RE: SFPP Norwalk

Attention: Eric Davis

Enclosed are the results for sample(s) received on June 20, 2019 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,

 for

QuennieManimtim  
Laboratory Director

The cover letter is an integral part of this analytical report. This Laboratory Report cannot be reproduced in part or in its entirety without written permission from the client and ASSET Laboratories - Las Vegas.



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**CLIENT:** CH2MHill  
**Project:** SFPP Norwalk  
**Lab Order:** N036179

**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.

Samples were 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.

**Analytical comments for EPA 8015B:**

Method Blank has hit above the reporting limit. Re-extraction is not possible since sample is past the holding time period.

**Analytical comments for EPA 8260B:**

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

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria on analyte Bromomethane possibly due to matrix interference. The associated Laboratory Control Sample (LCS) recovery was acceptable.



**CLIENT:** CH2MHill  
**Project:** SFPP Norwalk  
**Lab Order:** N036179  
**Contract No:**

**Work Order Sample Summary**

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N036179-001A	INF-06-20	Wastewater	6/20/2019 12:00:00 PM	6/20/2019	7/3/2019
N036179-001B	INF-06-20	Wastewater	6/20/2019 12:00:00 PM	6/20/2019	7/3/2019
N036179-001C	INF-06-20	Wastewater	6/20/2019 12:00:00 PM	6/20/2019	7/3/2019



**ASSET Laboratories**

**ANALYTICAL RESULTS**

Print Date: 03-Jul-19

**CLIENT:** CH2MHill  
**Lab Order:** N036179  
**Project:** SFPP Norwalk  
**Lab ID:** N036179-001

**Client Sample ID:** INF-06-20  
**Collection Date:** 6/20/2019 12:00:00 PM  
**Matrix:** WASTEWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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**VOLATILE ORGANIC COMPOUNDS BY GC/MS**

**EPA 8260B**

RunID:	CA01638-MS10_190702A	QC Batch:	CA19VW057	PrepDate:	Analyst:	AG
1,1,1,2-Tetrachloroethane	ND	0.38	1.0	ug/L	1	7/2/2019 12:12 PM
1,1,1-Trichloroethane	ND	0.38	1.0	ug/L	1	7/2/2019 12:12 PM
1,1,2,2-Tetrachloroethane	ND	0.34	1.0	ug/L	1	7/2/2019 12:12 PM
1,1,2-Trichloroethane	ND	0.29	1.0	ug/L	1	7/2/2019 12:12 PM
1,1-Dichloroethane	ND	0.45	0.50	ug/L	1	7/2/2019 12:12 PM
1,1-Dichloroethene	ND	0.34	1.0	ug/L	1	7/2/2019 12:12 PM
1,1-Dichloropropene	ND	0.32	1.0	ug/L	1	7/2/2019 12:12 PM
1,2,3-Trichlorobenzene	ND	0.28	1.0	ug/L	1	7/2/2019 12:12 PM
1,2,3-Trichloropropane	ND	0.26	1.0	ug/L	1	7/2/2019 12:12 PM
1,2,4-Trichlorobenzene	ND	0.21	1.0	ug/L	1	7/2/2019 12:12 PM
1,2,4-Trimethylbenzene	2.6	0.33	1.0	ug/L	1	7/2/2019 12:12 PM
1,2-Dibromo-3-chloropropane	ND	0.67	2.0	ug/L	1	7/2/2019 12:12 PM
1,2-Dibromoethane	ND	0.31	1.0	ug/L	1	7/2/2019 12:12 PM
1,2-Dichlorobenzene	ND	0.29	1.0	ug/L	1	7/2/2019 12:12 PM
1,2-Dichloroethane	ND	0.29	0.50	ug/L	1	7/2/2019 12:12 PM
1,2-Dichloropropane	ND	0.24	1.0	ug/L	1	7/2/2019 12:12 PM
1,3,5-Trimethylbenzene	1.9	0.27	1.0	ug/L	1	7/2/2019 12:12 PM
1,3-Dichlorobenzene	ND	0.28	1.0	ug/L	1	7/2/2019 12:12 PM
1,3-Dichloropropane	ND	0.32	1.0	ug/L	1	7/2/2019 12:12 PM
1,4-Dichlorobenzene	ND	0.32	1.0	ug/L	1	7/2/2019 12:12 PM
2,2-Dichloropropane	ND	0.32	1.0	ug/L	1	7/2/2019 12:12 PM
2-Butanone	ND	4.9	10	ug/L	1	7/2/2019 12:12 PM
2-Chlorotoluene	ND	0.28	1.0	ug/L	1	7/2/2019 12:12 PM
4-Chlorotoluene	ND	0.30	1.0	ug/L	1	7/2/2019 12:12 PM
4-Isopropyltoluene	ND	0.33	1.0	ug/L	1	7/2/2019 12:12 PM
4-Methyl-2-pentanone	ND	3.2	10	ug/L	1	7/2/2019 12:12 PM
Acetone	ND	9.7	10	ug/L	1	7/2/2019 12:12 PM
Benzene	86	0.34	1.0	ug/L	1	7/2/2019 12:12 PM
Bromobenzene	ND	0.25	1.0	ug/L	1	7/2/2019 12:12 PM
Bromochloromethane	ND	0.41	1.0	ug/L	1	7/2/2019 12:12 PM
Bromodichloromethane	ND	0.38	1.0	ug/L	1	7/2/2019 12:12 PM
Bromoform	ND	0.39	1.0	ug/L	1	7/2/2019 12:12 PM
Bromomethane	ND	0.79	1.0	ug/L	1	7/2/2019 12:12 PM
Carbon disulfide	ND	0.81	1.0	ug/L	1	7/2/2019 12:12 PM
Carbon tetrachloride	ND	0.40	0.50	ug/L	1	7/2/2019 12:12 PM
Chlorobenzene	ND	0.30	1.0	ug/L	1	7/2/2019 12:12 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



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**ASSET Laboratories**

**ANALYTICAL RESULTS**

Print Date: 03-Jul-19

**CLIENT:** CH2MHill  
**Lab Order:** N036179  
**Project:** SFPP Norwalk  
**Lab ID:** N036179-001

**Client Sample ID:** INF-06-20  
**Collection Date:** 6/20/2019 12:00:00 PM  
**Matrix:** WASTEWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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**VOLATILE ORGANIC COMPOUNDS BY GC/MS**

**EPA 8260B**

RunID:	CA01638-MS10_190702A	QC Batch:	CA19VW057	PrepDate:	Analyst:	AG
Chloroethane	ND	0.97	1.0	ug/L	1	7/2/2019 12:12 PM
Chloroform	ND	0.27	1.0	ug/L	1	7/2/2019 12:12 PM
Chloromethane	ND	0.36	1.0	ug/L	1	7/2/2019 12:12 PM
cis-1,2-Dichloroethene	ND	0.32	1.0	ug/L	1	7/2/2019 12:12 PM
cis-1,3-Dichloropropene	ND	0.28	1.0	ug/L	1	7/2/2019 12:12 PM
Di-isopropyl ether	4.5	0.079	1.0	ug/L	1	7/2/2019 12:12 PM
Dibromochloromethane	ND	0.41	1.0	ug/L	1	7/2/2019 12:12 PM
Dibromomethane	ND	0.28	1.0	ug/L	1	7/2/2019 12:12 PM
Dichlorodifluoromethane	ND	0.29	1.0	ug/L	1	7/2/2019 12:12 PM
Ethyl tert-butyl ether	ND	0.30	1.0	ug/L	1	7/2/2019 12:12 PM
Ethylbenzene	1.1	0.31	1.0	ug/L	1	7/2/2019 12:12 PM
Freon-113	ND	0.35	1.0	ug/L	1	7/2/2019 12:12 PM
Hexachlorobutadiene	ND	0.30	1.0	ug/L	1	7/2/2019 12:12 PM
Isopropylbenzene	1.6	0.26	1.0	ug/L	1	7/2/2019 12:12 PM
m,p-Xylene	9.5	0.23	1.0	ug/L	1	7/2/2019 12:12 PM
Methylene chloride	ND	1.9	2.0	ug/L	1	7/2/2019 12:12 PM
MTBE	2.8	0.34	1.0	ug/L	1	7/2/2019 12:12 PM
n-Butylbenzene	ND	0.34	1.0	ug/L	1	7/2/2019 12:12 PM
n-Propylbenzene	0.78	0.32	1.0	J ug/L	1	7/2/2019 12:12 PM
Naphthalene	8.5	0.42	1.0	ug/L	1	7/2/2019 12:12 PM
o-Xylene	1.8	0.31	1.0	ug/L	1	7/2/2019 12:12 PM
sec-Butylbenzene	ND	0.32	1.0	ug/L	1	7/2/2019 12:12 PM
Styrene	ND	0.21	1.0	ug/L	1	7/2/2019 12:12 PM
Tert-amyl methyl ether	ND	0.26	1.0	ug/L	1	7/2/2019 12:12 PM
Tert-Butanol	220	2.4	5.0	ug/L	1	7/2/2019 12:12 PM
tert-Butylbenzene	ND	0.28	1.0	ug/L	1	7/2/2019 12:12 PM
Tetrachloroethene	ND	0.30	1.0	ug/L	1	7/2/2019 12:12 PM
Toluene	1.9	0.46	2.0	J ug/L	1	7/2/2019 12:12 PM
trans-1,2-Dichloroethene	ND	0.40	1.0	ug/L	1	7/2/2019 12:12 PM
trans-1,3-Dichloropropene	ND	0.25	1.0	ug/L	1	7/2/2019 12:12 PM
Trichloroethene	ND	0.37	1.0	ug/L	1	7/2/2019 12:12 PM
Trichlorofluoromethane	ND	0.37	1.0	ug/L	1	7/2/2019 12:12 PM
Vinyl chloride	ND	0.29	0.50	ug/L	1	7/2/2019 12:12 PM
Xylenes, Total	11	1.5	2.0	ug/L	1	7/2/2019 12:12 PM
Surr: 1,2-Dichloroethane-d4	90.2	0	72-119	%REC	1	7/2/2019 12:12 PM
Surr: 4-Bromofluorobenzene	99.0	0	76-119	%REC	1	7/2/2019 12:12 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



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**ANALYTICAL RESULTS**

Print Date: 03-Jul-19

**CLIENT:** CH2MHill  
**Lab Order:** N036179  
**Project:** SFPP Norwalk  
**Lab ID:** N036179-001

**Client Sample ID:** INF-06-20  
**Collection Date:** 6/20/2019 12:00:00 PM  
**Matrix:** WASTEWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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**VOLATILE ORGANIC COMPOUNDS BY GC/MS**

**EPA 8260B**

RunID: <b>CA01638-MS10_190702A</b>	QC Batch: <b>CA19VW057</b>					PrepDate:	Analyst: <b>AG</b>
Surr: Dibromofluoromethane	96.9	0	85-115		%REC	1	7/2/2019 12:12 PM
Surr: Toluene-d8	99.4	0	81-120		%REC	1	7/2/2019 12:12 PM

**TPH EXTRACTABLE BY GC/FID**

**EPA 3510C**

**EPA 8015B**

RunID: <b>NV00922-GC3_190702A</b>	QC Batch: <b>74374</b>					PrepDate: <b>6/27/2019</b>	Analyst: <b>LLR</b>
TPH-Diesel (C13-C22)	210	15	25		ug/L	1	7/2/2019 07:17 PM
TPH-Oil (C23-C36)	82	14	25	B	ug/L	1	7/2/2019 07:17 PM
Surr: Octacosane	58.7	0	26-152		%REC	1	7/2/2019 07:17 PM
Surr: p-Terphenyl	60.4	0	57-132		%REC	1	7/2/2019 07:17 PM

**GASOLINE RANGE ORGANICS BY GC/FID**

**EPA 8015B**

RunID: <b>NV00922-GC4_190629A</b>	QC Batch: <b>E19VW044</b>					PrepDate:	Analyst: <b>QBM</b>
TPH-Gasoline (C4-C12)	170	21	50		ug/L	1	6/29/2019 02:24 PM
Surr: Chlorobenzene - d5	102	0	74-138		%REC	1	6/29/2019 02:24 PM

**TOTAL TPH**

**EPA 8015B**

RunID: <b>NV00922-GC3_190702A</b>	QC Batch: <b>R134866</b>					PrepDate:	Analyst: <b>LLR</b>
Total TPH	460	21	100		ug/L	1	7/2/2019

<b>Qualifiers:</b>	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



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**CLIENT:** CH2MHill  
**Work Order:** N036179  
**Project:** SFPP Norwalk

**ANALYTICAL QC SUMMARY REPORT**

**TestCode: 8015\_W\_FP\_SFPP**

Sample ID: <b>MB-74374</b>	SampType: <b>MBLK</b>	TestCode: <b>8015_W_FP_</b>	Units: <b>ug/L</b>	Prep Date: <b>6/27/2019</b>	RunNo: <b>134866</b>						
Client ID: <b>PBW</b>	Batch ID: <b>74374</b>	TestNo: <b>EPA 8015B EPA 3510C</b>		Analysis Date: <b>7/2/2019</b>	SeqNo: <b>3428061</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH-Diesel (C13-C22)	20.084	25									J
TPH-Oil (C23-C36)	25.340	25									
Surr: Octacosane	78.610		80.00		98.3	26	152				
Surr: p-Terphenyl	80.337		80.00		100	57	132				

**Qualifiers:**

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



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**CLIENT:** CH2MHill  
**Work Order:** N036179  
**Project:** SFPP Norwalk

## ANALYTICAL QC SUMMARY REPORT

**TestCode: 8015\_W\_SFPPTOT**

Sample ID: <b>MB-R134866</b>	SampType: <b>MBLK</b>	TestCode: <b>8015_W_SFP</b>	Units: <b>ug/L</b>	Prep Date:	RunNo: <b>134866</b>						
Client ID: <b>PBW</b>	Batch ID: <b>R134866</b>	TestNo: <b>EPA 8015B</b>		Analysis Date: <b>7/2/2019</b>	SeqNo: <b>3428687</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total TPH	68.424	100									J

**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                 |



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**CLIENT:** CH2MHill  
**Work Order:** N036179  
**Project:** SFPP Norwalk

## ANALYTICAL QC SUMMARY REPORT

**TestCode: 8015GAS\_WSFP**

Sample ID: <b>E190629LCS</b>	SampType: <b>LCS</b>	TestCode: <b>8015GAS_WS</b>	Units: <b>ug/L</b>	Prep Date:	RunNo: <b>134815</b>						
Client ID: <b>LCSW</b>	Batch ID: <b>E19VW044</b>	TestNo: <b>EPA 8015B</b>	Analysis Date: <b>6/29/2019</b>	SeqNo: <b>3425800</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH-Gasoline (C4-C12)	890.000	50	1000	0	89.0	67	136				
Surr: Chlorobenzene - d5	45338.000		50000		90.7	74	138				

Sample ID: <b>E190629MB1</b>	SampType: <b>MBLK</b>	TestCode: <b>8015GAS_WS</b>	Units: <b>ug/L</b>	Prep Date:	RunNo: <b>134815</b>						
Client ID: <b>PBW</b>	Batch ID: <b>E19VW044</b>	TestNo: <b>EPA 8015B</b>	Analysis Date: <b>6/29/2019</b>	SeqNo: <b>3425801</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH-Gasoline (C4-C12)	23.000	50									J
Surr: Chlorobenzene - d5	51642.000		50000		103	74	138				

Sample ID: <b>N036286-001DMS</b>	SampType: <b>MS</b>	TestCode: <b>8015GAS_WS</b>	Units: <b>ug/L</b>	Prep Date:	RunNo: <b>134815</b>						
Client ID: <b>ZZZZZ</b>	Batch ID: <b>E19VW044</b>	TestNo: <b>EPA 8015B</b>	Analysis Date: <b>6/29/2019</b>	SeqNo: <b>3425805</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH-Gasoline (C4-C12)	913.000	50	1000	0	91.3	67	136				
Surr: Chlorobenzene - d5	46198.000		50000		92.4	74	138				

Sample ID: <b>N036286-001DMSD</b>	SampType: <b>MSD</b>	TestCode: <b>8015GAS_WS</b>	Units: <b>ug/L</b>	Prep Date:	RunNo: <b>134815</b>						
Client ID: <b>ZZZZZ</b>	Batch ID: <b>E19VW044</b>	TestNo: <b>EPA 8015B</b>	Analysis Date: <b>6/29/2019</b>	SeqNo: <b>3425806</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH-Gasoline (C4-C12)	900.000	50	1000	0	90.0	67	136	913.0	1.43	30	
Surr: Chlorobenzene - d5	46420.000		50000		92.8	74	138		0	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:** N036179  
**Project:** SFPP Norwalk

## ANALYTICAL QC SUMMARY REPORT

**TestCode: 8260\_WP\_SFPP**

Sample ID: <b>CA190702-LCS</b>	SampType: <b>LCS</b>	TestCode: <b>8260_WP_SF</b>	Units: <b>ug/L</b>	Prep Date:	RunNo: <b>134863</b>						
Client ID: <b>LCSW</b>	Batch ID: <b>CA19VW057</b>	TestNo: <b>EPA 8260B</b>		Analysis Date: <b>7/2/2019</b>	SeqNo: <b>3427548</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1,1,2-Tetrachloroethane	21.240	1.0	20.00	0	106	81	129				
1,1,1-Trichloroethane	20.600	1.0	20.00	0	103	67	132				
1,1,2,2-Tetrachloroethane	21.400	1.0	20.00	0	107	63	128				
1,1,2-Trichloroethane	23.620	1.0	20.00	0	118	75	125				
1,1-Dichloroethane	18.070	0.50	20.00	0	90.4	69	133				
1,1-Dichloroethene	22.730	1.0	20.00	0	114	68	130				
1,1-Dichloropropene	20.590	1.0	20.00	0	103	73	132				
1,2,3-Trichlorobenzene	19.430	1.0	20.00	0	97.2	67	137				
1,2,3-Trichloropropane	19.310	1.0	20.00	0	96.6	73	124				
1,2,4-Trichlorobenzene	18.630	1.0	20.00	0	93.2	66	134				
1,2,4-Trimethylbenzene	20.440	1.0	20.00	0	102	74	132				
1,2-Dibromo-3-chloropropane	23.130	2.0	20.00	0	116	50	132				
1,2-Dibromoethane	21.190	1.0	20.00	0	106	80	121				
1,2-Dichlorobenzene	19.300	1.0	20.00	0	96.5	71	122				
1,2-Dichloroethane	22.250	0.50	20.00	0	111	69	132				
1,2-Dichloropropane	19.500	1.0	20.00	0	97.5	75	125				
1,3,5-Trimethylbenzene	19.770	1.0	20.00	0	98.8	74	131				
1,3-Dichlorobenzene	19.790	1.0	20.00	0	99.0	75	124				
1,3-Dichloropropane	21.090	1.0	20.00	0	105	73	126				
1,4-Dichlorobenzene	19.840	1.0	20.00	0	99.2	74	123				
2,2-Dichloropropane	18.970	1.0	20.00	0	94.8	69	137				
2-Butanone	230.340	10	200.0	0	115	49	136				
2-Chlorotoluene	19.960	1.0	20.00	0	99.8	73	126				
4-Chlorotoluene	20.590	1.0	20.00	0	103	74	128				
4-Isopropyltoluene	18.630	1.0	20.00	0	93.2	73	130				
4-Methyl-2-pentanone	230.050	10	200.0	0	115	58	134				
Acetone	329.050	10	200.0	0	165	40	135				S
Benzene	20.910	1.0	20.00	0	105	81	122				
Bromobenzene	22.200	1.0	20.00	0	111	76	124				
Bromochloromethane	19.420	1.0	20.00	0	97.1	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:** N036179  
**Project:** SFPP Norwalk

## ANALYTICAL QC SUMMARY REPORT

**TestCode: 8260\_WP\_SFPP**

Sample ID: CA190702-LCS	SampType: LCS	TestCode: 8260_WP_SF	Units: ug/L	Prep Date:	RunNo: 134863						
Client ID: LCSW	Batch ID: CA19VW057	TestNo: EPA 8260B		Analysis Date: 7/2/2019	SeqNo: 3427548						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Bromodichloromethane	18.770	1.0	20.00	0	93.8	76	121				
Bromoform	21.790	1.0	20.00	0	109	69	128				
Bromomethane	25.490	1.0	20.00	0	127	53	141				
Carbon disulfide	20.900	1.0	20.00	0	104	75	125				
Carbon tetrachloride	22.870	0.50	20.00	0	114	66	138				
Chlorobenzene	20.630	1.0	20.00	0	103	81	122				
Chloroethane	20.140	1.0	20.00	0	101	58	133				
Chloroform	18.750	1.0	20.00	0	93.8	69	128				
Chloromethane	19.180	1.0	20.00	0	95.9	56	131				
cis-1,2-Dichloroethene	19.730	1.0	20.00	0	98.6	72	126				
cis-1,3-Dichloropropene	18.860	1.0	20.00	0	94.3	69	131				
Di-isopropyl ether	16.270	1.0	20.00	0	81.4	70	130				
Dibromochloromethane	22.270	1.0	20.00	0	111	66	133				
Dibromomethane	23.540	1.0	20.00	0	118	76	125				
Dichlorodifluoromethane	16.320	1.0	20.00	0	81.6	53	153				
Ethyl tert-butyl ether	19.470	1.0	20.00	0	97.4	70	130				
Ethylbenzene	21.040	1.0	20.00	0	105	73	127				
Freon-113	24.070	1.0	20.00	0	120	75	125				
Hexachlorobutadiene	19.700	1.0	20.00	0	98.5	67	131				
Isopropylbenzene	18.240	1.0	20.00	0	91.2	75	127				
m,p-Xylene	42.610	1.0	40.00	0	107	76	128				
Methylene chloride	20.630	2.0	20.00	0	103	63	137				
MTBE	17.490	1.0	20.00	0	87.5	65	123				
n-Butylbenzene	19.520	1.0	20.00	0	97.6	69	137				
n-Propylbenzene	19.720	1.0	20.00	0	98.6	72	129				
Naphthalene	17.650	1.0	20.00	0	88.2	54	138				
o-Xylene	19.450	1.0	20.00	0	97.3	80	121				
sec-Butylbenzene	18.460	1.0	20.00	0	92.3	72	127				
Styrene	19.190	1.0	20.00	0	96.0	65	134				
Tert-amyl methyl ether	19.930	1.0	20.00	0	99.7	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:** N036179  
**Project:** SFPP Norwalk

## ANALYTICAL QC SUMMARY REPORT

**TestCode: 8260\_WP\_SFPP**

Sample ID: <b>CA190702-LCS</b>	SampType: <b>LCS</b>	TestCode: <b>8260_WP_SF</b>	Units: <b>ug/L</b>	Prep Date:	RunNo: <b>134863</b>						
Client ID: <b>LCSW</b>	Batch ID: <b>CA19VW057</b>	TestNo: <b>EPA 8260B</b>		Analysis Date: <b>7/2/2019</b>	SeqNo: <b>3427548</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Tert-Butanol	110.450	5.0	100.0	0	110	70	130				
tert-Butylbenzene	18.170	1.0	20.00	0	90.9	70	129				
Tetrachloroethene	20.790	1.0	20.00	0	104	66	128				
Toluene	18.720	2.0	20.00	0	93.6	77	122				
trans-1,2-Dichloroethene	18.470	1.0	20.00	0	92.4	63	137				
trans-1,3-Dichloropropene	20.780	1.0	20.00	0	104	59	135				
Trichloroethene	19.700	1.0	20.00	0	98.5	70	127				
Trichlorofluoromethane	24.570	1.0	20.00	0	123	57	129				
Vinyl chloride	19.240	0.50	20.00	0	96.2	50	134				
Xylenes, Total	62.060	2.0	60.00	0	103	75	125				
Surr: 1,2-Dichloroethane-d4	23.670		25.00		94.7	72	119				
Surr: 4-Bromofluorobenzene	24.200		25.00		96.8	76	119				
Surr: Dibromofluoromethane	23.590		25.00		94.4	85	115				
Surr: Toluene-d8	25.150		25.00		101	81	120				

Sample ID: <b>CA190702-MB2</b>	SampType: <b>MBLK</b>	TestCode: <b>8260_WP_SF</b>	Units: <b>ug/L</b>	Prep Date:	RunNo: <b>134863</b>						
Client ID: <b>PBW</b>	Batch ID: <b>CA19VW057</b>	TestNo: <b>EPA 8260B</b>		Analysis Date: <b>7/2/2019</b>	SeqNo: <b>3427550</b>						
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:** N036179  
**Project:** SFPP Norwalk

## ANALYTICAL QC SUMMARY REPORT

**TestCode: 8260\_WP\_SFPP**

Sample ID: <b>CA190702-MB2</b>	SampType: <b>MBLK</b>	TestCode: <b>8260_WP_SF</b>	Units: <b>ug/L</b>	Prep Date:	RunNo: <b>134863</b>						
Client ID: <b>PBW</b>	Batch ID: <b>CA19VW057</b>	TestNo: <b>EPA 8260B</b>		Analysis Date: <b>7/2/2019</b>	SeqNo: <b>3427550</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

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:** N036179  
**Project:** SFPP Norwalk

## ANALYTICAL QC SUMMARY REPORT

**TestCode: 8260\_WP\_SFPP**

Sample ID: <b>CA190702-MB2</b>	SampType: <b>MBLK</b>	TestCode: <b>8260_WP_SF</b>	Units: <b>ug/L</b>	Prep Date:	RunNo: <b>134863</b>						
Client ID: <b>PBW</b>	Batch ID: <b>CA19VW057</b>	TestNo: <b>EPA 8260B</b>		Analysis Date: <b>7/2/2019</b>	SeqNo: <b>3427550</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

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	27.300		25.00		109	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                 |



**CALIFORNIA** | P: 562.219.7435 | F: 562.219.7436 | 11110 Artesia Blvd., Ste B, Cerritos, CA 90703  
**NEVADA** | P: 702.307.2659 | F: 702.307.2691 | 3151 W. Post Rd., Las Vegas, NV 89118  
 ELAP Cert 2921 | EPA ID CA01638 | ELAP Cert 2676 | NV Cert NV00922 | ORELAP/NELAP Cert 4046



**CLIENT:** CH2MHill  
**Work Order:** N036179  
**Project:** SFPP Norwalk

## ANALYTICAL QC SUMMARY REPORT

**TestCode: 8260\_WP\_SFPP**

Sample ID: <b>CA190702-MB2</b>	SampType: <b>MBLK</b>	TestCode: <b>8260_WP_SF</b>	Units: <b>ug/L</b>	Prep Date:	RunNo: <b>134863</b>						
Client ID: <b>PBW</b>	Batch ID: <b>CA19VW057</b>	TestNo: <b>EPA 8260B</b>		Analysis Date: <b>7/2/2019</b>	SeqNo: <b>3427550</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Surr: 4-Bromofluorobenzene	22.790		25.00		91.2	76	119				
Surr: Dibromofluoromethane	28.150		25.00		113	85	115				
Surr: Toluene-d8	26.350		25.00		105	81	120				

Sample ID: <b>N036304-001A-DUP</b>	SampType: <b>DUP</b>	TestCode: <b>8260_WP_SF</b>	Units: <b>ug/L</b>	Prep Date:	RunNo: <b>134863</b>						
Client ID: <b>ZZZZZZ</b>	Batch ID: <b>CA19VW057</b>	TestNo: <b>EPA 8260B</b>		Analysis Date: <b>7/2/2019</b>	SeqNo: <b>3427553</b>						
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						0	0	20	
1,1,1-Trichloroethane	ND	1.0						0	0	20	
1,1,2,2-Tetrachloroethane	ND	1.0						0	0	20	
1,1,2-Trichloroethane	ND	1.0						0	0	20	
1,1-Dichloroethane	ND	0.50						0	0	20	
1,1-Dichloroethene	ND	1.0						0	0	20	
1,1-Dichloropropene	ND	1.0						0	0	20	
1,2,3-Trichlorobenzene	ND	1.0						0	0	20	
1,2,3-Trichloropropane	ND	1.0						0	0	20	
1,2,4-Trichlorobenzene	ND	1.0						0	0	20	
1,2,4-Trimethylbenzene	ND	1.0						0	0	20	
1,2-Dibromo-3-chloropropane	ND	2.0						0	0	20	
1,2-Dibromoethane	ND	1.0						0	0	20	
1,2-Dichlorobenzene	ND	1.0						0	0	20	
1,2-Dichloroethane	ND	0.50						0	0	20	
1,2-Dichloropropane	ND	1.0						0	0	20	
1,3,5-Trimethylbenzene	ND	1.0						0	0	20	
1,3-Dichlorobenzene	ND	1.0						0	0	20	
1,3-Dichloropropane	ND	1.0						0	0	20	
1,4-Dichlorobenzene	ND	1.0						0	0	20	
2,2-Dichloropropane	ND	1.0						0	0	20	
2-Butanone	ND	10						0	0	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:** N036179  
**Project:** SFPP Norwalk

## ANALYTICAL QC SUMMARY REPORT

**TestCode: 8260\_WP\_SFPP**

Sample ID: <b>N036304-001A-DUP</b>	SampType: <b>DUP</b>	TestCode: <b>8260_WP_SF</b>	Units: <b>ug/L</b>	Prep Date:	RunNo: <b>134863</b>
Client ID: <b>ZZZZZZ</b>	Batch ID: <b>CA19VW057</b>	TestNo: <b>EPA 8260B</b>		Analysis Date: <b>7/2/2019</b>	SeqNo: <b>3427553</b>

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
2-Chlorotoluene	ND	1.0						0	0	20	
4-Chlorotoluene	ND	1.0						0	0	20	
4-Isopropyltoluene	ND	1.0						0	0	20	
4-Methyl-2-pentanone	ND	10						0	0	20	
Acetone	ND	10						0	0	20	
Benzene	ND	1.0						0	0	20	
Bromobenzene	ND	1.0						0	0	20	
Bromochloromethane	ND	1.0						0	0	20	
Bromodichloromethane	ND	1.0						0	0	20	
Bromoform	ND	1.0						0	0	20	
Bromomethane	ND	1.0						0	0	20	
Carbon disulfide	ND	1.0						0	0	20	
Carbon tetrachloride	ND	0.50						0	0	20	
Chlorobenzene	ND	1.0						0	0	20	
Chloroethane	ND	1.0						0	0	20	
Chloroform	ND	1.0						0	0	20	
Chloromethane	ND	1.0						0	0	20	
cis-1,2-Dichloroethene	ND	1.0						0	0	20	
cis-1,3-Dichloropropene	ND	1.0						0	0	20	
Di-isopropyl ether	ND	1.0						0	0	20	
Dibromochloromethane	ND	1.0						0	0	20	
Dibromomethane	ND	1.0						0	0	20	
Dichlorodifluoromethane	ND	1.0						0	0	20	
Ethyl tert-butyl ether	ND	1.0						0	0	20	
Ethylbenzene	ND	1.0						0	0	20	
Freon-113	ND	1.0						0	0	20	
Hexachlorobutadiene	ND	1.0						0	0	20	
Isopropylbenzene	ND	1.0						0	0	20	
m,p-Xylene	ND	1.0						0	0	20	
Methylene chloride	ND	2.0						0	0	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                 |



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 ELAP Cert 2676 | NV Cert NV00922  
 ORELAP/NELAP Cert 4046

**CLIENT:** CH2MHill  
**Work Order:** N036179  
**Project:** SFPP Norwalk

## ANALYTICAL QC SUMMARY REPORT

**TestCode: 8260\_WP\_SFPP**

Sample ID: <b>N036304-001A-DUP</b>	SampType: <b>DUP</b>	TestCode: <b>8260_WP_SF</b>	Units: <b>ug/L</b>	Prep Date:	RunNo: <b>134863</b>						
Client ID: <b>ZZZZZZ</b>	Batch ID: <b>CA19VW057</b>	TestNo: <b>EPA 8260B</b>		Analysis Date: <b>7/2/2019</b>	SeqNo: <b>3427553</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
MTBE	ND	1.0						0	0	20	
n-Butylbenzene	ND	1.0						0	0	20	
n-Propylbenzene	ND	1.0						0	0	20	
Naphthalene	ND	1.0						0	0	20	
o-Xylene	ND	1.0						0	0	20	
sec-Butylbenzene	ND	1.0						0	0	20	
Styrene	ND	1.0						0	0	20	
Tert-amyl methyl ether	ND	1.0						0	0	20	
Tert-Butanol	ND	5.0						0	0	20	
tert-Butylbenzene	ND	1.0						0	0	20	
Tetrachloroethene	ND	1.0						0	0	20	
Toluene	ND	2.0						0	0	20	
trans-1,2-Dichloroethene	ND	1.0						0	0	20	
trans-1,3-Dichloropropene	ND	1.0						0	0	20	
Trichloroethene	ND	1.0						0	0	20	
Trichlorofluoromethane	ND	1.0						0	0	20	
Vinyl chloride	ND	0.50						0	0	20	
Xylenes, Total	ND	2.0						0	0	20	
Surr: 1,2-Dichloroethane-d4	25.360		25.00		101	72	119		0		
Surr: 4-Bromofluorobenzene	22.630		25.00		90.5	76	119		0		
Surr: Dibromofluoromethane	26.260		25.00		105	85	115		0		
Surr: Toluene-d8	24.080		25.00		96.3	81	120		0		

Sample ID: <b>N036304-001A-MS</b>	SampType: <b>MS</b>	TestCode: <b>8260_WP_SF</b>	Units: <b>ug/L</b>	Prep Date:	RunNo: <b>134863</b>						
Client ID: <b>ZZZZZZ</b>	Batch ID: <b>CA19VW057</b>	TestNo: <b>EPA 8260B</b>		Analysis Date: <b>7/2/2019</b>	SeqNo: <b>3427554</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1,1,2-Tetrachloroethane	19.130	1.0	20.00	0	95.7	81	129				
1,1,1-Trichloroethane	19.580	1.0	20.00	0	97.9	67	132				
1,1,2,2-Tetrachloroethane	19.470	1.0	20.00	0	97.4	63	128				

**Qualifiers:**

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|--|--|--|
| 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:** N036179  
**Project:** SFPP Norwalk

## ANALYTICAL QC SUMMARY REPORT

**TestCode: 8260\_WP\_SFPP**

Sample ID: <b>N036304-001A-MS</b>	SampType: <b>MS</b>	TestCode: <b>8260_WP_SF</b>	Units: <b>ug/L</b>	Prep Date:	RunNo: <b>134863</b>						
Client ID: <b>ZZZZZZ</b>	Batch ID: <b>CA19VW057</b>	TestNo: <b>EPA 8260B</b>		Analysis Date: <b>7/2/2019</b>	SeqNo: <b>3427554</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1,2-Trichloroethane	22.730	1.0	20.00	0	114	75	125				
1,1-Dichloroethane	17.450	0.50	20.00	0	87.2	69	133				
1,1-Dichloroethene	21.750	1.0	20.00	0	109	68	130				
1,1-Dichloropropene	18.090	1.0	20.00	0	90.4	73	132				
1,2,3-Trichlorobenzene	17.470	1.0	20.00	0	87.4	67	137				
1,2,3-Trichloropropane	15.160	1.0	20.00	0	75.8	73	124				
1,2,4-Trichlorobenzene	16.900	1.0	20.00	0	84.5	66	134				
1,2,4-Trimethylbenzene	18.770	1.0	20.00	0	93.8	74	132				
1,2-Dibromo-3-chloropropane	17.930	2.0	20.00	0	89.7	50	132				
1,2-Dibromoethane	19.510	1.0	20.00	0	97.6	80	121				
1,2-Dichlorobenzene	17.880	1.0	20.00	0	89.4	71	122				
1,2-Dichloroethane	20.590	0.50	20.00	0	103	69	132				
1,2-Dichloropropane	19.640	1.0	20.00	0	98.2	75	125				
1,3,5-Trimethylbenzene	17.900	1.0	20.00	0	89.5	74	131				
1,3-Dichlorobenzene	17.910	1.0	20.00	0	89.6	75	124				
1,3-Dichloropropane	18.710	1.0	20.00	0	93.6	73	126				
1,4-Dichlorobenzene	17.970	1.0	20.00	0	89.8	74	123				
2,2-Dichloropropane	18.190	1.0	20.00	0	91.0	69	137				
2-Butanone	137.260	10	200.0	0	68.6	49	136				
2-Chlorotoluene	19.150	1.0	20.00	0	95.8	73	126				
4-Chlorotoluene	19.640	1.0	20.00	0	98.2	74	128				
4-Isopropyltoluene	17.710	1.0	20.00	0	88.6	73	130				
4-Methyl-2-pentanone	204.270	10	200.0	0	102	58	134				
Acetone	136.540	10	200.0	0	68.3	40	135				
Benzene	19.180	1.0	20.00	0	95.9	81	122				
Bromobenzene	20.090	1.0	20.00	0	100	76	124				
Bromochloromethane	17.680	1.0	20.00	0	88.4	65	129				
Bromodichloromethane	18.600	1.0	20.00	0	93.0	76	121				
Bromoform	20.320	1.0	20.00	0	102	69	128				
Bromomethane	28.350	1.0	20.00	0	142	53	141				S

**Qualifiers:**

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| 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:** N036179  
**Project:** SFPP Norwalk

## ANALYTICAL QC SUMMARY REPORT

**TestCode: 8260\_WP\_SFPP**

Sample ID: <b>N036304-001A-MS</b>	SampType: <b>MS</b>	TestCode: <b>8260_WP_SF</b>	Units: <b>ug/L</b>	Prep Date:	RunNo: <b>134863</b>						
Client ID: <b>ZZZZZZ</b>	Batch ID: <b>CA19VW057</b>	TestNo: <b>EPA 8260B</b>		Analysis Date: <b>7/2/2019</b>	SeqNo: <b>3427554</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Carbon disulfide	18.580	1.0	20.00	0	92.9	75	125				
Carbon tetrachloride	19.350	0.50	20.00	0	96.8	66	138				
Chlorobenzene	18.940	1.0	20.00	0	94.7	81	122				
Chloroethane	20.370	1.0	20.00	0	102	58	133				
Chloroform	18.080	1.0	20.00	0	90.4	69	128				
Chloromethane	17.050	1.0	20.00	0	85.2	56	131				
cis-1,2-Dichloroethene	18.750	1.0	20.00	0	93.8	72	126				
cis-1,3-Dichloropropene	17.680	1.0	20.00	0	88.4	69	131				
Di-isopropyl ether	15.040	1.0	20.00	0	75.2	70	130				
Dibromochloromethane	18.430	1.0	20.00	0	92.2	66	133				
Dibromomethane	21.620	1.0	20.00	0	108	76	125				
Dichlorodifluoromethane	15.880	1.0	20.00	0	79.4	53	153				
Ethyl tert-butyl ether	18.190	1.0	20.00	0	91.0	70	130				
Ethylbenzene	19.290	1.0	20.00	0	96.5	73	127				
Freon-113	22.310	1.0	20.00	0	112	75	125				
Hexachlorobutadiene	17.830	1.0	20.00	0	89.2	67	131				
Isopropylbenzene	16.830	1.0	20.00	0	84.2	75	127				
m,p-Xylene	38.640	1.0	40.00	0	96.6	76	128				
Methylene chloride	18.880	2.0	20.00	0	94.4	63	137				
MTBE	15.550	1.0	20.00	0	77.8	65	123				
n-Butylbenzene	18.740	1.0	20.00	0	93.7	69	137				
n-Propylbenzene	18.410	1.0	20.00	0	92.0	72	129				
Naphthalene	15.290	1.0	20.00	0	76.5	54	138				
o-Xylene	17.520	1.0	20.00	0	87.6	80	121				
sec-Butylbenzene	17.440	1.0	20.00	0	87.2	72	127				
Styrene	17.650	1.0	20.00	0	88.2	65	134				
Tert-amyl methyl ether	18.290	1.0	20.00	0	91.4	70	130				
Tert-Butanol	94.950	5.0	100.0	0	95.0	70	130				
tert-Butylbenzene	16.720	1.0	20.00	0	83.6	70	129				
Tetrachloroethene	19.600	1.0	20.00	0	98.0	66	128				

**Qualifiers:**

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|--|--|--|
| 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                 |



**CALIFORNIA** | P:562.219.7435 F:562.219.7436  
 11110 Artesia Blvd., Ste B, Cerritos, CA 90703  
 ELAP Cert 2921  
 EPA ID CA01638

**NEVADA** | P:702.307.2659 F:702.307.2691  
 3151 W. Post Rd., Las Vegas, NV 89118  
 ELAP Cert 2676 | NV Cert NV00922  
 ORELAP/NELAP Cert 4046

CLIENT: CH2MHill  
 Work Order: N036179  
 Project: SFPP Norwalk

## ANALYTICAL QC SUMMARY REPORT

TestCode: 8260\_WP\_SFPP

Sample ID: <b>N036304-001A-MS</b>	SampType: <b>MS</b>	TestCode: <b>8260_WP_SF</b>	Units: <b>ug/L</b>	Prep Date:	RunNo: <b>134863</b>						
Client ID: <b>ZZZZZ</b>	Batch ID: <b>CA19VW057</b>	TestNo: <b>EPA 8260B</b>		Analysis Date: <b>7/2/2019</b>	SeqNo: <b>3427554</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Toluene	17.170	2.0	20.00	0	85.9	77	122				
trans-1,2-Dichloroethene	18.710	1.0	20.00	0	93.6	63	137				
trans-1,3-Dichloropropene	19.570	1.0	20.00	0	97.9	59	135				
Trichloroethene	19.110	1.0	20.00	0	95.6	70	127				
Trichlorofluoromethane	22.460	1.0	20.00	0	112	57	129				
Vinyl chloride	17.200	0.50	20.00	0	86.0	50	134				
Xylenes, Total	56.160	2.0	60.00	0	93.6	75	125				
Surr: 1,2-Dichloroethane-d4	23.460		25.00		93.8	72	119				
Surr: 4-Bromofluorobenzene	25.240		25.00		101	76	119				
Surr: Dibromofluoromethane	24.850		25.00		99.4	85	115				
Surr: Toluene-d8	25.460		25.00		102	81	120				

Sample ID: <b>N036304-001A-MSD</b>	SampType: <b>MSD</b>	TestCode: <b>8260_WP_SF</b>	Units: <b>ug/L</b>	Prep Date:	RunNo: <b>134863</b>						
Client ID: <b>ZZZZZ</b>	Batch ID: <b>CA19VW057</b>	TestNo: <b>EPA 8260B</b>		Analysis Date: <b>7/2/2019</b>	SeqNo: <b>3427555</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1,1,2-Tetrachloroethane	19.570	1.0	20.00	0	97.9	81	129	19.13	2.27	20	
1,1,1-Trichloroethane	18.860	1.0	20.00	0	94.3	67	132	19.58	3.75	20	
1,1,2,2-Tetrachloroethane	18.640	1.0	20.00	0	93.2	63	128	19.47	4.36	20	
1,1,2-Trichloroethane	20.500	1.0	20.00	0	103	75	125	22.73	10.3	20	
1,1-Dichloroethane	16.560	0.50	20.00	0	82.8	69	133	17.45	5.23	20	
1,1-Dichloroethene	19.070	1.0	20.00	0	95.4	68	130	21.75	13.1	20	
1,1-Dichloropropene	18.090	1.0	20.00	0	90.4	73	132	18.09	0	20	
1,2,3-Trichlorobenzene	17.790	1.0	20.00	0	89.0	67	137	17.47	1.82	20	
1,2,3-Trichloropropane	15.910	1.0	20.00	0	79.6	73	124	15.16	4.83	20	
1,2,4-Trichlorobenzene	17.000	1.0	20.00	0	85.0	66	134	16.90	0.590	20	
1,2,4-Trimethylbenzene	17.920	1.0	20.00	0	89.6	74	132	18.77	4.63	20	
1,2-Dibromo-3-chloropropane	19.500	2.0	20.00	0	97.5	50	132	17.93	8.39	20	
1,2-Dibromoethane	17.330	1.0	20.00	0	86.7	80	121	19.51	11.8	20	
1,2-Dichlorobenzene	17.060	1.0	20.00	0	85.3	71	122	17.88	4.69	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:** N036179  
**Project:** SFPP Norwalk

## ANALYTICAL QC SUMMARY REPORT

**TestCode: 8260\_WP\_SFPP**

Sample ID: <b>N036304-001A-MSD</b>	SampType: <b>MSD</b>	TestCode: <b>8260_WP_SF</b>	Units: <b>ug/L</b>	Prep Date:	RunNo: <b>134863</b>						
Client ID: <b>ZZZZZZ</b>	Batch ID: <b>CA19VW057</b>	TestNo: <b>EPA 8260B</b>		Analysis Date: <b>7/2/2019</b>	SeqNo: <b>3427555</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,2-Dichloroethane	21.250	0.50	20.00	0	106	69	132	20.59	3.15	20	
1,2-Dichloropropane	18.050	1.0	20.00	0	90.3	75	125	19.64	8.44	20	
1,3,5-Trimethylbenzene	17.500	1.0	20.00	0	87.5	74	131	17.90	2.26	20	
1,3-Dichlorobenzene	17.670	1.0	20.00	0	88.4	75	124	17.91	1.35	20	
1,3-Dichloropropane	17.590	1.0	20.00	0	88.0	73	126	18.71	6.17	20	
1,4-Dichlorobenzene	17.860	1.0	20.00	0	89.3	74	123	17.97	0.614	20	
2,2-Dichloropropane	16.620	1.0	20.00	0	83.1	69	137	18.19	9.02	20	
2-Butanone	127.940	10	200.0	0	64.0	49	136	137.3	7.03	20	
2-Chlorotoluene	18.190	1.0	20.00	0	91.0	73	126	19.15	5.14	20	
4-Chlorotoluene	18.550	1.0	20.00	0	92.8	74	128	19.64	5.71	20	
4-Isopropyltoluene	17.240	1.0	20.00	0	86.2	73	130	17.71	2.69	20	
4-Methyl-2-pentanone	194.150	10	200.0	0	97.1	58	134	204.3	5.08	20	
Acetone	123.210	10	200.0	0	61.6	40	135	136.5	10.3	20	
Benzene	19.070	1.0	20.00	0	95.4	81	122	19.18	0.575	20	
Bromobenzene	19.310	1.0	20.00	0	96.6	76	124	20.09	3.96	20	
Bromochloromethane	18.040	1.0	20.00	0	90.2	65	129	17.68	2.02	20	
Bromodichloromethane	17.250	1.0	20.00	0	86.2	76	121	18.60	7.53	20	
Bromoform	19.770	1.0	20.00	0	98.8	69	128	20.32	2.74	20	
Bromomethane	25.680	1.0	20.00	0	128	53	141	28.35	9.88	20	
Carbon disulfide	19.330	1.0	20.00	0	96.7	75	125	18.58	3.96	20	
Carbon tetrachloride	20.620	0.50	20.00	0	103	66	138	19.35	6.35	20	
Chlorobenzene	18.060	1.0	20.00	0	90.3	81	122	18.94	4.76	20	
Chloroethane	21.470	1.0	20.00	0	107	58	133	20.37	5.26	20	
Chloroform	18.030	1.0	20.00	0	90.2	69	128	18.08	0.277	20	
Chloromethane	19.460	1.0	20.00	0	97.3	56	131	17.05	13.2	20	
cis-1,2-Dichloroethene	17.150	1.0	20.00	0	85.8	72	126	18.75	8.91	20	
cis-1,3-Dichloropropene	16.570	1.0	20.00	0	82.8	69	131	17.68	6.48	20	
Di-isopropyl ether	14.170	1.0	20.00	0	70.9	70	130	15.04	5.96	20	
Dibromochloromethane	18.230	1.0	20.00	0	91.2	66	133	18.43	1.09	20	
Dibromomethane	20.310	1.0	20.00	0	102	76	125	21.62	6.25	20	

**Qualifiers:**

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|--|--|--|
| 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:** N036179  
**Project:** SFPP Norwalk

## ANALYTICAL QC SUMMARY REPORT

**TestCode: 8260\_WP\_SFPP**

Sample ID: <b>N036304-001A-MSD</b>	SampType: <b>MSD</b>	TestCode: <b>8260_WP_SF</b>	Units: <b>ug/L</b>	Prep Date:	RunNo: <b>134863</b>						
Client ID: <b>ZZZZZZ</b>	Batch ID: <b>CA19VW057</b>	TestNo: <b>EPA 8260B</b>		Analysis Date: <b>7/2/2019</b>	SeqNo: <b>3427555</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane	14.210	1.0	20.00	0	71.0	53	153	15.88	11.1	20	
Ethyl tert-butyl ether	16.600	1.0	20.00	0	83.0	70	130	18.19	9.14	20	
Ethylbenzene	18.010	1.0	20.00	0	90.1	73	127	19.29	6.86	20	
Freon-113	21.800	1.0	20.00	0	109	75	125	22.31	2.31	20	
Hexachlorobutadiene	17.720	1.0	20.00	0	88.6	67	131	17.83	0.619	20	
Isopropylbenzene	16.180	1.0	20.00	0	80.9	75	127	16.83	3.94	20	
m,p-Xylene	38.760	1.0	40.00	0	96.9	76	128	38.64	0.310	20	
Methylene chloride	17.730	2.0	20.00	0	88.6	63	137	18.88	6.28	20	
MTBE	15.920	1.0	20.00	0	79.6	65	123	15.55	2.35	20	
n-Butylbenzene	17.400	1.0	20.00	0	87.0	69	137	18.74	7.42	20	
n-Propylbenzene	18.090	1.0	20.00	0	90.4	72	129	18.41	1.75	20	
Naphthalene	15.960	1.0	20.00	0	79.8	54	138	15.29	4.29	20	
o-Xylene	17.180	1.0	20.00	0	85.9	80	121	17.52	1.96	20	
sec-Butylbenzene	16.900	1.0	20.00	0	84.5	72	127	17.44	3.15	20	
Styrene	17.210	1.0	20.00	0	86.1	65	134	17.65	2.52	20	
Tert-amyl methyl ether	18.620	1.0	20.00	0	93.1	70	130	18.29	1.79	20	
Tert-Butanol	106.270	5.0	100.0	0	106	70	130	94.95	11.3	20	
tert-Butylbenzene	16.220	1.0	20.00	0	81.1	70	129	16.72	3.04	20	
Tetrachloroethene	19.110	1.0	20.00	0	95.6	66	128	19.60	2.53	20	
Toluene	17.030	2.0	20.00	0	85.2	77	122	17.17	0.819	20	
trans-1,2-Dichloroethene	18.760	1.0	20.00	0	93.8	63	137	18.71	0.267	20	
trans-1,3-Dichloropropene	19.600	1.0	20.00	0	98.0	59	135	19.57	0.153	20	
Trichloroethene	19.010	1.0	20.00	0	95.1	70	127	19.11	0.525	20	
Trichlorofluoromethane	21.810	1.0	20.00	0	109	57	129	22.46	2.94	20	
Vinyl chloride	15.330	0.50	20.00	0	76.7	50	134	17.20	11.5	20	
Xylenes, Total	55.940	2.0	60.00	0	93.2	75	125	56.16	0.393	20	
Surr: 1,2-Dichloroethane-d4	22.040		25.00		88.2	72	119		0		
Surr: 4-Bromofluorobenzene	23.630		25.00		94.5	76	119		0		
Surr: Dibromofluoromethane	23.530		25.00		94.1	85	115		0		
Surr: Toluene-d8	24.830		25.00		99.3	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                 |



N 036171

**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: 6/20/19  
 PAGE: 1 of 1

<b>Section A</b> Required Client Information:		<b>Section B</b> Required Project Information:		<b>Section C</b> Invoice Information:		<b>Section D</b> Sampler Information:	
Company: Kinder Morgan Energy Partners Attention: Steve Dufbaugh Address: 1100 Town & Country Road Orange, CA 92868 Email To: steve.dufbaugh@kindermorgan.com eric.davis@ch2m.com Phone: 714-560-4802 Fax: 714-560-4801		Report To: Eric Davis Copy To: Steve Dufbaugh Purchase Order No.: Project Name: SPPP Norwalk		Attention: Steve Dufbaugh - Ref. APER 81195 Company: Kinder Morgan Energy Partners Name: Address: 1100 Town & Country Road Orange, CA 92868 ATL Project Manager: Marlon Cartin		Sampler Name: <u>James Dye</u> Signature: <u>Vlad Carino</u> Date: <u>6/20/19</u>	

ITEM #	SAMPLE ID	LOCATION/ DESCRIPTION	MATRIX	SAMPLE TYPE (G-GRAB C-COMP)	SAMPLING		TOTAL # OF CONTAINERS	SAMPLE TEMPERATURE (°F)	Analysis Test	CONTAINER TYPE			PRESERVATIVE			Comments
					DATE	TIME				V	V	A	# OF CONTAINERS	H	H	
1	INF-06-20	INFLUENT	WW	G	6/20/19	1200	8		Full VOCs + Organics List (8008)	X	X	X				N036179-01
2							9		TPH-gas (C6-C12) (8015B)							
3									TPH-L (C13-C22), TPH-H (C23+), Total TPH (8015B)							
4																
5																
6																
7																
8																
9																
10																

Relinquished by (Signature and Printed Name): <u>Vlad Carino</u> Date / Time: <u>6/20/19 12:30</u>	Relinquished by (Signature and Printed Name): <u>Eric Karla Sevilla</u> Date / Time: <u>6/20/19 12:30</u>	Turn Around Time (TAT): <input type="checkbox"/> A = Same Day <input type="checkbox"/> B = 24 Hours <input type="checkbox"/> C = 48 Hours <input type="checkbox"/> D = 72 Hours <input type="checkbox"/> E = 5 Workdays <input type="checkbox"/> F = 10 Workdays TAT Starts at 8 AM the following day if samples received after 3:00 PM.	Special Instruction:  <u>2.3°C J1#2</u> <u>CO50 #. 5261</u>
Relinquished by (Signature and Printed Name): <u>Eric Karla Sevilla</u> Date / Time: <u>6/20/19 17:10</u>	Relinquished by (Signature and Printed Name): <u>MARIANNE SANTOS</u> Date / Time: <u>6/20/19 17:10</u>		
Relinquished by (Signature and Printed Name): <u>MARIANNE SANTOS</u> Date / Time: <u>6/20/19 17:30</u>	Relinquished by (Signature and Printed Name): <u>Yvonne Riquelme</u> Date / Time: <u>6/21/19 8:25 am</u>		
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: 6/20/2019 Workorder: N036179  
 Rep sample Temp (Deg C): 2.3 IR Gun ID: 2  
 Temp Blank:  Yes  No  
 Carrier name: Golden State Overnight  
 Last 4 digits of Tracking No.: 5261 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 <input checked="" type="checkbox"/> | No <input type="checkbox"/> | Not Present <input type="checkbox"/>            |
| 2. Custody seals intact, signed, dated on shipping container/cooler?                    | Yes <input type="checkbox"/>            | No <input type="checkbox"/> | Not Present <input checked="" type="checkbox"/> |
| 3. Custody seals intact on sample bottles?  | Yes <input type="checkbox"/>            | No <input type="checkbox"/> | Not Present <input checked="" type="checkbox"/> |
| 4. Chain of custody present?  | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> |   |
| 5. Sampler's name present in COC?   | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> |   |
| 6. Chain of custody signed when relinquished and received?                              | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> |   |
| 7. Chain of custody agrees with sample labels?  | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> |   |
| 8. Samples in proper container/bottle?  | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> |   |
| 9. Sample containers intact?  | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> |   |
| 10. Sufficient sample volume for indicated test?  | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> |   |
| 11. All samples received within holding time?   | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> |   |
| 12. Temperature of rep sample or Temp Blank within acceptable limit?                    | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | NA <input type="checkbox"/>                     |
| 13. Water - VOA vials have zero headspace?  | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | NA <input type="checkbox"/>                     |
| 14. Water - pH acceptable upon receipt?<br>Example: pH > 12 for (CN,S); pH<2 for Metals | Yes <input type="checkbox"/>            | No <input type="checkbox"/> | NA <input checked="" type="checkbox"/>          |
| 15. Did the bottle labels indicate correct preservatives used?                          | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | NA <input type="checkbox"/>                     |
| 16. Were there Non-Conformance issues at login?<br>Was Client notified?                 | Yes <input type="checkbox"/>            | No <input type="checkbox"/> | NA <input checked="" type="checkbox"/>          |
|   | Yes <input type="checkbox"/>            | No <input type="checkbox"/> | NA <input checked="" type="checkbox"/>          |

Comments:

Checklist Completed By: YR YRJ 6/24/2019

Reviewed By: MBC 6/25/2019

# ASSET Laboratories

## WORK ORDER Summary

21-Jun-19

**WorkOrder:** N036179

**Client ID:** CH2HI03

**Project:** SFPP Norwalk

**QC Level:** RTNE

**Date Received:** 6/20/2019

**Comments:**

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N036179-001A	INF-06-20	6/20/2019 12:00:00 PM	6/28/2019	Wastewater	EPA 8260B	VOLATILE ORGANIC COMPOUNDS BY GC/MS	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	V-CA
N036179-001B			6/28/2019		EPA 8015B	GASOLINE RANGE ORGANICS BY GC/FID	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	VW
N036179-001C			6/28/2019		EPA 3510C	SEPARATORY FUNNEL EXTRACTION: EXTRACTABLE FUELS	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	WW
			6/28/2019		EPA 8015B	TPH EXTRACTABLE BY GC/FID	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	WW
			6/28/2019		EPA 8015B	Total TPH	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	WW
N036179-002A	FOLDER	6/28/2019	6/28/2019		Folder	Folder	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	LAB
			6/28/2019		Folder	Folder	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	LAB



800-322-5555  
www.gso.com

**Ship From**

ASSET LABORATORIES  
MARIANNE SANTOS  
11110 ARTESIA BLVD. SUITE B  
CERRITOS, CA 90703

Tracking #: 545235261

**CPS**



**Ship To**

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

**LAS VEGAS**

**COD:** \$0.00

**Weight:** 0 lb(s)

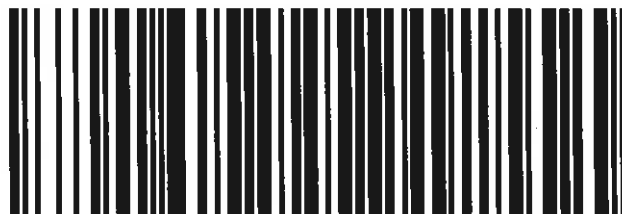
**Reference:**

**Delivery Instructions:**

HOLD FOR PICK-UP

**Signature Type:** STANDARD

**C89102A**



4557384

**LVS NV891-C51**

Print Date: 6/20/2019 5:46 PM

Package 2 of 3

**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](http://www.gso.com).

*2.3°C*  
*JN# 2.*



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

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June 24, 2019

Vladimir Carino  
CH2M Hill, Inc.  
P.O. Box 241329  
Denver, CO 80224

**Re : KMEP Norwalk Biosparge Startup / 693142  
MB187328 / 9F11013**

Enclosed is an analytical report for the above-referenced project. The samples included in this report were received on 06/11/19 13:30 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 Analytix.

Sincerely,

A handwritten signature in black ink, appearing to read 'Allen A.', is written above the printed name.

Allen Aminian  
QA/QC Manager



### LABORATORY ANALYSIS RESULTS

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

**AA Project No:** MB187328  
**Date Received:** 06/11/19  
**Date Reported:** 06/24/19

Sample ID	Laboratory ID	Matrix	TAT	Date Sampled	Date Received
-----------	---------------	--------	-----	--------------	---------------

**Fixed Gases - Field**

SVM-1-15	9F11013-01	Vapor	5	06/11/19 07:40	06/11/19 13:30
SVM-1-5	9F11013-02	Vapor	5	06/11/19 07:44	06/11/19 13:30
SVM-2-5	9F11013-03	Vapor	5	06/11/19 07:52	06/11/19 13:30
SVM-15-15	9F11013-04	Vapor	5	06/11/19 08:34	06/11/19 13:30
SVM-15-7	9F11013-05	Vapor	5	06/11/19 08:37	06/11/19 13:30
SVM-15-22	9F11013-06	Vapor	5	06/11/19 08:38	06/11/19 13:30
SVM-6-7	9F11013-07	Vapor	5	06/11/19 08:54	06/11/19 13:30
SVM-6-15	9F11013-08	Vapor	5	06/11/19 08:59	06/11/19 13:30
SVM-7-7	9F11013-09	Vapor	5	06/11/19 09:09	06/11/19 13:30
SVM-7-13	9F11013-10	Vapor	5	06/11/19 09:10	06/11/19 13:30
SVM-10-15	9F11013-11	Vapor	5	06/11/19 09:25	06/11/19 13:30
SVM-5-5	9F11013-12	Vapor	5	06/11/19 09:59	06/11/19 13:30
Ambient Air	9F11013-13	Vapor	5	06/11/19 10:08	06/11/19 13:30
SVM-5-15	9F11013-14	Vapor	5	06/11/19 10:02	06/11/19 13:30
SVM-8-15	9F11013-15	Vapor	5	06/11/19 10:14	06/11/19 13:30
SVM-8-5	9F11013-16	Vapor	5	06/11/19 10:20	06/11/19 13:30
SVM-16-16	9F11013-17	Vapor	5	06/11/19 10:41	06/11/19 13:30
SVM-16-16DUP	9F11013-18	Vapor	5	06/11/19 10:41	06/11/19 13:30
SVM-16-7	9F11013-19	Vapor	5	06/11/19 10:42	06/11/19 13:30

**Allen Aminian**  
QA/QC Manager

**LABORATORY ANALYSIS RESULTS**

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

**AA Project No:** MB187328  
**Date Received:** 06/11/19  
**Date Reported:** 06/24/19

Sample ID	Laboratory ID	Matrix	TAT	Date Sampled	Date Received
<b><u>TO-15 (Mid Level)</u></b>					
SVM-1-15	9F11013-01	Vapor	5	06/11/19 07:40	06/11/19 13:30
SVM-1-5	9F11013-02	Vapor	5	06/11/19 07:44	06/11/19 13:30
SVM-2-5	9F11013-03	Vapor	5	06/11/19 07:52	06/11/19 13:30
SVM-15-15	9F11013-04	Vapor	5	06/11/19 08:34	06/11/19 13:30
SVM-15-7	9F11013-05	Vapor	5	06/11/19 08:37	06/11/19 13:30
SVM-15-22	9F11013-06	Vapor	5	06/11/19 08:38	06/11/19 13:30
SVM-6-7	9F11013-07	Vapor	5	06/11/19 08:54	06/11/19 13:30
SVM-6-15	9F11013-08	Vapor	5	06/11/19 08:59	06/11/19 13:30
SVM-7-7	9F11013-09	Vapor	5	06/11/19 09:09	06/11/19 13:30
SVM-7-13	9F11013-10	Vapor	5	06/11/19 09:10	06/11/19 13:30
SVM-10-15	9F11013-11	Vapor	5	06/11/19 09:25	06/11/19 13:30
SVM-5-5	9F11013-12	Vapor	5	06/11/19 09:59	06/11/19 13:30
Ambient Air	9F11013-13	Vapor	5	06/11/19 10:08	06/11/19 13:30
SVM-5-15	9F11013-14	Vapor	5	06/11/19 10:02	06/11/19 13:30
SVM-8-15	9F11013-15	Vapor	5	06/11/19 10:14	06/11/19 13:30
SVM-8-5	9F11013-16	Vapor	5	06/11/19 10:20	06/11/19 13:30
SVM-16-16	9F11013-17	Vapor	5	06/11/19 10:41	06/11/19 13:30
SVM-16-16DUP	9F11013-18	Vapor	5	06/11/19 10:41	06/11/19 13:30
SVM-16-7	9F11013-19	Vapor	5	06/11/19 10:42	06/11/19 13:30

**Allen Aminian**  
QA/QC Manager

**LABORATORY ANALYSIS RESULTS**

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

**AA Project No:** MB187328  
**Date Received:** 06/11/19  
**Date Reported:** 06/24/19

Sample ID	Laboratory ID	Matrix	TAT	Date Sampled	Date Received
<b><u>TO-3</u></b>					
SVM-1-15	9F11013-01	Vapor	5	06/11/19 07:40	06/11/19 13:30
SVM-1-5	9F11013-02	Vapor	5	06/11/19 07:44	06/11/19 13:30
SVM-2-5	9F11013-03	Vapor	5	06/11/19 07:52	06/11/19 13:30
SVM-15-15	9F11013-04	Vapor	5	06/11/19 08:34	06/11/19 13:30
SVM-15-7	9F11013-05	Vapor	5	06/11/19 08:37	06/11/19 13:30
SVM-15-22	9F11013-06	Vapor	5	06/11/19 08:38	06/11/19 13:30
SVM-6-7	9F11013-07	Vapor	5	06/11/19 08:54	06/11/19 13:30
SVM-6-15	9F11013-08	Vapor	5	06/11/19 08:59	06/11/19 13:30
SVM-7-7	9F11013-09	Vapor	5	06/11/19 09:09	06/11/19 13:30
SVM-7-13	9F11013-10	Vapor	5	06/11/19 09:10	06/11/19 13:30
SVM-10-15	9F11013-11	Vapor	5	06/11/19 09:25	06/11/19 13:30
SVM-5-5	9F11013-12	Vapor	5	06/11/19 09:59	06/11/19 13:30
Ambient Air	9F11013-13	Vapor	5	06/11/19 10:08	06/11/19 13:30
SVM-5-15	9F11013-14	Vapor	5	06/11/19 10:02	06/11/19 13:30
SVM-8-15	9F11013-15	Vapor	5	06/11/19 10:14	06/11/19 13:30
SVM-8-5	9F11013-16	Vapor	5	06/11/19 10:20	06/11/19 13:30
SVM-16-16	9F11013-17	Vapor	5	06/11/19 10:41	06/11/19 13:30
SVM-16-16DUP	9F11013-18	Vapor	5	06/11/19 10:41	06/11/19 13:30
SVM-16-7	9F11013-19	Vapor	5	06/11/19 10:42	06/11/19 13:30

**Allen Aminian**  
QA/QC Manager





### LABORATORY ANALYSIS RESULTS

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

**AA Project No:** MB187328  
**Date Received:** 06/11/19  
**Date Reported:** 06/24/19

#### ANALYTICAL DATA SUMMARY

Analyte	Sample Name	Result	MRL	Units	Dilution	Prepared	Analyzed	Method
<b>Fixed Gases by TCD</b>								
Oxygen	SVM-1-15	16	0.20	% by Volume	2	06/20/19	06/20/19	EPA 3CM
Oxygen	SVM-1-5	16	0.20	% by Volume	2	06/20/19	06/20/19	EPA 3CM
Oxygen	SVM-2-5	16	0.20	% by Volume	2	06/20/19	06/20/19	EPA 3CM
Oxygen	SVM-15-15	16	0.20	% by Volume	2	06/20/19	06/20/19	EPA 3CM
Oxygen	SVM-15-7	17	0.20	% by Volume	2	06/20/19	06/20/19	EPA 3CM
Oxygen	SVM-15-22	17	0.20	% by Volume	2	06/20/19	06/20/19	EPA 3CM
Oxygen	SVM-6-7	17	0.20	% by Volume	2	06/20/19	06/20/19	EPA 3CM
Oxygen	SVM-6-15	17	0.20	% by Volume	2	06/20/19	06/20/19	EPA 3CM
Oxygen	SVM-7-7	17	0.20	% by Volume	2	06/20/19	06/20/19	EPA 3CM
Oxygen	SVM-7-13	17	0.20	% by Volume	2	06/21/19	06/21/19	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:** MB187328  
**Date Received:** 06/11/19  
**Date Reported:** 06/24/19

#### ANALYTICAL DATA SUMMARY

Analyte	Sample Name	Result	MRL	Units	Dilution	Prepared	Analyzed	Method
Oxygen	SVM-10-15	14	0.20	% by Volume	2	06/21/19	06/21/19	EPA 3CM
Carbon Dioxide	SVM-10-15	2.2	0.20	% by Volume	2	06/21/19	06/21/19	EPA 3CM
Oxygen	SVM-5-5	18	0.20	% by Volume	2	06/21/19	06/21/19	EPA 3CM
Oxygen	Ambient Air	18	0.20	% by Volume	2	06/21/19	06/21/19	EPA 3CM
Oxygen	SVM-5-15	18	0.20	% by Volume	2	06/21/19	06/21/19	EPA 3CM
Oxygen	SVM-8-15	19	0.20	% by Volume	2	06/21/19	06/21/19	EPA 3CM
Oxygen	SVM-8-5	18	0.20	% by Volume	2	06/21/19	06/21/19	EPA 3CM
Oxygen	SVM-16-16	18	0.20	% by Volume	2	06/21/19	06/21/19	EPA 3CM
Oxygen	SVM-16-16DUP	18	0.20	% by Volume	2	06/21/19	06/21/19	EPA 3CM
Oxygen	SVM-16-7	18	0.20	% by Volume	2	06/21/19	06/21/19	EPA 3CM

#### VOCs by EPA 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: MB187328  
Date Received: 06/11/19  
Date Reported: 06/24/19

#### ANALYTICAL DATA SUMMARY

Analyte	Sample Name	Result	MRL	Units	Dilution	Prepared	Analyzed	Method
<b>VOCs by GCMS EPA TO-15 (Mid Level)</b>								
Acetone	SVM-1-5	<b>0.0064</b>	0.0050	ug/L	0.25	06/14/19	06/14/19	TO-15
Benzene	SVM-15-15	<b>0.00077</b>	0.00075	ug/L	0.25	06/14/19	06/14/19	TO-15
Ethanol	SVM-15-15	<b>0.011</b>	0.0050	ug/L	0.25	06/14/19	06/14/19	TO-15
Toluene	SVM-15-15	<b>0.0053</b>	0.0050	ug/L	0.25	06/14/19	06/14/19	TO-15
Acetone	SVM-15-22	<b>0.012</b>	0.0050	ug/L	0.25	06/14/19	06/14/19	TO-15
Ethanol	SVM-15-22	<b>0.014</b>	0.0050	ug/L	0.25	06/14/19	06/14/19	TO-15
Methylene Chloride	SVM-15-22	<b>0.0092 AA-C2</b>	0.0050	ug/L	0.25	06/14/19	06/14/19	TO-15
Acetone	SVM-7-7	<b>0.0050</b>	0.0050	ug/L	0.25	06/14/19	06/14/19	TO-15
Acetone	SVM-7-13	<b>0.0058</b>	0.0050	ug/L	0.25	06/14/19	06/14/19	TO-15
Benzene	SVM-10-15	<b>0.00077</b>	0.00075	ug/L	0.25	06/15/19	06/15/19	TO-15
Tetrachloroethylene (PCE)	SVM-10-15	<b>0.0043</b>	0.0025	ug/L	0.25	06/15/19	06/15/19	TO-15
Acetone	Ambient Air	<b>0.010</b>	0.0050	ug/L	0.25	06/14/19	06/14/19	TO-15
Benzene	Ambient Air	<b>0.00089</b>	0.00075	ug/L	0.25	06/14/19	06/14/19	TO-15
Ethanol	Ambient Air	<b>0.015</b>	0.0050	ug/L	0.25	06/14/19	06/14/19	TO-15
Acetone	SVM-5-15	<b>0.0072</b>	0.0050	ug/L	0.25	06/17/19	06/17/19	TO-15
Naphthalene	SVM-5-15	<b>0.0019</b>	0.00075	ug/L	0.25	06/17/19	06/17/19	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:** MB187328  
**Date Received:** 06/11/19  
**Date Reported:** 06/24/19  
**Units:** ug/L

<b>Date Sampled:</b>	06/11/19	06/11/19	06/11/19	06/11/19	
<b>Date Prepared:</b>	06/14/19	06/14/19	06/14/19	06/14/19	
<b>Date Analyzed:</b>	06/14/19	06/14/19	06/14/19	06/14/19	
<b>AA ID No:</b>	9F11013-01	9F11013-02	9F11013-03	9F11013-04	
<b>Client ID No:</b>	SVM-1-15	SVM-1-5	SVM-2-5	SVM-15-15	
<b>Matrix:</b>	Vapor	Vapor	Vapor	Vapor	
<b>Dilution Factor:</b>	1	1	1	1	MRL

#### TO-3 (TO-3)

Gasoline Range Organics (GRO)	<20	<20	<20	<20	20
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#### Surrogates

4-Bromofluorobenzene	103%	104%	104%	99%	<u>%REC Limits</u> 70-130
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**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:** MB187328  
**Date Received:** 06/11/19  
**Date Reported:** 06/24/19  
**Units:** ug/L

<b>Date Sampled:</b>	06/11/19	06/11/19	06/11/19	06/11/19	
<b>Date Prepared:</b>	06/14/19	06/14/19	06/14/19	06/14/19	
<b>Date Analyzed:</b>	06/14/19	06/14/19	06/14/19	06/14/19	
<b>AA ID No:</b>	9F11013-05	9F11013-06	9F11013-07	9F11013-08	
<b>Client ID No:</b>	SVM-15-7	SVM-15-22	SVM-6-7	SVM-6-15	
<b>Matrix:</b>	Vapor	Vapor	Vapor	Vapor	
<b>Dilution Factor:</b>	1	1	1	1	MRL

#### TO-3 (TO-3)

Gasoline Range Organics (GRO)	<20	<20	<20	<20	20
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#### Surrogates

4-Bromofluorobenzene	104%	102%	104%	105%	<u>%REC Limits</u> 70-130
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**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:** MB187328  
**Date Received:** 06/11/19  
**Date Reported:** 06/24/19  
**Units:** ug/L

<b>Date Sampled:</b>	06/11/19	06/11/19	06/11/19	06/11/19	
<b>Date Prepared:</b>	06/14/19	06/14/19	06/15/19	06/15/19	
<b>Date Analyzed:</b>	06/14/19	06/14/19	06/15/19	06/15/19	
<b>AA ID No:</b>	9F11013-09	9F11013-10	9F11013-11	9F11013-12	
<b>Client ID No:</b>	SVM-7-7	SVM-7-13	SVM-10-15	SVM-5-5	
<b>Matrix:</b>	Vapor	Vapor	Vapor	Vapor	
<b>Dilution Factor:</b>	1	1	1	1	MRL

**TO-3 (TO-3)**

Gasoline Range Organics (GRO)	<20	<20	<20	<20	20
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**Surrogates**

4-Bromofluorobenzene	102%	103%	104%	103%	<b><u>%REC Limits</u></b> 70-130
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**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:** MB187328  
**Date Received:** 06/11/19  
**Date Reported:** 06/24/19  
**Units:** ug/L

<b>Date Sampled:</b>	06/11/19	06/11/19	06/11/19	06/11/19	
<b>Date Prepared:</b>	06/14/19	06/17/19	06/17/19	06/17/19	
<b>Date Analyzed:</b>	06/14/19	06/17/19	06/17/19	06/17/19	
<b>AA ID No:</b>	9F11013-13	9F11013-14	9F11013-15	9F11013-16	
<b>Client ID No:</b>	Ambient Air	SVM-5-15	SVM-8-15	SVM-8-5	
<b>Matrix:</b>	Vapor	Vapor	Vapor	Vapor	
<b>Dilution Factor:</b>	1	1	1	1	MRL

**TO-3 (TO-3)**

Gasoline Range Organics (GRO)	<20	<20	<20	<20	20
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**Surrogates**

4-Bromofluorobenzene	102%	103%	103%	102%	<b>%REC Limits</b> 70-130
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**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:** MB187328  
**Date Received:** 06/11/19  
**Date Reported:** 06/24/19  
**Units:** ug/L

<b>Date Sampled:</b>	06/11/2019	06/11/2019	06/11/2019	
<b>Date Prepared:</b>	06/17/19	06/17/19	06/17/19	
<b>Date Analyzed:</b>	06/17/19	06/17/19	06/17/19	
<b>AA ID No:</b>	9F11013-17	9F11013-18	9F11013-19	
<b>Client ID No:</b>	SVM-16-16	SVM-16-16DUP	SVM-16-7	
<b>Matrix:</b>	Vapor	Vapor	Vapor	
<b>Dilution Factor:</b>	1	1	1	MRL

#### TO-3 (TO-3)

Gasoline Range Organics (GRO)	<20	<20	<20	20
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#### Surrogates

4-Bromofluorobenzene	106%	104%	104%	<u>%REC Limits</u> 70-130
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**Allen Aminian**  
 QA/QC Manager





## LABORATORY ANALYSIS RESULTS

<b>Client:</b>	CH2M Hill, Inc.	<b>AA Project No:</b>	MB187328
<b>Project No:</b>	693142	<b>Date Received:</b>	06/11/19
<b>Project Name:</b>	KMEP Norwalk Biosparge Startup	<b>Date Reported:</b>	06/24/19
<b>Method:</b>	VOCs by GCMS EPA TO-15 (Mid Level)	<b>Units:</b>	ug/L

<b>Date Sampled:</b>	06/11/19	06/11/19	06/11/19	06/11/19	
<b>Date Prepared:</b>	06/14/19	06/14/19	06/14/19	06/14/19	
<b>Date Analyzed:</b>	06/14/19	06/14/19	06/14/19	06/14/19	
<b>AA ID No:</b>	9F11013-01	9F11013-02	9F11013-03	9F11013-04	
<b>Client ID No:</b>	SVM-1-15	SVM-1-5	SVM-2-5	SVM-15-15	
<b>Matrix:</b>	Vapor	Vapor	Vapor	Vapor	
<b>Dilution Factor:</b>	0.25	0.25	0.25	0.25	MRL

### TO-15 (Mid Level) (TO-15)

Acetone	<0.0050	<b>0.0064</b>	<0.0050	<0.0050	0.020
Allyl chloride	<0.0050	<0.0050	<0.0050	<0.0050	0.020
tert-Amyl-Methyl Ether (TAME)	<0.0050	<0.0050	<0.0050	<0.0050	0.020
Benzene	<0.00075	<0.00075	<0.00075	<b>0.00077</b>	0.0030
Benzyl chloride	<0.0050	<0.0050	<0.0050	<0.0050	0.020
Bromodichloromethane	<0.0050	<0.0050	<0.0050	<0.0050	0.020
Bromoform	<0.0050	<0.0050	<0.0050	<0.0050	0.020
Bromomethane	<0.0050	<0.0050	<0.0050	<0.0050	0.020
1,3-Butadiene	<0.0050	<0.0050	<0.0050	<0.0050	0.020
2-Butanone (MEK)	<0.0050	<0.0050	<0.0050	<0.0050	0.020
tert-Butyl Alcohol (TBA)	<5.0	<5.0	<5.0	<5.0	20
Carbon Disulfide	<0.0050	<0.0050	<0.0050	<0.0050	0.020
Carbon Tetrachloride	<0.0050	<0.0050	<0.0050	<0.0050	0.020
Chlorobenzene	<0.0050	<0.0050	<0.0050	<0.0050	0.020
Chloroethane	<0.0050	<0.0050	<0.0050	<0.0050	0.020
Chloroform	<0.0050	<0.0050	<0.0050	<0.0050	0.020
Chloromethane	<0.0050	<0.0050	<0.0050	<0.0050	0.020
Cyclohexane	<0.0050	<0.0050	<0.0050	<0.0050	0.020
Dibromochloromethane	<0.0050	<0.0050	<0.0050	<0.0050	0.020
1,2-Dibromoethane (EDB)	<0.0050	<0.0050	<0.0050	<0.0050	0.020
1,2-Dichlorobenzene	<0.0050	<0.0050	<0.0050	<0.0050	0.020
1,3-Dichlorobenzene	<0.0050	<0.0050	<0.0050	<0.0050	0.020
1,4-Dichlorobenzene	<0.0050	<0.0050	<0.0050	<0.0050	0.020
Dichlorodifluoromethane (R12)	<0.0050	<0.0050	<0.0050	<0.0050	0.020
1,1-Dichloroethane	<0.0050	<0.0050	<0.0050	<0.0050	0.020
1,2-Dichloroethane (EDC)	<0.0010	<0.0010	<0.0010	<0.0010	0.0040
cis-1,2-Dichloroethylene	<0.0050	<0.0050	<0.0050	<0.0050	0.020

**Allen Aminian**  
QA/QC Manager



## LABORATORY ANALYSIS RESULTS

<b>Client:</b>	CH2M Hill, Inc.	<b>AA Project No:</b>	MB187328
<b>Project No:</b>	693142	<b>Date Received:</b>	06/11/19
<b>Project Name:</b>	KMEP Norwalk Biosparge Startup	<b>Date Reported:</b>	06/24/19
<b>Method:</b>	VOCs by GCMS EPA TO-15 (Mid Level)	<b>Units:</b>	ug/L

<b>Date Sampled:</b>	06/11/19	06/11/19	06/11/19	06/11/19	
<b>Date Prepared:</b>	06/14/19	06/14/19	06/14/19	06/14/19	
<b>Date Analyzed:</b>	06/14/19	06/14/19	06/14/19	06/14/19	
<b>AA ID No:</b>	9F11013-01	9F11013-02	9F11013-03	9F11013-04	
<b>Client ID No:</b>	SVM-1-15	SVM-1-5	SVM-2-5	SVM-15-15	
<b>Matrix:</b>	Vapor	Vapor	Vapor	Vapor	
<b>Dilution Factor:</b>	0.25	0.25	0.25	0.25	MRL

### TO-15 (Mid Level) (TO-15) (continued)

1,1-Dichloroethylene	<0.0050	<0.0050	<0.0050	<0.0050	0.020
trans-1,2-Dichloroethylene	<0.0050	<0.0050	<0.0050	<0.0050	0.020
1,2-Dichloropropane	<0.0050	<0.0050	<0.0050	<0.0050	0.020
trans-1,3-Dichloropropylene	<0.0050	<0.0050	<0.0050	<0.0050	0.020
cis-1,3-Dichloropropylene	<0.0050	<0.0050	<0.0050	<0.0050	0.020
Dichlorotetrafluoroethane	<0.0050	<0.0050	<0.0050	<0.0050	0.020
Diisopropyl ether (DIPE)	<0.0050	<0.0050	<0.0050	<0.0050	0.020
1,4-Dioxane	<0.0050	<0.0050	<0.0050	<0.0050	0.020
Ethanol	<0.0050	<0.0050	<0.0050	<b>0.011</b>	0.020
Ethyl Acetate	<0.0050	<0.0050	<0.0050	<0.0050	0.020
Ethylbenzene	<0.0050	<0.0050	<0.0050	<0.0050	0.020
Ethyl-tert-Butyl Ether (ETBE)	<0.0050	<0.0050	<0.0050	<0.0050	0.020
4-Ethyltoluene	<0.0050	<0.0050	<0.0050	<0.0050	0.020
Heptane	<0.0050	<0.0050	<0.0050	<0.0050	0.020
Hexachlorobutadiene	<0.0050	<0.0050	<0.0050	<0.0050	0.020
n-Hexane	<0.0050	<0.0050	<0.0050	<0.0050	0.020
2-Hexanone (MBK)	<0.0050	<0.0050	<0.0050	<0.0050	0.020
Isopropanol (IPA)	<0.050	<0.050	<0.050	<0.050	0.20
Methyl-tert-Butyl Ether (MTBE)	<0.0050	<0.0050	<0.0050	<0.0050	0.020
Methylene Chloride	<0.0050	<0.0050	<0.0050	<0.0050	0.020
4-Methyl-2-pentanone (MIBK)	<0.0050	<0.0050	<0.0050	<0.0050	0.020
Naphthalene	<0.00075	<0.00075	<0.00075	<0.00075	0.0030
Propylene	<0.0050	<0.0050	<0.0050	<0.0050	0.020
Styrene	<0.0050	<0.0050	<0.0050	<0.0050	0.020
1,1,2,2-Tetrachloroethane	<0.0050	<0.0050	<0.0050	<0.0050	0.020
Tetrachloroethylene (PCE)	<0.0025	<0.0025	<0.0025	<0.0025	0.010
Tetrahydrofuran (THF)	<0.0050	<0.0050	<0.0050	<0.0050	0.020

**Allen Aminian**  
QA/QC Manager

**LABORATORY ANALYSIS RESULTS**

<b>Client:</b>	CH2M Hill, Inc.	<b>AA Project No:</b>	MB187328
<b>Project No:</b>	693142	<b>Date Received:</b>	06/11/19
<b>Project Name:</b>	KMEP Norwalk Biosparge Startup	<b>Date Reported:</b>	06/24/19
<b>Method:</b>	VOCs by GCMS EPA TO-15 (Mid Level)	<b>Units:</b>	ug/L

<b>Date Sampled:</b>	06/11/19	06/11/19	06/11/19	06/11/19
<b>Date Prepared:</b>	06/14/19	06/14/19	06/14/19	06/14/19
<b>Date Analyzed:</b>	06/14/19	06/14/19	06/14/19	06/14/19
<b>AA ID No:</b>	9F11013-01	9F11013-02	9F11013-03	9F11013-04
<b>Client ID No:</b>	SVM-1-15	SVM-1-5	SVM-2-5	SVM-15-15
<b>Matrix:</b>	Vapor	Vapor	Vapor	Vapor
<b>Dilution Factor:</b>	0.25	0.25	0.25	0.25
				MRL

**TO-15 (Mid Level) (TO-15) (continued)**

Toluene	<0.0050	<0.0050	<0.0050	<b>0.0053</b>	0.020
1,2,4-Trichlorobenzene	<0.0050	<0.0050	<0.0050	<0.0050	0.020
1,1,2-Trichloroethane	<0.0050	<0.0050	<0.0050	<0.0050	0.020
1,1,1-Trichloroethane	<0.0050	<0.0050	<0.0050	<0.0050	0.020
Trichloroethylene (TCE)	<0.0050	<0.0050	<0.0050	<0.0050	0.020
Trichlorofluoromethane (R11)	<0.0050	<0.0050	<0.0050	<0.0050	0.020
1,1,2-Trichloro-1,2,2-trifluoroethane (R113)	<0.0050	<0.0050	<0.0050	<0.0050	0.020
1,3,5-Trimethylbenzene	<0.0050	<0.0050	<0.0050	<0.0050	0.020
1,2,4-Trimethylbenzene	<0.0050	<0.0050	<0.0050	<0.0050	0.020
2,2,4-Trimethylpentane	<0.0050	<0.0050	<0.0050	<0.0050	0.020
Vinyl acetate	<0.0050	<0.0050	<0.0050	<0.0050	0.020
Vinyl bromide	<0.0050	<0.0050	<0.0050	<0.0050	0.020
Vinyl chloride	<0.0050	<0.0050	<0.0050	<0.0050	0.020
o-Xylene	<0.0050	<0.0050	<0.0050	<0.0050	0.020
m,p-Xylenes	<0.0050	<0.0050	<0.0050	<0.0050	0.020
1,2,3-Trichloropropane	<0.0050	<0.0050	<0.0050	<0.0050	0.020
sec-Butylbenzene	<0.0050	<0.0050	<0.0050	<0.0050	0.020
Isopropylbenzene	<0.0050	<0.0050	<0.0050	<0.0050	0.020
n-Propylbenzene	<0.0050	<0.0050	<0.0050	<0.0050	0.020
4-Isopropyltoluene	<0.0050	<0.0050	<0.0050	<0.0050	0.020
n-Butylbenzene	<0.0050	<0.0050	<0.0050	<0.0050	0.020

<b>Surrogates</b>					<b>%REC Limits</b>
4-Bromofluorobenzene	105%	106%	105%	100%	70-130

**Allen Aminian**  
QA/QC Manager



## LABORATORY ANALYSIS RESULTS

<b>Client:</b>	CH2M Hill, Inc.	<b>AA Project No:</b>	MB187328
<b>Project No:</b>	693142	<b>Date Received:</b>	06/11/19
<b>Project Name:</b>	KMEP Norwalk Biosparge Startup	<b>Date Reported:</b>	06/24/19
<b>Method:</b>	VOCs by GCMS EPA TO-15 (Mid Level)	<b>Units:</b>	ug/L

<b>Date Sampled:</b>	06/11/19	06/11/19	06/11/19	06/11/19	
<b>Date Prepared:</b>	06/14/19	06/14/19	06/14/19	06/14/19	
<b>Date Analyzed:</b>	06/14/19	06/14/19	06/14/19	06/14/19	
<b>AA ID No:</b>	9F11013-05	9F11013-06	9F11013-07	9F11013-08	
<b>Client ID No:</b>	SVM-15-7	SVM-15-22	SVM-6-7	SVM-6-15	
<b>Matrix:</b>	Vapor	Vapor	Vapor	Vapor	
<b>Dilution Factor:</b>	0.25	0.25	0.25	0.25	MRL

### TO-15 (Mid Level) (TO-15)

Acetone	<0.0050	<b>0.012</b>	<0.0050	<0.0050	0.020
Allyl chloride	<0.0050	<0.0050	<0.0050	<0.0050	0.020
tert-Amyl-Methyl Ether (TAME)	<0.0050	<0.0050	<0.0050	<0.0050	0.020
Benzene	<0.00075	<0.00075	<0.00075	<0.00075	0.0030
Benzyl chloride	<0.0050	<0.0050	<0.0050	<0.0050	0.020
Bromodichloromethane	<0.0050	<0.0050	<0.0050	<0.0050	0.020
Bromoform	<0.0050	<0.0050	<0.0050	<0.0050	0.020
Bromomethane	<0.0050	<0.0050	<0.0050	<0.0050	0.020
1,3-Butadiene	<0.0050	<0.0050	<0.0050	<0.0050	0.020
2-Butanone (MEK)	<0.0050	<0.0050	<0.0050	<0.0050	0.020
tert-Butyl Alcohol (TBA)	<5.0	<5.0	<5.0	<5.0	20
Carbon Disulfide	<0.0050	<0.0050	<0.0050	<0.0050	0.020
Carbon Tetrachloride	<0.0050	<0.0050	<0.0050	<0.0050	0.020
Chlorobenzene	<0.0050	<0.0050	<0.0050	<0.0050	0.020
Chloroethane	<0.0050	<0.0050	<0.0050	<0.0050	0.020
Chloroform	<0.0050	<0.0050	<0.0050	<0.0050	0.020
Chloromethane	<0.0050	<0.0050	<0.0050	<0.0050	0.020
Cyclohexane	<0.0050	<0.0050	<0.0050	<0.0050	0.020
Dibromochloromethane	<0.0050	<0.0050	<0.0050	<0.0050	0.020
1,2-Dibromoethane (EDB)	<0.0050	<0.0050	<0.0050	<0.0050	0.020
1,2-Dichlorobenzene	<0.0050	<0.0050	<0.0050	<0.0050	0.020
1,3-Dichlorobenzene	<0.0050	<0.0050	<0.0050	<0.0050	0.020
1,4-Dichlorobenzene	<0.0050	<0.0050	<0.0050	<0.0050	0.020
Dichlorodifluoromethane (R12)	<0.0050	<0.0050	<0.0050	<0.0050	0.020
1,1-Dichloroethane	<0.0050	<0.0050	<0.0050	<0.0050	0.020
1,2-Dichloroethane (EDC)	<0.0010	<0.0010	<0.0010	<0.0010	0.0040
cis-1,2-Dichloroethylene	<0.0050	<0.0050	<0.0050	<0.0050	0.020

**Allen Aminian**  
QA/QC Manager



## LABORATORY ANALYSIS RESULTS

<b>Client:</b>	CH2M Hill, Inc.	<b>AA Project No:</b>	MB187328
<b>Project No:</b>	693142	<b>Date Received:</b>	06/11/19
<b>Project Name:</b>	KMEP Norwalk Biosparge Startup	<b>Date Reported:</b>	06/24/19
<b>Method:</b>	VOCs by GCMS EPA TO-15 (Mid Level)	<b>Units:</b>	ug/L

<b>Date Sampled:</b>	06/11/19	06/11/19	06/11/19	06/11/19	
<b>Date Prepared:</b>	06/14/19	06/14/19	06/14/19	06/14/19	
<b>Date Analyzed:</b>	06/14/19	06/14/19	06/14/19	06/14/19	
<b>AA ID No:</b>	9F11013-05	9F11013-06	9F11013-07	9F11013-08	
<b>Client ID No:</b>	SVM-15-7	SVM-15-22	SVM-6-7	SVM-6-15	
<b>Matrix:</b>	Vapor	Vapor	Vapor	Vapor	
<b>Dilution Factor:</b>	0.25	0.25	0.25	0.25	MRL

### TO-15 (Mid Level) (TO-15) (continued)

1,1-Dichloroethylene	<0.0050	<0.0050	<0.0050	<0.0050	0.020
trans-1,2-Dichloroethylene	<0.0050	<0.0050	<0.0050	<0.0050	0.020
1,2-Dichloropropane	<0.0050	<0.0050	<0.0050	<0.0050	0.020
trans-1,3-Dichloropropylene	<0.0050	<0.0050	<0.0050	<0.0050	0.020
cis-1,3-Dichloropropylene	<0.0050	<0.0050	<0.0050	<0.0050	0.020
Dichlorotetrafluoroethane	<0.0050	<0.0050	<0.0050	<0.0050	0.020
Diisopropyl ether (DIPE)	<0.0050	<0.0050	<0.0050	<0.0050	0.020
1,4-Dioxane	<0.0050	<0.0050	<0.0050	<0.0050	0.020
Ethanol	<0.0050	<b>0.014</b>	<0.0050	<0.0050	0.020
Ethyl Acetate	<0.0050	<0.0050	<0.0050	<0.0050	0.020
Ethylbenzene	<0.0050	<0.0050	<0.0050	<0.0050	0.020
Ethyl-tert-Butyl Ether (ETBE)	<0.0050	<0.0050	<0.0050	<0.0050	0.020
4-Ethyltoluene	<0.0050	<0.0050	<0.0050	<0.0050	0.020
Heptane	<0.0050	<0.0050	<0.0050	<0.0050	0.020
Hexachlorobutadiene	<0.0050	<0.0050	<0.0050	<0.0050	0.020
n-Hexane	<0.0050	<0.0050	<0.0050	<0.0050	0.020
2-Hexanone (MBK)	<0.0050	<0.0050	<0.0050	<0.0050	0.020
Isopropanol (IPA)	<0.050	<0.050	<0.050	<0.050	0.20
Methyl-tert-Butyl Ether (MTBE)	<0.0050	<0.0050	<0.0050	<0.0050	0.020
Methylene Chloride	<0.0050	<b>0.0092 [3]</b>	<0.0050	<0.0050	0.020
4-Methyl-2-pentanone (MIBK)	<0.0050	<0.0050	<0.0050	<0.0050	0.020
Naphthalene	<0.00075	<0.00075	<0.00075	<0.00075	0.0030
Propylene	<0.0050	<0.0050	<0.0050	<0.0050	0.020
Styrene	<0.0050	<0.0050	<0.0050	<0.0050	0.020
1,1,2,2-Tetrachloroethane	<0.0050	<0.0050	<0.0050	<0.0050	0.020
Tetrachloroethylene (PCE)	<0.0025	<0.0025	<0.0025	<0.0025	0.010
Tetrahydrofuran (THF)	<0.0050	<0.0050	<0.0050	<0.0050	0.020

**Allen Aminian**  
QA/QC Manager



## LABORATORY ANALYSIS RESULTS

<b>Client:</b>	CH2M Hill, Inc.	<b>AA Project No:</b>	MB187328
<b>Project No:</b>	693142	<b>Date Received:</b>	06/11/19
<b>Project Name:</b>	KMEP Norwalk Biosparge Startup	<b>Date Reported:</b>	06/24/19
<b>Method:</b>	VOCs by GCMS EPA TO-15 (Mid Level)	<b>Units:</b>	ug/L

<b>Date Sampled:</b>	06/11/19	06/11/19	06/11/19	06/11/19	
<b>Date Prepared:</b>	06/14/19	06/14/19	06/14/19	06/14/19	
<b>Date Analyzed:</b>	06/14/19	06/14/19	06/14/19	06/14/19	
<b>AA ID No:</b>	9F11013-05	9F11013-06	9F11013-07	9F11013-08	
<b>Client ID No:</b>	SVM-15-7	SVM-15-22	SVM-6-7	SVM-6-15	
<b>Matrix:</b>	Vapor	Vapor	Vapor	Vapor	
<b>Dilution Factor:</b>	0.25	0.25	0.25	0.25	MRL

### TO-15 (Mid Level) (TO-15) (continued)

Toluene	<0.0050	<0.0050	<0.0050	<0.0050	0.020
1,2,4-Trichlorobenzene	<0.0050	<0.0050	<0.0050	<0.0050	0.020
1,1,2-Trichloroethane	<0.0050	<0.0050	<0.0050	<0.0050	0.020
1,1,1-Trichloroethane	<0.0050	<0.0050	<0.0050	<0.0050	0.020
Trichloroethylene (TCE)	<0.0050	<0.0050	<0.0050	<0.0050	0.020
Trichlorofluoromethane (R11)	<0.0050	<0.0050	<0.0050	<0.0050	0.020
1,1,2-Trichloro-1,2,2-trifluoroethane (R113)	<0.0050	<0.0050	<0.0050	<0.0050	0.020
1,3,5-Trimethylbenzene	<0.0050	<0.0050	<0.0050	<0.0050	0.020
1,2,4-Trimethylbenzene	<0.0050	<0.0050	<0.0050	<0.0050	0.020
2,2,4-Trimethylpentane	<0.0050	<0.0050	<0.0050	<0.0050	0.020
Vinyl acetate	<0.0050	<0.0050	<0.0050	<0.0050	0.020
Vinyl bromide	<0.0050	<0.0050	<0.0050	<0.0050	0.020
Vinyl chloride	<0.0050	<0.0050	<0.0050	<0.0050	0.020
o-Xylene	<0.0050	<0.0050	<0.0050	<0.0050	0.020
m,p-Xylenes	<0.0050	<0.0050	<0.0050	<0.0050	0.020
1,2,3-Trichloropropane	<0.0050	<0.0050	<0.0050	<0.0050	0.020
sec-Butylbenzene	<0.0050	<0.0050	<0.0050	<0.0050	0.020
Isopropylbenzene	<0.0050	<0.0050	<0.0050	<0.0050	0.020
n-Propylbenzene	<0.0050	<0.0050	<0.0050	<0.0050	0.020
4-Isopropyltoluene	<0.0050	<0.0050	<0.0050	<0.0050	0.020
n-Butylbenzene	<0.0050	<0.0050	<0.0050	<0.0050	0.020

<b><u>Surrogates</u></b>					<b><u>%REC Limits</u></b>
4-Bromofluorobenzene	106%	103%	105%	106%	70-130

**Allen Aminian**  
QA/QC Manager



## LABORATORY ANALYSIS RESULTS

<b>Client:</b>	CH2M Hill, Inc.	<b>AA Project No:</b>	MB187328
<b>Project No:</b>	693142	<b>Date Received:</b>	06/11/19
<b>Project Name:</b>	KMEP Norwalk Biosparge Startup	<b>Date Reported:</b>	06/24/19
<b>Method:</b>	VOCs by GCMS EPA TO-15 (Mid Level)	<b>Units:</b>	ug/L

<b>Date Sampled:</b>	06/11/19	06/11/19	06/11/19	06/11/19	
<b>Date Prepared:</b>	06/14/19	06/14/19	06/15/19	06/15/19	
<b>Date Analyzed:</b>	06/14/19	06/14/19	06/15/19	06/15/19	
<b>AA ID No:</b>	9F11013-09	9F11013-10	9F11013-11	9F11013-12	
<b>Client ID No:</b>	SVM-7-7	SVM-7-13	SVM-10-15	SVM-5-5	
<b>Matrix:</b>	Vapor	Vapor	Vapor	Vapor	
<b>Dilution Factor:</b>	0.25	0.25	0.25	0.25	MRL

### TO-15 (Mid Level) (TO-15)

Acetone	<b>0.0050</b>	<b>0.0058</b>	<0.0050	<0.0050	0.020
Allyl chloride	<0.0050	<0.0050	<0.0050	<0.0050	0.020
tert-Amyl-Methyl Ether (TAME)	<0.0050	<0.0050	<0.0050	<0.0050	0.020
Benzene	<0.00075	<0.00075	<b>0.00077</b>	<0.00075	0.0030
Benzyl chloride	<0.0050	<0.0050	<0.0050	<0.0050	0.020
Bromodichloromethane	<0.0050	<0.0050	<0.0050	<0.0050	0.020
Bromoform	<0.0050	<0.0050	<0.0050	<0.0050	0.020
Bromomethane	<0.0050	<0.0050	<0.0050	<0.0050	0.020
1,3-Butadiene	<0.0050	<0.0050	<0.0050	<0.0050	0.020
2-Butanone (MEK)	<0.0050	<0.0050	<0.0050	<0.0050	0.020
tert-Butyl Alcohol (TBA)	<5.0	<5.0	<5.0	<5.0	20
Carbon Disulfide	<0.0050	<0.0050	<0.0050	<0.0050	0.020
Carbon Tetrachloride	<0.0050	<0.0050	<0.0050	<0.0050	0.020
Chlorobenzene	<0.0050	<0.0050	<0.0050	<0.0050	0.020
Chloroethane	<0.0050	<0.0050	<0.0050	<0.0050	0.020
Chloroform	<0.0050	<0.0050	<0.0050	<0.0050	0.020
Chloromethane	<0.0050	<0.0050	<0.0050	<0.0050	0.020
Cyclohexane	<0.0050	<0.0050	<0.0050	<0.0050	0.020
Dibromochloromethane	<0.0050	<0.0050	<0.0050	<0.0050	0.020
1,2-Dibromoethane (EDB)	<0.0050	<0.0050	<0.0050	<0.0050	0.020
1,2-Dichlorobenzene	<0.0050	<0.0050	<0.0050	<0.0050	0.020
1,3-Dichlorobenzene	<0.0050	<0.0050	<0.0050	<0.0050	0.020
1,4-Dichlorobenzene	<0.0050	<0.0050	<0.0050	<0.0050	0.020
Dichlorodifluoromethane (R12)	<0.0050	<0.0050	<0.0050	<0.0050	0.020
1,1-Dichloroethane	<0.0050	<0.0050	<0.0050	<0.0050	0.020
1,2-Dichloroethane (EDC)	<0.0010	<0.0010	<0.0010	<0.0010	0.0040
cis-1,2-Dichloroethylene	<0.0050	<0.0050	<0.0050	<0.0050	0.020

**Allen Aminian**  
QA/QC Manager



## LABORATORY ANALYSIS RESULTS

<b>Client:</b>	CH2M Hill, Inc.	<b>AA Project No:</b>	MB187328
<b>Project No:</b>	693142	<b>Date Received:</b>	06/11/19
<b>Project Name:</b>	KMEP Norwalk Biosparge Startup	<b>Date Reported:</b>	06/24/19
<b>Method:</b>	VOCs by GCMS EPA TO-15 (Mid Level)	<b>Units:</b>	ug/L

<b>Date Sampled:</b>	06/11/19	06/11/19	06/11/19	06/11/19	
<b>Date Prepared:</b>	06/14/19	06/14/19	06/15/19	06/15/19	
<b>Date Analyzed:</b>	06/14/19	06/14/19	06/15/19	06/15/19	
<b>AA ID No:</b>	9F11013-09	9F11013-10	9F11013-11	9F11013-12	
<b>Client ID No:</b>	SVM-7-7	SVM-7-13	SVM-10-15	SVM-5-5	
<b>Matrix:</b>	Vapor	Vapor	Vapor	Vapor	
<b>Dilution Factor:</b>	0.25	0.25	0.25	0.25	MRL

### TO-15 (Mid Level) (TO-15) (continued)

1,1-Dichloroethylene	<0.0050	<0.0050	<0.0050	<0.0050	0.020
trans-1,2-Dichloroethylene	<0.0050	<0.0050	<0.0050	<0.0050	0.020
1,2-Dichloropropane	<0.0050	<0.0050	<0.0050	<0.0050	0.020
trans-1,3-Dichloropropylene	<0.0050	<0.0050	<0.0050	<0.0050	0.020
cis-1,3-Dichloropropylene	<0.0050	<0.0050	<0.0050	<0.0050	0.020
Dichlorotetrafluoroethane	<0.0050	<0.0050	<0.0050	<0.0050	0.020
Diisopropyl ether (DIPE)	<0.0050	<0.0050	<0.0050	<0.0050	0.020
1,4-Dioxane	<0.0050	<0.0050	<0.0050	<0.0050	0.020
Ethanol	<0.0050	<0.0050	<0.0050	<0.0050	0.020
Ethyl Acetate	<0.0050	<0.0050	<0.0050	<0.0050	0.020
Ethylbenzene	<0.0050	<0.0050	<0.0050	<0.0050	0.020
Ethyl-tert-Butyl Ether (ETBE)	<0.0050	<0.0050	<0.0050	<0.0050	0.020
4-Ethyltoluene	<0.0050	<0.0050	<0.0050	<0.0050	0.020
Heptane	<0.0050	<0.0050	<0.0050	<0.0050	0.020
Hexachlorobutadiene	<0.0050	<0.0050	<0.0050	<0.0050	0.020
n-Hexane	<0.0050	<0.0050	<0.0050	<0.0050	0.020
2-Hexanone (MBK)	<0.0050	<0.0050	<0.0050	<0.0050	0.020
Isopropanol (IPA)	<0.050	<0.050	<0.050	<0.050	0.20
Methyl-tert-Butyl Ether (MTBE)	<0.0050	<0.0050	<0.0050	<0.0050	0.020
Methylene Chloride	<0.0050	<0.0050	<0.0050	<0.0050	0.020
4-Methyl-2-pentanone (MIBK)	<0.0050	<0.0050	<0.0050	<0.0050	0.020
Naphthalene	<0.00075	<0.00075	<0.00075	<0.00075	0.0030
Propylene	<0.0050	<0.0050	<0.0050	<0.0050	0.020
Styrene	<0.0050	<0.0050	<0.0050	<0.0050	0.020
1,1,2,2-Tetrachloroethane	<0.0050	<0.0050	<0.0050	<0.0050	0.020
Tetrachloroethylene (PCE)	<0.0025	<0.0025	<b>0.0043</b>	<0.0025	0.010
Tetrahydrofuran (THF)	<0.0050	<0.0050	<0.0050	<0.0050	0.020

**Allen Aminian**  
QA/QC Manager





## LABORATORY ANALYSIS RESULTS

<b>Client:</b>	CH2M Hill, Inc.	<b>AA Project No:</b>	MB187328
<b>Project No:</b>	693142	<b>Date Received:</b>	06/11/19
<b>Project Name:</b>	KMEP Norwalk Biosparge Startup	<b>Date Reported:</b>	06/24/19
<b>Method:</b>	VOCs by GCMS EPA TO-15 (Mid Level)	<b>Units:</b>	ug/L

<b>Date Sampled:</b>	06/11/19	06/11/19	06/11/19	06/11/19	
<b>Date Prepared:</b>	06/14/19	06/14/19	06/15/19	06/15/19	
<b>Date Analyzed:</b>	06/14/19	06/14/19	06/15/19	06/15/19	
<b>AA ID No:</b>	9F11013-09	9F11013-10	9F11013-11	9F11013-12	
<b>Client ID No:</b>	SVM-7-7	SVM-7-13	SVM-10-15	SVM-5-5	
<b>Matrix:</b>	Vapor	Vapor	Vapor	Vapor	
<b>Dilution Factor:</b>	0.25	0.25	0.25	0.25	MRL

### TO-15 (Mid Level) (TO-15) (continued)

Toluene	<0.0050	<0.0050	<0.0050	<0.0050	0.020
1,2,4-Trichlorobenzene	<0.0050	<0.0050	<0.0050	<0.0050	0.020
1,1,2-Trichloroethane	<0.0050	<0.0050	<0.0050	<0.0050	0.020
1,1,1-Trichloroethane	<0.0050	<0.0050	<0.0050	<0.0050	0.020
Trichloroethylene (TCE)	<0.0050	<0.0050	<0.0050	<0.0050	0.020
Trichlorofluoromethane (R11)	<0.0050	<0.0050	<0.0050	<0.0050	0.020
1,1,2-Trichloro-1,2,2-trifluoroethane (R113)	<0.0050	<0.0050	<0.0050	<0.0050	0.020
1,3,5-Trimethylbenzene	<0.0050	<0.0050	<0.0050	<0.0050	0.020
1,2,4-Trimethylbenzene	<0.0050	<0.0050	<0.0050	<0.0050	0.020
2,2,4-Trimethylpentane	<0.0050	<0.0050	<0.0050	<0.0050	0.020
Vinyl acetate	<0.0050	<0.0050	<0.0050	<0.0050	0.020
Vinyl bromide	<0.0050	<0.0050	<0.0050	<0.0050	0.020
Vinyl chloride	<0.0050	<0.0050	<0.0050	<0.0050	0.020
o-Xylene	<0.0050	<0.0050	<0.0050	<0.0050	0.020
m,p-Xylenes	<0.0050	<0.0050	<0.0050	<0.0050	0.020
1,2,3-Trichloropropane	<0.0050	<0.0050	<0.0050	<0.0050	0.020
sec-Butylbenzene	<0.0050	<0.0050	<0.0050	<0.0050	0.020
Isopropylbenzene	<0.0050	<0.0050	<0.0050	<0.0050	0.020
n-Propylbenzene	<0.0050	<0.0050	<0.0050	<0.0050	0.020
4-Isopropyltoluene	<0.0050	<0.0050	<0.0050	<0.0050	0.020
n-Butylbenzene	<0.0050	<0.0050	<0.0050	<0.0050	0.020

### Surrogates

					<b>%REC Limits</b>
4-Bromofluorobenzene	103%	104%	104%	104%	70-130

**Allen Aminian**  
QA/QC Manager



## LABORATORY ANALYSIS RESULTS

<b>Client:</b>	CH2M Hill, Inc.	<b>AA Project No:</b>	MB187328
<b>Project No:</b>	693142	<b>Date Received:</b>	06/11/19
<b>Project Name:</b>	KMEP Norwalk Biosparge Startup	<b>Date Reported:</b>	06/24/19
<b>Method:</b>	VOCs by GCMS EPA TO-15 (Mid Level)	<b>Units:</b>	ug/L

<b>Date Sampled:</b>	06/11/19	06/11/19	06/11/19	06/11/19	
<b>Date Prepared:</b>	06/14/19	06/17/19	06/17/19	06/17/19	
<b>Date Analyzed:</b>	06/14/19	06/17/19	06/17/19	06/17/19	
<b>AA ID No:</b>	9F11013-13	9F11013-14	9F11013-15	9F11013-16	
<b>Client ID No:</b>	Ambient Air	SVM-5-15	SVM-8-15	SVM-8-5	
<b>Matrix:</b>	Vapor	Vapor	Vapor	Vapor	
<b>Dilution Factor:</b>	0.25	0.25	0.25	0.25	MRL

### TO-15 (Mid Level) (TO-15)

Acetone	0.010	0.0072	<0.0050	<0.0050	0.020
Allyl chloride	<0.0050	<0.0050	<0.0050	<0.0050	0.020
tert-Amyl-Methyl Ether (TAME)	<0.0050	<0.0050	<0.0050	<0.0050	0.020
Benzene	0.00089	<0.00075	<0.00075	<0.00075	0.0030
Benzyl chloride	<0.0050	<0.0050	<0.0050	<0.0050	0.020
Bromodichloromethane	<0.0050	<0.0050	<0.0050	<0.0050	0.020
Bromoform	<0.0050	<0.0050	<0.0050	<0.0050	0.020
Bromomethane	<0.0050	<0.0050	<0.0050	<0.0050	0.020
1,3-Butadiene	<0.0050	<0.0050	<0.0050	<0.0050	0.020
2-Butanone (MEK)	<0.0050	<0.0050	<0.0050	<0.0050	0.020
tert-Butyl Alcohol (TBA)	<5.0	<5.0	<5.0	<5.0	20
Carbon Disulfide	<0.0050	<0.0050	<0.0050	<0.0050	0.020
Carbon Tetrachloride	<0.0050	<0.0050	<0.0050	<0.0050	0.020
Chlorobenzene	<0.0050	<0.0050	<0.0050	<0.0050	0.020
Chloroethane	<0.0050	<0.0050	<0.0050	<0.0050	0.020
Chloroform	<0.0050	<0.0050	<0.0050	<0.0050	0.020
Chloromethane	<0.0050	<0.0050	<0.0050	<0.0050	0.020
Cyclohexane	<0.0050	<0.0050	<0.0050	<0.0050	0.020
Dibromochloromethane	<0.0050	<0.0050	<0.0050	<0.0050	0.020
1,2-Dibromoethane (EDB)	<0.0050	<0.0050	<0.0050	<0.0050	0.020
1,2-Dichlorobenzene	<0.0050	<0.0050	<0.0050	<0.0050	0.020
1,3-Dichlorobenzene	<0.0050	<0.0050	<0.0050	<0.0050	0.020
1,4-Dichlorobenzene	<0.0050	<0.0050	<0.0050	<0.0050	0.020
Dichlorodifluoromethane (R12)	<0.0050	<0.0050	<0.0050	<0.0050	0.020
1,1-Dichloroethane	<0.0050	<0.0050	<0.0050	<0.0050	0.020
1,2-Dichloroethane (EDC)	<0.0010	<0.0010	<0.0010	<0.0010	0.0040
cis-1,2-Dichloroethylene	<0.0050	<0.0050	<0.0050	<0.0050	0.020

**Allen Aminian**  
QA/QC Manager



## LABORATORY ANALYSIS RESULTS

<b>Client:</b>	CH2M Hill, Inc.	<b>AA Project No:</b>	MB187328
<b>Project No:</b>	693142	<b>Date Received:</b>	06/11/19
<b>Project Name:</b>	KMEP Norwalk Biosparge Startup	<b>Date Reported:</b>	06/24/19
<b>Method:</b>	VOCs by GCMS EPA TO-15 (Mid Level)	<b>Units:</b>	ug/L

<b>Date Sampled:</b>	06/11/19	06/11/19	06/11/19	06/11/19	
<b>Date Prepared:</b>	06/14/19	06/17/19	06/17/19	06/17/19	
<b>Date Analyzed:</b>	06/14/19	06/17/19	06/17/19	06/17/19	
<b>AA ID No:</b>	9F11013-13	9F11013-14	9F11013-15	9F11013-16	
<b>Client ID No:</b>	Ambient Air	SVM-5-15	SVM-8-15	SVM-8-5	
<b>Matrix:</b>	Vapor	Vapor	Vapor	Vapor	
<b>Dilution Factor:</b>	0.25	0.25	0.25	0.25	MRL

### TO-15 (Mid Level) (TO-15) (continued)

1,1-Dichloroethylene	<0.0050	<0.0050	<0.0050	<0.0050	0.020
trans-1,2-Dichloroethylene	<0.0050	<0.0050	<0.0050	<0.0050	0.020
1,2-Dichloropropane	<0.0050	<0.0050	<0.0050	<0.0050	0.020
trans-1,3-Dichloropropylene	<0.0050	<0.0050	<0.0050	<0.0050	0.020
cis-1,3-Dichloropropylene	<0.0050	<0.0050	<0.0050	<0.0050	0.020
Dichlorotetrafluoroethane	<0.0050	<0.0050	<0.0050	<0.0050	0.020
Diisopropyl ether (DIPE)	<0.0050	<0.0050	<0.0050	<0.0050	0.020
1,4-Dioxane	<0.0050	<0.0050	<0.0050	<0.0050	0.020
Ethanol	<b>0.015</b>	<0.0050	<0.0050	<0.0050	0.020
Ethyl Acetate	<0.0050	<0.0050	<0.0050	<0.0050	0.020
Ethylbenzene	<0.0050	<0.0050	<0.0050	<0.0050	0.020
Ethyl-tert-Butyl Ether (ETBE)	<0.0050	<0.0050	<0.0050	<0.0050	0.020
4-Ethyltoluene	<0.0050	<0.0050	<0.0050	<0.0050	0.020
Heptane	<0.0050	<0.0050	<0.0050	<0.0050	0.020
Hexachlorobutadiene	<0.0050	<0.0050	<0.0050	<0.0050	0.020
n-Hexane	<0.0050	<0.0050	<0.0050	<0.0050	0.020
2-Hexanone (MBK)	<0.0050	<0.0050	<0.0050	<0.0050	0.020
Isopropanol (IPA)	<0.050	<0.050	<0.050	<0.050	0.20
Methyl-tert-Butyl Ether (MTBE)	<0.0050	<0.0050	<0.0050	<0.0050	0.020
Methylene Chloride	<0.0050	<0.0050	<0.0050	<0.0050	0.020
4-Methyl-2-pentanone (MIBK)	<0.0050	<0.0050	<0.0050	<0.0050	0.020
Naphthalene	<0.00075	<b>0.0019</b>	<0.00075	<0.00075	0.0030
Propylene	<0.0050	<0.0050	<0.0050	<0.0050	0.020
Styrene	<0.0050	<0.0050	<0.0050	<0.0050	0.020
1,1,2,2-Tetrachloroethane	<0.0050	<0.0050	<0.0050	<0.0050	0.020
Tetrachloroethylene (PCE)	<0.0025	<0.0025	<0.0025	<0.0025	0.010
Tetrahydrofuran (THF)	<0.0050	<0.0050	<0.0050	<0.0050	0.020

**Allen Aminian**  
QA/QC Manager



## LABORATORY ANALYSIS RESULTS

<b>Client:</b>	CH2M Hill, Inc.	<b>AA Project No:</b>	MB187328
<b>Project No:</b>	693142	<b>Date Received:</b>	06/11/19
<b>Project Name:</b>	KMEP Norwalk Biosparge Startup	<b>Date Reported:</b>	06/24/19
<b>Method:</b>	VOCs by GCMS EPA TO-15 (Mid Level)	<b>Units:</b>	ug/L

<b>Date Sampled:</b>	06/11/19	06/11/19	06/11/19	06/11/19	
<b>Date Prepared:</b>	06/14/19	06/17/19	06/17/19	06/17/19	
<b>Date Analyzed:</b>	06/14/19	06/17/19	06/17/19	06/17/19	
<b>AA ID No:</b>	9F11013-13	9F11013-14	9F11013-15	9F11013-16	
<b>Client ID No:</b>	Ambient Air	SVM-5-15	SVM-8-15	SVM-8-5	
<b>Matrix:</b>	Vapor	Vapor	Vapor	Vapor	
<b>Dilution Factor:</b>	0.25	0.25	0.25	0.25	MRL

### TO-15 (Mid Level) (TO-15) (continued)

Toluene	<0.0050	<0.0050	<0.0050	<0.0050	0.020
1,2,4-Trichlorobenzene	<0.0050	<0.0050	<0.0050	<0.0050	0.020
1,1,2-Trichloroethane	<0.0050	<0.0050	<0.0050	<0.0050	0.020
1,1,1-Trichloroethane	<0.0050	<0.0050	<0.0050	<0.0050	0.020
Trichloroethylene (TCE)	<0.0050	<0.0050	<0.0050	<0.0050	0.020
Trichlorofluoromethane (R11)	<0.0050	<0.0050	<0.0050	<0.0050	0.020
1,1,2-Trichloro-1,2,2-trifluoroethane (R113)	<0.0050	<0.0050	<0.0050	<0.0050	0.020
1,3,5-Trimethylbenzene	<0.0050	<0.0050	<0.0050	<0.0050	0.020
1,2,4-Trimethylbenzene	<0.0050	<0.0050	<0.0050	<0.0050	0.020
2,2,4-Trimethylpentane	<0.0050	<0.0050	<0.0050	<0.0050	0.020
Vinyl acetate	<0.0050	<0.0050	<0.0050	<0.0050	0.020
Vinyl bromide	<0.0050	<0.0050	<0.0050	<0.0050	0.020
Vinyl chloride	<0.0050	<0.0050	<0.0050	<0.0050	0.020
o-Xylene	<0.0050	<0.0050	<0.0050	<0.0050	0.020
m,p-Xylenes	<0.0050	<0.0050	<0.0050	<0.0050	0.020
1,2,3-Trichloropropane	<0.0050	<0.0050	<0.0050	<0.0050	0.020
sec-Butylbenzene	<0.0050	<0.0050	<0.0050	<0.0050	0.020
Isopropylbenzene	<0.0050	<0.0050	<0.0050	<0.0050	0.020
n-Propylbenzene	<0.0050	<0.0050	<0.0050	<0.0050	0.020
4-Isopropyltoluene	<0.0050	<0.0050	<0.0050	<0.0050	0.020
n-Butylbenzene	<0.0050	<0.0050	<0.0050	<0.0050	0.020

<b>Surrogates</b>					<b>%REC Limits</b>
4-Bromofluorobenzene	102%	105%	106%	105%	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:** MB187328  
**Date Received:** 06/11/19  
**Date Reported:** 06/24/19  
**Units:** ug/L

	06/11/2019	06/11/2019	06/11/2019	
<b>Date Sampled:</b>	06/11/2019	06/11/2019	06/11/2019	
<b>Date Prepared:</b>	06/17/19	06/17/19	06/17/19	
<b>Date Analyzed:</b>	06/17/19	06/17/19	06/17/19	
<b>AA ID No:</b>	9F11013-17	9F11013-18	9F11013-19	
<b>Client ID No:</b>	SVM-16-16	SVM-16-16DUP	SVM-16-7	
<b>Matrix:</b>	Vapor	Vapor	Vapor	
<b>Dilution Factor:</b>	0.25	0.25	0.25	MRL

### TO-15 (Mid Level) (TO-15)

Acetone	<0.0050	<0.0050	<0.0050	0.020
Allyl chloride	<0.0050	<0.0050	<0.0050	0.020
tert-Amyl-Methyl Ether (TAME)	<0.0050	<0.0050	<0.0050	0.020
Benzene	<0.00075	<0.00075	<0.00075	0.0030
Benzyl chloride	<0.0050	<0.0050	<0.0050	0.020
Bromodichloromethane	<0.0050	<0.0050	<0.0050	0.020
Bromoform	<0.0050	<0.0050	<0.0050	0.020
Bromomethane	<0.0050	<0.0050	<0.0050	0.020
1,3-Butadiene	<0.0050	<0.0050	<0.0050	0.020
2-Butanone (MEK)	<0.0050	<0.0050	<0.0050	0.020
tert-Butyl Alcohol (TBA)	<5.0	<5.0	<5.0	20
Carbon Disulfide	<0.0050	<0.0050	<0.0050	0.020
Carbon Tetrachloride	<0.0050	<0.0050	<0.0050	0.020
Chlorobenzene	<0.0050	<0.0050	<0.0050	0.020
Chloroethane	<0.0050	<0.0050	<0.0050	0.020
Chloroform	<0.0050	<0.0050	<0.0050	0.020
Chloromethane	<0.0050	<0.0050	<0.0050	0.020
Cyclohexane	<0.0050	<0.0050	<0.0050	0.020
Dibromochloromethane	<0.0050	<0.0050	<0.0050	0.020
1,2-Dibromoethane (EDB)	<0.0050	<0.0050	<0.0050	0.020
1,2-Dichlorobenzene	<0.0050	<0.0050	<0.0050	0.020
1,3-Dichlorobenzene	<0.0050	<0.0050	<0.0050	0.020
1,4-Dichlorobenzene	<0.0050	<0.0050	<0.0050	0.020
Dichlorodifluoromethane (R12)	<0.0050	<0.0050	<0.0050	0.020
1,1-Dichloroethane	<0.0050	<0.0050	<0.0050	0.020
1,2-Dichloroethane (EDC)	<0.0010	<0.0010	<0.0010	0.0040
cis-1,2-Dichloroethylene	<0.0050	<0.0050	<0.0050	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:** MB187328  
**Date Received:** 06/11/19  
**Date Reported:** 06/24/19  
**Units:** ug/L

Date Sampled:	06/11/2019	06/11/2019	06/11/2019	
Date Prepared:	06/17/19	06/17/19	06/17/19	
Date Analyzed:	06/17/19	06/17/19	06/17/19	
AA ID No:	9F11013-17	9F11013-18	9F11013-19	
Client ID No:	SVM-16-16	SVM-16-16DUP	SVM-16-7	
Matrix:	Vapor	Vapor	Vapor	
Dilution Factor:	0.25	0.25	0.25	MRL

### TO-15 (Mid Level) (TO-15) (continued)

1,1-Dichloroethylene	<0.0050	<0.0050	<0.0050	0.020
trans-1,2-Dichloroethylene	<0.0050	<0.0050	<0.0050	0.020
1,2-Dichloropropane	<0.0050	<0.0050	<0.0050	0.020
trans-1,3-Dichloropropylene	<0.0050	<0.0050	<0.0050	0.020
cis-1,3-Dichloropropylene	<0.0050	<0.0050	<0.0050	0.020
Dichlorotetrafluoroethane	<0.0050	<0.0050	<0.0050	0.020
Diisopropyl ether (DIPE)	<0.0050	<0.0050	<0.0050	0.020
1,4-Dioxane	<0.0050	<0.0050	<0.0050	0.020
Ethanol	<0.0050	<0.0050	<0.0050	0.020
Ethyl Acetate	<0.0050	<0.0050	<0.0050	0.020
Ethylbenzene	<0.0050	<0.0050	<0.0050	0.020
Ethyl-tert-Butyl Ether (ETBE)	<0.0050	<0.0050	<0.0050	0.020
4-Ethyltoluene	<0.0050	<0.0050	<0.0050	0.020
Heptane	<0.0050	<0.0050	<0.0050	0.020
Hexachlorobutadiene	<0.0050	<0.0050	<0.0050	0.020
n-Hexane	<0.0050	<0.0050	<0.0050	0.020
2-Hexanone (MBK)	<0.0050	<0.0050	<0.0050	0.020
Isopropanol (IPA)	<0.050	<0.050	<0.050	0.20
Methyl-tert-Butyl Ether (MTBE)	<0.0050	<0.0050	<0.0050	0.020
Methylene Chloride	<0.0050	<0.0050	<0.0050	0.020
4-Methyl-2-pentanone (MIBK)	<0.0050	<0.0050	<0.0050	0.020
Naphthalene	<0.00075	<0.00075	<0.00075	0.0030
Propylene	<0.0050	<0.0050	<0.0050	0.020
Styrene	<0.0050	<0.0050	<0.0050	0.020
1,1,2,2-Tetrachloroethane	<0.0050	<0.0050	<0.0050	0.020
Tetrachloroethylene (PCE)	<0.0025	<0.0025	<0.0025	0.010
Tetrahydrofuran (THF)	<0.0050	<0.0050	<0.0050	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:** MB187328  
**Date Received:** 06/11/19  
**Date Reported:** 06/24/19  
**Units:** ug/L

<b>Date Sampled:</b>	06/11/2019	06/11/2019	06/11/2019	
<b>Date Prepared:</b>	06/17/19	06/17/19	06/17/19	
<b>Date Analyzed:</b>	06/17/19	06/17/19	06/17/19	
<b>AA ID No:</b>	9F11013-17	9F11013-18	9F11013-19	
<b>Client ID No:</b>	SVM-16-16	SVM-16-16DUP	SVM-16-7	
<b>Matrix:</b>	Vapor	Vapor	Vapor	
<b>Dilution Factor:</b>	0.25	0.25	0.25	MRL

### TO-15 (Mid Level) (TO-15) (continued)

Toluene	<0.0050	<0.0050	<0.0050	0.020
1,2,4-Trichlorobenzene	<0.0050	<0.0050	<0.0050	0.020
1,1,2-Trichloroethane	<0.0050	<0.0050	<0.0050	0.020
1,1,1-Trichloroethane	<0.0050	<0.0050	<0.0050	0.020
Trichloroethylene (TCE)	<0.0050	<0.0050	<0.0050	0.020
Trichlorofluoromethane (R11)	<0.0050	<0.0050	<0.0050	0.020
1,1,2-Trichloro-1,2,2-trifluoroethane (R113)	<0.0050	<0.0050	<0.0050	0.020
1,3,5-Trimethylbenzene	<0.0050	<0.0050	<0.0050	0.020
1,2,4-Trimethylbenzene	<0.0050	<0.0050	<0.0050	0.020
2,2,4-Trimethylpentane	<0.0050	<0.0050	<0.0050	0.020
Vinyl acetate	<0.0050	<0.0050	<0.0050	0.020
Vinyl bromide	<0.0050	<0.0050	<0.0050	0.020
Vinyl chloride	<0.0050	<0.0050	<0.0050	0.020
o-Xylene	<0.0050	<0.0050	<0.0050	0.020
m,p-Xylenes	<0.0050	<0.0050	<0.0050	0.020
1,2,3-Trichloropropane	<0.0050	<0.0050	<0.0050	0.020
sec-Butylbenzene	<0.0050	<0.0050	<0.0050	0.020
Isopropylbenzene	<0.0050	<0.0050	<0.0050	0.020
n-Propylbenzene	<0.0050	<0.0050	<0.0050	0.020
4-Isopropyltoluene	<0.0050	<0.0050	<0.0050	0.020
n-Butylbenzene	<0.0050	<0.0050	<0.0050	0.020

### Surrogates

4-Bromofluorobenzene	109%	107%	106%	<b>%REC Limits</b> 70-130
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**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:** MB187328  
**Date Received:** 06/11/19  
**Date Reported:** 06/24/19  
**Units:** % by Volume

<b>Date Sampled:</b>	06/11/19	06/11/19	06/11/19	06/11/19	
<b>Date Prepared:</b>	06/20/19	06/20/19	06/20/19	06/20/19	
<b>Date Analyzed:</b>	06/20/19	06/20/19	06/20/19	06/20/19	
<b>AA ID No:</b>	9F11013-01	9F11013-02	9F11013-03	9F11013-04	
<b>Client ID No:</b>	SVM-1-15	SVM-1-5	SVM-2-5	SVM-15-15	
<b>Matrix:</b>	Vapor	Vapor	Vapor	Vapor	
<b>Dilution Factor:</b>	2	2	2	2	MRL

#### Fixed Gases - Field (EPA 3CM)

Methane	<0.20	<0.20	<0.20	<0.20	0.10
Oxygen	<b>16</b>	<b>16</b>	<b>16</b>	<b>16</b>	0.10
Carbon Dioxide	<0.20	<0.20	<0.20	<0.20	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:** MB187328  
**Date Received:** 06/11/19  
**Date Reported:** 06/24/19  
**Units:** % by Volume

<b>Date Sampled:</b>	06/11/19	06/11/19	06/11/19	06/11/19	
<b>Date Prepared:</b>	06/20/19	06/20/19	06/20/19	06/20/19	
<b>Date Analyzed:</b>	06/20/19	06/20/19	06/20/19	06/20/19	
<b>AA ID No:</b>	9F11013-05	9F11013-06	9F11013-07	9F11013-08	
<b>Client ID No:</b>	SVM-15-7	SVM-15-22	SVM-6-7	SVM-6-15	
<b>Matrix:</b>	Vapor	Vapor	Vapor	Vapor	
<b>Dilution Factor:</b>	2	2	2	2	MRL

#### Fixed Gases - Field (EPA 3CM)

Methane	<0.20	<0.20	<0.20	<0.20	0.10
Oxygen	<b>17</b>	<b>17</b>	<b>17</b>	<b>17</b>	0.10
Carbon Dioxide	<0.20	<0.20	<0.20	<0.20	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:** MB187328  
**Date Received:** 06/11/19  
**Date Reported:** 06/24/19  
**Units:** % by Volume

<b>Date Sampled:</b>	06/11/19	06/11/19	06/11/19	06/11/19	
<b>Date Prepared:</b>	06/20/19	06/21/19	06/21/19	06/21/19	
<b>Date Analyzed:</b>	06/20/19	06/21/19	06/21/19	06/21/19	
<b>AA ID No:</b>	9F11013-09	9F11013-10	9F11013-11	9F11013-12	
<b>Client ID No:</b>	SVM-7-7	SVM-7-13	SVM-10-15	SVM-5-5	
<b>Matrix:</b>	Vapor	Vapor	Vapor	Vapor	
<b>Dilution Factor:</b>	2	2	2	2	MRL

#### Fixed Gases - Field (EPA 3CM)

Methane	<0.20	<0.20	<0.20	<0.20	0.10
Oxygen	<b>17</b>	<b>17</b>	<b>14</b>	<b>18</b>	0.10
Carbon Dioxide	<0.20	<0.20	<b>2.2</b>	<0.20	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:** MB187328  
**Date Received:** 06/11/19  
**Date Reported:** 06/24/19  
**Units:** % by Volume

<b>Date Sampled:</b>	06/11/19	06/11/19	06/11/19	06/11/19	
<b>Date Prepared:</b>	06/21/19	06/21/19	06/21/19	06/21/19	
<b>Date Analyzed:</b>	06/21/19	06/21/19	06/21/19	06/21/19	
<b>AA ID No:</b>	9F11013-13	9F11013-14	9F11013-15	9F11013-16	
<b>Client ID No:</b>	Ambient Air	SVM-5-15	SVM-8-15	SVM-8-5	
<b>Matrix:</b>	Vapor	Vapor	Vapor	Vapor	
<b>Dilution Factor:</b>	2	2	2	2	MRL

#### Fixed Gases - Field (EPA 3CM)

Methane	<0.20	<0.20	<0.20	<0.20	0.10
Oxygen	<b>18</b>	<b>18</b>	<b>19</b>	<b>18</b>	0.10
Carbon Dioxide	<0.20	<0.20	<0.20	<0.20	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:** MB187328  
**Date Received:** 06/11/19  
**Date Reported:** 06/24/19  
**Units:** % by Volume

<b>Date Sampled:</b>	06/11/2019	06/11/2019	06/11/2019	
<b>Date Prepared:</b>	06/21/19	06/21/19	06/21/19	
<b>Date Analyzed:</b>	06/21/19	06/21/19	06/21/19	
<b>AA ID No:</b>	9F11013-17	9F11013-18	9F11013-19	
<b>Client ID No:</b>	SVM-16-16	SVM-16-16DUP	SVM-16-7	
<b>Matrix:</b>	Vapor	Vapor	Vapor	
<b>Dilution Factor:</b>	2	2	2	MRL

### Fixed Gases - Field (EPA 3CM)

Methane	<0.20	<0.20	<0.20	0.10
Oxygen	<b>18</b>	<b>18</b>	<b>18</b>	0.10
Carbon Dioxide	<0.20	<0.20	<0.20	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:** MB187328  
**Date Received:** 06/11/19  
**Date Reported:** 06/24/19

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC %REC	Limits	RPD	RPD Limit	Notes
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### VOCs by EPA TO-3 - Quality Control

Batch B9F2022 - \*\*\* DEFAULT PREP \*\*\*

#### Blank (B9F2022-BLK1)

Prepared & Analyzed: 06/14/19

Gasoline Range Organics (GRO) <20 20 ug/L

Surrogate: 4-Bromofluorobenzene 0.0358 ug/L 0.036 100 70-130

#### LCS (B9F2022-BS1)

Prepared & Analyzed: 06/15/19

Gasoline Range Organics (GRO) **0.767** 20 ug/L 0.82 93.8 70-130

Surrogate: 4-Bromofluorobenzene 0.0351 ug/L 0.036 98.0 70-130

#### LCS Dup (B9F2022-BSD1)

Prepared & Analyzed: 06/15/19

Gasoline Range Organics (GRO) **0.755** 20 ug/L 0.82 92.3 70-130 1.59 30

Surrogate: 4-Bromofluorobenzene 0.0349 ug/L 0.036 97.6 70-130

Batch B9F2023 - \*\*\* DEFAULT PREP \*\*\*

#### Blank (B9F2023-BLK1)

Prepared & Analyzed: 06/17/19

Gasoline Range Organics (GRO) <20 20 ug/L

Surrogate: 4-Bromofluorobenzene 0.0362 ug/L 0.036 101 70-130

#### LCS (B9F2023-BS1)

Prepared & Analyzed: 06/18/19

Gasoline Range Organics (GRO) **0.803** 20 ug/L 0.82 98.2 70-130

Surrogate: 4-Bromofluorobenzene 0.0348 ug/L 0.036 97.2 70-130

#### LCS Dup (B9F2023-BSD1)

Prepared & Analyzed: 06/18/19

Gasoline Range Organics (GRO) **0.810** 20 ug/L 0.82 99.1 70-130 0.852 30

Surrogate: 4-Bromofluorobenzene 0.0349 ug/L 0.036 97.4 70-130

### VOCs by GCMS EPA TO-15 (Mid Level) - Quality Control

Batch B9F2019 - \*\*\* DEFAULT PREP \*\*\*

#### Blank (B9F2019-BLK1)

Prepared & Analyzed: 06/14/19

Acetone <0.0050 0.0050 ug/L

Allyl chloride <0.0050 0.0050 ug/L

tert-Amyl-Methyl Ether (TAME) <0.0050 0.0050 ug/L

Benzene <0.00075 0.00075 ug/L

Benzyl chloride <0.0050 0.0050 ug/L

Bromodichloromethane <0.0050 0.0050 ug/L

Bromoform <0.0050 0.0050 ug/L

*Allen Aminian*

**Allen Aminian**  
 QA/QC Manager



## LABORATORY ANALYSIS RESULTS

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

**AA Project No:** MB187328  
**Date Received:** 06/11/19  
**Date Reported:** 06/24/19

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC %REC	Limits	RPD	RPD Limit	Notes
<b>VOCs by GCMS EPA TO-15 (Mid Level) - Quality Control</b>										
<i>Batch B9F2019 - *** DEFAULT PREP ***</i>										
<b>Blank (B9F2019-BLK1) Continued</b>										
Prepared & Analyzed: 06/14/19										
Bromomethane	<0.0050	0.0050	ug/L							
1,3-Butadiene	<0.0050	0.0050	ug/L							
2-Butanone (MEK)	<0.0050	0.0050	ug/L							
tert-Butyl Alcohol (TBA)	<5.0	5.0	ug/L							
Carbon Disulfide	<0.0050	0.0050	ug/L							
Carbon Tetrachloride	<0.0050	0.0050	ug/L							
Chlorobenzene	<0.0050	0.0050	ug/L							
Chloroethane	<0.0050	0.0050	ug/L							
Chloroform	<0.0050	0.0050	ug/L							
Chloromethane	<0.0050	0.0050	ug/L							
Cyclohexane	<0.0050	0.0050	ug/L							
Dibromochloromethane	<0.0050	0.0050	ug/L							
1,2-Dibromoethane (EDB)	<0.0050	0.0050	ug/L							
1,2-Dichlorobenzene	<0.0050	0.0050	ug/L							
1,3-Dichlorobenzene	<0.0050	0.0050	ug/L							
1,4-Dichlorobenzene	<0.0050	0.0050	ug/L							
Dichlorodifluoromethane (R12)	<0.0050	0.0050	ug/L							
1,1-Dichloroethane	<0.0050	0.0050	ug/L							
1,2-Dichloroethane (EDC)	<0.0010	0.0010	ug/L							
cis-1,2-Dichloroethylene	<0.0050	0.0050	ug/L							
1,1-Dichloroethylene	<0.0050	0.0050	ug/L							
trans-1,2-Dichloroethylene	<0.0050	0.0050	ug/L							
1,2-Dichloropropane	<0.0050	0.0050	ug/L							
trans-1,3-Dichloropropylene	<0.0050	0.0050	ug/L							
cis-1,3-Dichloropropylene	<0.0050	0.0050	ug/L							
Dichlorotetrafluoroethane	<0.0050	0.0050	ug/L							
Diisopropyl ether (DIPE)	<0.0050	0.0050	ug/L							
1,4-Dioxane	<0.0050	0.0050	ug/L							
Ethanol	<0.0050	0.0050	ug/L							
Ethyl Acetate	<0.0050	0.0050	ug/L							
Ethylbenzene	<0.0050	0.0050	ug/L							
Ethyl-tert-Butyl Ether (ETBE)	<0.0050	0.0050	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:** MB187328  
**Date Received:** 06/11/19  
**Date Reported:** 06/24/19

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC %REC	Limits	RPD	RPD Limit	Notes
<b>VOCs by GCMS EPA TO-15 (Mid Level) - Quality Control</b>										
<i>Batch B9F2019 - *** DEFAULT PREP ***</i>										
<b>Blank (B9F2019-BLK1) Continued</b>										
Prepared & Analyzed: 06/14/19										
4-Ethyltoluene	<0.0050	0.0050	ug/L							
Heptane	<0.0050	0.0050	ug/L							
Hexachlorobutadiene	<0.0050	0.0050	ug/L							
n-Hexane	<0.0050	0.0050	ug/L							
2-Hexanone (MBK)	<0.0050	0.0050	ug/L							
Isopropanol (IPA)	<0.050	0.050	ug/L							
Methyl-tert-Butyl Ether (MTBE)	<0.0050	0.0050	ug/L							
Methylene Chloride	<0.0050	0.0050	ug/L							
4-Methyl-2-pentanone (MIBK)	<0.0050	0.0050	ug/L							
Naphthalene	<0.00075	0.00075	ug/L							
Propylene	<0.0050	0.0050	ug/L							
Styrene	<0.0050	0.0050	ug/L							
1,1,2,2-Tetrachloroethane	<0.0050	0.0050	ug/L							
Tetrachloroethylene (PCE)	<0.0025	0.0025	ug/L							
Tetrahydrofuran (THF)	<0.0050	0.0050	ug/L							
Toluene	<0.0050	0.0050	ug/L							
1,2,4-Trichlorobenzene	<0.0050	0.0050	ug/L							
1,1,2-Trichloroethane	<0.0050	0.0050	ug/L							
1,1,1-Trichloroethane	<0.0050	0.0050	ug/L							
Trichloroethylene (TCE)	<0.0050	0.0050	ug/L							
Trichlorofluoromethane (R11)	<0.0050	0.0050	ug/L							
1,1,2-Trichloro-1,2,2-trifluoroethane (R113)	<0.0050	0.0050	ug/L							
1,3,5-Trimethylbenzene	<0.0050	0.0050	ug/L							
1,2,4-Trimethylbenzene	<0.0050	0.0050	ug/L							
2,2,4-Trimethylpentane	<0.0050	0.0050	ug/L							
Vinyl acetate	<0.0050	0.0050	ug/L							
Vinyl bromide	<0.0050	0.0050	ug/L							
Vinyl chloride	<0.0050	0.0050	ug/L							
o-Xylene	<0.0050	0.0050	ug/L							
m,p-Xylenes	<0.0050	0.0050	ug/L							
1,2,3-Trichloropropane	<0.0050	0.0050	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: MB187328  
 Date Received: 06/11/19  
 Date Reported: 06/24/19

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>VOCs by GCMS EPA TO-15 (Mid Level) - Quality Control</b>										
<i>Batch B9F2019 - *** DEFAULT PREP ***</i>										
<b>Blank (B9F2019-BLK1) Continued</b>										
Prepared & Analyzed: 06/14/19										
sec-Butylbenzene	<0.0050	0.0050	ug/L							
Isopropylbenzene	<0.0050	0.0050	ug/L							
n-Propylbenzene	<0.0050	0.0050	ug/L							
4-Isopropyltoluene	<0.0050	0.0050	ug/L							
n-Butylbenzene	<0.020	0.020	ug/L							
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.148</i>		<i>ug/L</i>	<i>0.14</i>		<i>103</i>	<i>70-130</i>			
<b>LCS (B9F2019-BS1)</b>										
Prepared & Analyzed: 06/14/19										
Acetone	<b>0.0819</b>	0.020	ug/L	0.095		86.2	70-130		30	
Benzene	<b>0.120</b>	0.0030	ug/L	0.13		94.2	70-130		30	
Benzyl chloride	<b>0.201</b>	0.020	ug/L	0.21		97.1	70-130		30	
Bromodichloromethane	<b>0.274</b>	0.020	ug/L	0.27		102	70-130		30	
Bromoform	<b>0.444</b>	0.020	ug/L	0.41		107	70-130		30	
Bromomethane	<b>0.133</b>	0.020	ug/L	0.16		85.6	70-130		30	
2-Butanone (MEK)	<b>0.103</b>	0.020	ug/L	0.12		86.9	70-130		30	
Carbon Disulfide	<b>0.114</b>	0.020	ug/L	0.12		91.8	70-130		30	
Carbon Tetrachloride	<b>0.267</b>	0.020	ug/L	0.25		106	70-130		30	
Chlorobenzene	<b>0.191</b>	0.020	ug/L	0.18		104	70-130		30	
Chloroethane	<b>0.103</b>	0.020	ug/L	0.11		97.8	70-130		30	
Chloroform	<b>0.190</b>	0.020	ug/L	0.20		97.5	70-130		30	
Chloromethane	<b>0.0874</b>	0.020	ug/L	0.083		106	70-130		30	
Dibromochloromethane	<b>0.339</b>	0.020	ug/L	0.34		99.5	70-130		30	
1,2-Dibromoethane (EDB)	<b>0.312</b>	0.020	ug/L	0.31		102	70-130		30	
1,2-Dichlorobenzene	<b>0.250</b>	0.020	ug/L	0.24		104	70-130		30	
1,3-Dichlorobenzene	<b>0.215</b>	0.020	ug/L	0.24		89.2	70-130		30	
1,4-Dichlorobenzene	<b>0.247</b>	0.020	ug/L	0.24		103	70-130		30	
Dichlorodifluoromethane (R12)	<b>0.166</b>	0.020	ug/L	0.20		83.8	70-130		30	
1,1-Dichloroethane	<b>0.155</b>	0.020	ug/L	0.16		95.9	70-130		30	
1,2-Dichloroethane (EDC)	<b>0.158</b>	0.0040	ug/L	0.16		97.8	70-130		30	
cis-1,2-Dichloroethylene	<b>0.145</b>	0.020	ug/L	0.16		91.7	70-130		30	
1,1-Dichloroethylene	<b>0.161</b>	0.020	ug/L	0.16		102	70-130		30	
trans-1,2-Dichloroethylene	<b>0.148</b>	0.020	ug/L	0.16		93.5	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:** MB187328  
**Date Received:** 06/11/19  
**Date Reported:** 06/24/19

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>VOCs by GCMS EPA TO-15 (Mid Level) - Quality Control</b>										
<i>Batch B9F2019 - *** DEFAULT PREP ***</i>										
<b>LCS (B9F2019-BS1) Continued</b>										
Prepared & Analyzed: 06/14/19										
1,2-Dichloropropane	0.185	0.020	ug/L	0.18		100	70-130		30	
trans-1,3-Dichloropropylene	0.184	0.020	ug/L	0.18		102	70-130		30	
cis-1,3-Dichloropropylene	0.182	0.020	ug/L	0.18		100	70-130		30	
Dichlorotetrafluoroethane	0.222	0.020	ug/L	0.28		79.4	70-130		30	
Ethylbenzene	0.168	0.020	ug/L	0.17		96.7	70-130		30	
4-Ethyltoluene	0.182	0.020	ug/L	0.20		92.3	70-130		30	
Hexachlorobutadiene	0.477	0.020	ug/L	0.43		112	70-130		30	
2-Hexanone (MBK)	0.211	0.020	ug/L	0.16		129	70-130		30	
Isopropanol (IPA)	0.105	0.20	ug/L	0.098		107	70-130		30	
Methylene Chloride	0.111	0.020	ug/L	0.14		79.8	70-130		30	
4-Methyl-2-pentanone (MIBK)	0.196	0.020	ug/L	0.16		120	70-130		30	
Styrene	0.169	0.020	ug/L	0.17		99.4	70-130		30	
1,1,2,2-Tetrachloroethane	0.204	0.020	ug/L	0.27		74.1	70-130		30	
Tetrachloroethylene (PCE)	0.272	0.010	ug/L	0.27		100	70-130		30	
Toluene	0.154	0.020	ug/L	0.15		102	70-130		30	
1,2,4-Trichlorobenzene	0.337	0.020	ug/L	0.30		113	70-130		30	
1,1,2-Trichloroethane	0.226	0.020	ug/L	0.22		103	70-130		30	
1,1,1-Trichloroethane	0.224	0.020	ug/L	0.22		102	70-130		30	
Trichloroethylene (TCE)	0.201	0.020	ug/L	0.21		93.4	70-130		30	
Trichlorofluoromethane (R11)	0.227	0.020	ug/L	0.22		101	70-130		30	
1,1,2-Trichloro-1,2,2-trifluoroethane (R113)	0.314	0.020	ug/L	0.31		102	70-130		30	
1,3,5-Trimethylbenzene	0.198	0.020	ug/L	0.20		101	70-130		30	
1,2,4-Trimethylbenzene	0.196	0.020	ug/L	0.20		99.8	70-130		30	
Vinyl acetate	0.126	0.020	ug/L	0.14		89.2	70-130		30	
Vinyl chloride	0.106	0.020	ug/L	0.10		104	70-130		30	
o-Xylene	0.167	0.020	ug/L	0.17		96.3	70-130		30	
m,p-Xylenes	0.313	0.020	ug/L	0.35		90.0	70-130		30	
1,2,3-Trichloropropane	0.288	0.020	ug/L	0.24		119	70-130		30	
sec-Butylbenzene	0.267	0.020	ug/L	0.22		122	70-130		30	
Isopropylbenzene	0.217	0.020	ug/L	0.20		111	70-130		30	
n-Propylbenzene	0.189	0.020	ug/L	0.20		96.0	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:** MB187328  
**Date Received:** 06/11/19  
**Date Reported:** 06/24/19

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>VOCs by GCMS EPA TO-15 (Mid Level) - Quality Control</b>										
<i>Batch B9F2019 - *** DEFAULT PREP ***</i>										
<b>LCS (B9F2019-BS1) Continued</b>					Prepared & Analyzed: 06/14/19					
4-Isopropyltoluene	<b>0.294</b>	0.020	ug/L	0.22	134	70-130		30		**
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.147</i>		<i>ug/L</i>	<i>0.14</i>	<i>103</i>	<i>70-130</i>				
<b>LCS Dup (B9F2019-BSD1)</b>					Prepared & Analyzed: 06/15/19					
Acetone	<b>0.0780</b>	0.020	ug/L	0.095	82.0	70-130	4.93	30		
Benzene	<b>0.120</b>	0.0030	ug/L	0.13	93.9	70-130	0.266	30		
Benzyl chloride	<b>0.191</b>	0.020	ug/L	0.21	92.4	70-130	4.93	30		
Bromodichloromethane	<b>0.273</b>	0.020	ug/L	0.27	102	70-130	0.417	30		
Bromoform	<b>0.437</b>	0.020	ug/L	0.41	106	70-130	1.53	30		
Bromomethane	<b>0.135</b>	0.020	ug/L	0.16	86.7	70-130	1.31	30		
2-Butanone (MEK)	<b>0.100</b>	0.020	ug/L	0.12	85.1	70-130	2.18	30		
Carbon Disulfide	<b>0.114</b>	0.020	ug/L	0.12	91.3	70-130	0.519	30		
Carbon Tetrachloride	<b>0.267</b>	0.020	ug/L	0.25	106	70-130	0.0235	30		
Chlorobenzene	<b>0.190</b>	0.020	ug/L	0.18	103	70-130	0.484	30		
Chloroethane	<b>0.0998</b>	0.020	ug/L	0.11	94.5	70-130	3.38	30		
Chloroform	<b>0.194</b>	0.020	ug/L	0.20	99.3	70-130	1.91	30		
Chloromethane	<b>0.0857</b>	0.020	ug/L	0.083	104	70-130	1.89	30		
Dibromochloromethane	<b>0.347</b>	0.020	ug/L	0.34	102	70-130	2.33	30		
1,2-Dibromoethane (EDB)	<b>0.321</b>	0.020	ug/L	0.31	105	70-130	2.91	30		
1,2-Dichlorobenzene	<b>0.253</b>	0.020	ug/L	0.24	105	70-130	1.46	30		
1,3-Dichlorobenzene	<b>0.232</b>	0.020	ug/L	0.24	96.3	70-130	7.65	30		
1,4-Dichlorobenzene	<b>0.231</b>	0.020	ug/L	0.24	95.8	70-130	6.85	30		
Dichlorodifluoromethane (R12)	<b>0.174</b>	0.020	ug/L	0.20	88.2	70-130	5.09	30		
1,1-Dichloroethane	<b>0.153</b>	0.020	ug/L	0.16	94.7	70-130	1.29	30		
1,2-Dichloroethane (EDC)	<b>0.156</b>	0.0040	ug/L	0.16	96.4	70-130	1.42	30		
cis-1,2-Dichloroethylene	<b>0.144</b>	0.020	ug/L	0.16	91.1	70-130	0.711	30		
1,1-Dichloroethylene	<b>0.158</b>	0.020	ug/L	0.16	99.4	70-130	2.34	30		
trans-1,2-Dichloroethylene	<b>0.142</b>	0.020	ug/L	0.16	89.8	70-130	3.98	30		
1,2-Dichloropropane	<b>0.184</b>	0.020	ug/L	0.18	99.5	70-130	0.676	30		
trans-1,3-Dichloropropylene	<b>0.182</b>	0.020	ug/L	0.18	100	70-130	1.61	30		
cis-1,3-Dichloropropylene	<b>0.180</b>	0.020	ug/L	0.18	99.4	70-130	1.15	30		
Dichlorotetrafluoroethane	<b>0.223</b>	0.020	ug/L	0.28	79.8	70-130	0.440	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:** MB187328  
**Date Received:** 06/11/19  
**Date Reported:** 06/24/19

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>VOCs by GCMS EPA TO-15 (Mid Level) - Quality Control</b>										
<i>Batch B9F2019 - *** DEFAULT PREP ***</i>										
<b>LCS Dup (B9F2019-BSD1) Continued</b>										
Prepared & Analyzed: 06/15/19										
Ethylbenzene	0.167	0.020	ug/L	0.17		96.4	70-130	0.311	30	
4-Ethyltoluene	0.184	0.020	ug/L	0.20		93.7	70-130	1.42	30	
Hexachlorobutadiene	0.503	0.020	ug/L	0.43		118	70-130	5.27	30	
2-Hexanone (MBK)	0.193	0.020	ug/L	0.16		118	70-130	8.57	30	
Isopropanol (IPA)	0.102	0.20	ug/L	0.098		103	70-130	3.75	30	
Methylene Chloride	0.113	0.020	ug/L	0.14		81.3	70-130	1.92	30	
4-Methyl-2-pentanone (MIBK)	0.193	0.020	ug/L	0.16		118	70-130	1.68	30	
Styrene	0.169	0.020	ug/L	0.17		99.1	70-130	0.252	30	
1,1,2,2-Tetrachloroethane	0.202	0.020	ug/L	0.27		73.6	70-130	0.677	30	
Tetrachloroethylene (PCE)	0.279	0.010	ug/L	0.27		103	70-130	2.41	30	
Toluene	0.154	0.020	ug/L	0.15		102	70-130	0.538	30	
1,2,4-Trichlorobenzene	0.313	0.020	ug/L	0.30		105	70-130	7.43	30	
1,1,2-Trichloroethane	0.226	0.020	ug/L	0.22		103	70-130	0.0483	30	
1,1,1-Trichloroethane	0.224	0.020	ug/L	0.22		103	70-130	0.292	30	
Trichloroethylene (TCE)	0.206	0.020	ug/L	0.21		95.7	70-130	2.43	30	
Trichlorofluoromethane (R11)	0.228	0.020	ug/L	0.22		101	70-130	0.0987	30	
1,1,2-Trichloro-1,2,2-trifluoroethane (R113)	0.310	0.020	ug/L	0.31		101	70-130	1.28	30	
1,3,5-Trimethylbenzene	0.200	0.020	ug/L	0.20		102	70-130	1.28	30	
1,2,4-Trimethylbenzene	0.198	0.020	ug/L	0.20		101	70-130	0.923	30	
Vinyl acetate	0.123	0.020	ug/L	0.14		87.6	70-130	1.84	30	
Vinyl chloride	0.103	0.020	ug/L	0.10		101	70-130	2.54	30	
o-Xylene	0.166	0.020	ug/L	0.17		95.8	70-130	0.573	30	
m,p-Xylenes	0.311	0.020	ug/L	0.35		89.6	70-130	0.501	30	
1,2,3-Trichloropropane	0.279	0.020	ug/L	0.24		116	70-130	3.02	30	
sec-Butylbenzene	0.270	0.020	ug/L	0.22		123	70-130	1.10	30	
Isopropylbenzene	0.216	0.020	ug/L	0.20		110	70-130	0.680	30	
n-Propylbenzene	0.194	0.020	ug/L	0.20		98.7	70-130	2.75	30	
4-Isopropyltoluene	0.284	0.020	ug/L	0.22		129	70-130	3.42	30	
Surrogate: 4-Bromofluorobenzene	0.144		ug/L	0.14		101	70-130			

*Batch B9F2020 - \*\*\* DEFAULT PREP \*\*\**

**Allen Aminian**  
 QA/QC Manager



## LABORATORY ANALYSIS RESULTS

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

**AA Project No:** MB187328  
**Date Received:** 06/11/19  
**Date Reported:** 06/24/19

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC %REC	Limits	RPD	RPD Limit	Notes
<b>VOCs by GCMS EPA TO-15 (Mid Level) - Quality Control</b>										
<i>Batch B9F2020 - *** DEFAULT PREP ***</i>										
<b>Blank (B9F2020-BLK1)</b>										
Prepared & Analyzed: 06/17/19										
Acetone	<0.0050	0.0050	ug/L							
Allyl chloride	<0.0050	0.0050	ug/L							
tert-Amyl-Methyl Ether (TAME)	<0.0050	0.0050	ug/L							
Benzene	<0.00075	0.00075	ug/L							
Benzyl chloride	<0.0050	0.0050	ug/L							
Bromodichloromethane	<0.0050	0.0050	ug/L							
Bromoform	<0.0050	0.0050	ug/L							
Bromomethane	<0.0050	0.0050	ug/L							
1,3-Butadiene	<0.0050	0.0050	ug/L							
2-Butanone (MEK)	<0.0050	0.0050	ug/L							
tert-Butyl Alcohol (TBA)	<5.0	5.0	ug/L							
Carbon Disulfide	<0.0050	0.0050	ug/L							
Carbon Tetrachloride	<0.0050	0.0050	ug/L							
Chlorobenzene	<0.0050	0.0050	ug/L							
Chloroethane	<0.0050	0.0050	ug/L							
Chloroform	<0.0050	0.0050	ug/L							
Chloromethane	<0.0050	0.0050	ug/L							
Cyclohexane	<0.0050	0.0050	ug/L							
Dibromochloromethane	<0.0050	0.0050	ug/L							
1,2-Dibromoethane (EDB)	<0.0050	0.0050	ug/L							
1,2-Dichlorobenzene	<0.0050	0.0050	ug/L							
1,3-Dichlorobenzene	<0.0050	0.0050	ug/L							
1,4-Dichlorobenzene	<0.0050	0.0050	ug/L							
Dichlorodifluoromethane (R12)	<0.0050	0.0050	ug/L							
1,1-Dichloroethane	<0.0050	0.0050	ug/L							
1,2-Dichloroethane (EDC)	<0.0010	0.0010	ug/L							
cis-1,2-Dichloroethylene	<0.0050	0.0050	ug/L							
1,1-Dichloroethylene	<0.0050	0.0050	ug/L							
trans-1,2-Dichloroethylene	<0.0050	0.0050	ug/L							
1,2-Dichloropropane	<0.0050	0.0050	ug/L							
trans-1,3-Dichloropropylene	<0.0050	0.0050	ug/L							
cis-1,3-Dichloropropylene	<0.0050	0.0050	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:** MB187328  
**Date Received:** 06/11/19  
**Date Reported:** 06/24/19

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC %REC	Limits	RPD	RPD Limit	Notes
<b>VOCs by GCMS EPA TO-15 (Mid Level) - Quality Control</b>										
<i>Batch B9F2020 - *** DEFAULT PREP ***</i>										
<b>Blank (B9F2020-BLK1) Continued</b>										
Prepared & Analyzed: 06/17/19										
Dichlorotetrafluoroethane	<0.0050	0.0050	ug/L							
Diisopropyl ether (DIPE)	<0.0050	0.0050	ug/L							
1,4-Dioxane	<0.0050	0.0050	ug/L							
Ethanol	<0.0050	0.0050	ug/L							
Ethyl Acetate	<0.0050	0.0050	ug/L							
Ethylbenzene	<0.0050	0.0050	ug/L							
Ethyl-tert-Butyl Ether (ETBE)	<0.0050	0.0050	ug/L							
4-Ethyltoluene	<0.0050	0.0050	ug/L							
Heptane	<0.0050	0.0050	ug/L							
Hexachlorobutadiene	<0.0050	0.0050	ug/L							
n-Hexane	<0.0050	0.0050	ug/L							
2-Hexanone (MBK)	<0.0050	0.0050	ug/L							
Isopropanol (IPA)	<0.050	0.050	ug/L							
Methyl-tert-Butyl Ether (MTBE)	<0.0050	0.0050	ug/L							
Methylene Chloride	<0.0050	0.0050	ug/L							
4-Methyl-2-pentanone (MIBK)	<0.0050	0.0050	ug/L							
Naphthalene	<0.00075	0.00075	ug/L							
Propylene	<0.0050	0.0050	ug/L							
Styrene	<0.0050	0.0050	ug/L							
1,1,2,2-Tetrachloroethane	<0.0050	0.0050	ug/L							
Tetrachloroethylene (PCE)	<0.0025	0.0025	ug/L							
Tetrahydrofuran (THF)	<0.0050	0.0050	ug/L							
Toluene	<0.0050	0.0050	ug/L							
1,2,4-Trichlorobenzene	<0.0050	0.0050	ug/L							
1,1,2-Trichloroethane	<0.0050	0.0050	ug/L							
1,1,1-Trichloroethane	<0.0050	0.0050	ug/L							
Trichloroethylene (TCE)	<0.0050	0.0050	ug/L							
Trichlorofluoromethane (R11)	<0.0050	0.0050	ug/L							
1,1,2-Trichloro-1,2,2-trifluoroethane (R113)	<0.0050	0.0050	ug/L							
1,3,5-Trimethylbenzene	<0.0050	0.0050	ug/L							
1,2,4-Trimethylbenzene	<0.0050	0.0050	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:** MB187328  
**Date Received:** 06/11/19  
**Date Reported:** 06/24/19

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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### VOCs by GCMS EPA TO-15 (Mid Level) - Quality Control

Batch B9F2020 - \*\*\* DEFAULT PREP \*\*\*

#### Blank (B9F2020-BLK1) Continued

Prepared & Analyzed: 06/17/19

2,2,4-Trimethylpentane	<0.0050	0.0050	ug/L							
Vinyl acetate	<0.0050	0.0050	ug/L							
Vinyl bromide	<0.0050	0.0050	ug/L							
Vinyl chloride	<0.0050	0.0050	ug/L							
o-Xylene	<0.0050	0.0050	ug/L							
m,p-Xylenes	<0.0050	0.0050	ug/L							
1,2,3-Trichloropropane	<0.0050	0.0050	ug/L							
sec-Butylbenzene	<0.0050	0.0050	ug/L							
Isopropylbenzene	<0.0050	0.0050	ug/L							
n-Propylbenzene	<0.0050	0.0050	ug/L							
4-Isopropyltoluene	<0.0050	0.0050	ug/L							
n-Butylbenzene	<0.020	0.020	ug/L							

Surrogate: 4-Bromofluorobenzene 0.153

ug/L 0.14 107 70-130

#### LCS (B9F2020-BS1)

Prepared & Analyzed: 06/17/19

Acetone	<b>0.0840</b>	0.020	ug/L	0.095	88.4	70-130	30
Benzene	<b>0.123</b>	0.0030	ug/L	0.13	96.5	70-130	30
Benzyl chloride	<b>0.191</b>	0.020	ug/L	0.21	92.1	70-130	30
Bromodichloromethane	<b>0.287</b>	0.020	ug/L	0.27	107	70-130	30
Bromoform	<b>0.449</b>	0.020	ug/L	0.41	109	70-130	30
Bromomethane	<b>0.137</b>	0.020	ug/L	0.16	88.2	70-130	30
2-Butanone (MEK)	<b>0.113</b>	0.020	ug/L	0.12	95.9	70-130	30
Carbon Disulfide	<b>0.125</b>	0.020	ug/L	0.12	100	70-130	30
Carbon Tetrachloride	<b>0.270</b>	0.020	ug/L	0.25	107	70-130	30
Chlorobenzene	<b>0.184</b>	0.020	ug/L	0.18	100	70-130	30
Chloroethane	<b>0.106</b>	0.020	ug/L	0.11	100	70-130	30
Chloroform	<b>0.197</b>	0.020	ug/L	0.20	101	70-130	30
Chloromethane	<b>0.0840</b>	0.020	ug/L	0.083	102	70-130	30
Dibromochloromethane	<b>0.359</b>	0.020	ug/L	0.34	106	70-130	30
1,2-Dibromoethane (EDB)	<b>0.306</b>	0.020	ug/L	0.31	99.6	70-130	30
1,2-Dichlorobenzene	<b>0.202</b>	0.020	ug/L	0.24	84.0	70-130	30
1,3-Dichlorobenzene	<b>0.184</b>	0.020	ug/L	0.24	76.5	70-130	30

*Allen Aminian*

**Allen Aminian**  
 QA/QC Manager

**LABORATORY ANALYSIS RESULTS**

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

**AA Project No:** MB187328  
**Date Received:** 06/11/19  
**Date Reported:** 06/24/19

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>VOCs by GCMS EPA TO-15 (Mid Level) - Quality Control</b>										
<i>Batch B9F2020 - *** DEFAULT PREP ***</i>										
<b>LCS (B9F2020-BS1) Continued</b>						Prepared & Analyzed: 06/17/19				
1,4-Dichlorobenzene	<b>0.205</b>	0.020	ug/L	0.24		85.4	70-130		30	
Dichlorodifluoromethane (R12)	<b>0.252</b>	0.020	ug/L	0.20		128	70-130		30	
1,1-Dichloroethane	<b>0.157</b>	0.020	ug/L	0.16		97.3	70-130		30	
1,2-Dichloroethane (EDC)	<b>0.164</b>	0.0040	ug/L	0.16		101	70-130		30	
cis-1,2-Dichloroethylene	<b>0.150</b>	0.020	ug/L	0.16		94.4	70-130		30	
1,1-Dichloroethylene	<b>0.156</b>	0.020	ug/L	0.16		98.3	70-130		30	
trans-1,2-Dichloroethylene	<b>0.158</b>	0.020	ug/L	0.16		99.4	70-130		30	
1,2-Dichloropropane	<b>0.184</b>	0.020	ug/L	0.18		99.3	70-130		30	
trans-1,3-Dichloropropylene	<b>0.178</b>	0.020	ug/L	0.18		98.2	70-130		30	
cis-1,3-Dichloropropylene	<b>0.181</b>	0.020	ug/L	0.18		99.5	70-130		30	
Dichlorotetrafluoroethane	<b>0.327</b>	0.020	ug/L	0.28		117	70-130		30	
Ethylbenzene	<b>0.163</b>	0.020	ug/L	0.17		94.1	70-130		30	
4-Ethyltoluene	<b>0.193</b>	0.020	ug/L	0.20		98.0	70-130		30	
Hexachlorobutadiene	<b>0.321</b>	0.020	ug/L	0.43		75.3	70-130		30	
2-Hexanone (MBK)	<b>0.212</b>	0.020	ug/L	0.16		130	70-130		30	
Isopropanol (IPA)	<b>0.108</b>	0.20	ug/L	0.098		110	70-130		30	
Methylene Chloride	<b>0.124</b>	0.020	ug/L	0.14		89.2	70-130		30	
4-Methyl-2-pentanone (MIBK)	<b>0.209</b>	0.020	ug/L	0.16		127	70-130		30	
Styrene	<b>0.159</b>	0.020	ug/L	0.17		93.1	70-130		30	
1,1,2,2-Tetrachloroethane	<b>0.187</b>	0.020	ug/L	0.27		68.2	70-130		30	***
Tetrachloroethylene (PCE)	<b>0.269</b>	0.010	ug/L	0.27		99.2	70-130		30	
Toluene	<b>0.153</b>	0.020	ug/L	0.15		101	70-130		30	
1,2,4-Trichlorobenzene	<b>0.197</b>	0.020	ug/L	0.30		66.5	70-130		30	***
1,1,2-Trichloroethane	<b>0.223</b>	0.020	ug/L	0.22		102	70-130		30	
1,1,1-Trichloroethane	<b>0.229</b>	0.020	ug/L	0.22		105	70-130		30	
Trichloroethylene (TCE)	<b>0.202</b>	0.020	ug/L	0.21		94.0	70-130		30	
Trichlorofluoromethane (R11)	<b>0.234</b>	0.020	ug/L	0.22		104	70-130		30	
1,1,2-Trichloro-1,2,2-trifluoroethane (R113)	<b>0.325</b>	0.020	ug/L	0.31		106	70-130		30	
1,3,5-Trimethylbenzene	<b>0.181</b>	0.020	ug/L	0.20		91.9	70-130		30	
1,2,4-Trimethylbenzene	<b>0.169</b>	0.020	ug/L	0.20		85.9	70-130		30	
Vinyl acetate	<b>0.136</b>	0.020	ug/L	0.14		96.2	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:** MB187328  
**Date Received:** 06/11/19  
**Date Reported:** 06/24/19

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>VOCs by GCMS EPA TO-15 (Mid Level) - Quality Control</b>										
<i>Batch B9F2020 - *** DEFAULT PREP ***</i>										
<b>LCS (B9F2020-BS1) Continued</b>					Prepared & Analyzed: 06/17/19					
Vinyl chloride	<b>0.108</b>	0.020	ug/L	0.10	106	70-130		30		
o-Xylene	<b>0.161</b>	0.020	ug/L	0.17	92.9	70-130		30		
m,p-Xylenes	<b>0.316</b>	0.020	ug/L	0.35	90.8	70-130		30		
1,2,3-Trichloropropane	<b>0.305</b>	0.020	ug/L	0.24	127	70-130		30		
sec-Butylbenzene	<b>0.264</b>	0.020	ug/L	0.22	120	70-130		30		
Isopropylbenzene	<b>0.208</b>	0.020	ug/L	0.20	106	70-130		30		
n-Propylbenzene	<b>0.198</b>	0.020	ug/L	0.20	100	70-130		30		
4-Isopropyltoluene	<b>0.285</b>	0.020	ug/L	0.22	130	70-130		30		
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.155</i>		<i>ug/L</i>	<i>0.14</i>	<i>108</i>	<i>70-130</i>				
<b>LCS Dup (B9F2020-BSD1)</b>					Prepared & Analyzed: 06/18/19					
Acetone	<b>0.0871</b>	0.020	ug/L	0.095	91.6	70-130	3.55	30		
Benzene	<b>0.132</b>	0.0030	ug/L	0.13	103	70-130	6.90	30		
Benzyl chloride	<b>0.205</b>	0.020	ug/L	0.21	99.2	70-130	7.39	30		
Bromodichloromethane	<b>0.301</b>	0.020	ug/L	0.27	112	70-130	4.74	30		
Bromoform	<b>0.507</b>	0.020	ug/L	0.41	123	70-130	12.3	30		
Bromomethane	<b>0.142</b>	0.020	ug/L	0.16	91.7	70-130	3.89	30		
2-Butanone (MEK)	<b>0.116</b>	0.020	ug/L	0.12	98.2	70-130	2.42	30		
Carbon Disulfide	<b>0.130</b>	0.020	ug/L	0.12	104	70-130	4.13	30		
Carbon Tetrachloride	<b>0.292</b>	0.020	ug/L	0.25	116	70-130	7.77	30		
Chlorobenzene	<b>0.208</b>	0.020	ug/L	0.18	113	70-130	12.2	30		
Chloroethane	<b>0.109</b>	0.020	ug/L	0.11	104	70-130	3.34	30		
Chloroform	<b>0.209</b>	0.020	ug/L	0.20	107	70-130	5.97	30		
Chloromethane	<b>0.0860</b>	0.020	ug/L	0.083	104	70-130	2.36	30		
Dibromochloromethane	<b>0.386</b>	0.020	ug/L	0.34	113	70-130	7.00	30		
1,2-Dibromoethane (EDB)	<b>0.329</b>	0.020	ug/L	0.31	107	70-130	7.26	30		
1,2-Dichlorobenzene	<b>0.220</b>	0.020	ug/L	0.24	91.5	70-130	8.57	30		
1,3-Dichlorobenzene	<b>0.205</b>	0.020	ug/L	0.24	85.4	70-130	11.0	30		
1,4-Dichlorobenzene	<b>0.223</b>	0.020	ug/L	0.24	92.8	70-130	8.25	30		
Dichlorodifluoromethane (R12)	<b>0.247</b>	0.020	ug/L	0.20	125	70-130	2.18	30		
1,1-Dichloroethane	<b>0.166</b>	0.020	ug/L	0.16	103	70-130	5.28	30		
1,2-Dichloroethane (EDC)	<b>0.172</b>	0.0040	ug/L	0.16	106	70-130	4.90	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:** MB187328  
**Date Received:** 06/11/19  
**Date Reported:** 06/24/19

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>VOCs by GCMS EPA TO-15 (Mid Level) - Quality Control</b>										
<i>Batch B9F2020 - *** DEFAULT PREP ***</i>										
<b>LCS Dup (B9F2020-BSD1) Continued</b>										
Prepared & Analyzed: 06/18/19										
cis-1,2-Dichloroethylene	0.155	0.020	ug/L	0.16		98.0	70-130	3.69	30	
1,1-Dichloroethylene	0.171	0.020	ug/L	0.16		108	70-130	9.22	30	
trans-1,2-Dichloroethylene	0.167	0.020	ug/L	0.16		105	70-130	5.81	30	
1,2-Dichloropropane	0.196	0.020	ug/L	0.18		106	70-130	6.55	30	
trans-1,3-Dichloropropylene	0.185	0.020	ug/L	0.18		102	70-130	3.58	30	
cis-1,3-Dichloropropylene	0.194	0.020	ug/L	0.18		107	70-130	7.06	30	
Dichlorotetrafluoroethane	0.350	0.020	ug/L	0.28		125	70-130	6.78	30	
Ethylbenzene	0.179	0.020	ug/L	0.17		103	70-130	9.20	30	
4-Ethyltoluene	0.211	0.020	ug/L	0.20		107	70-130	8.78	30	
Hexachlorobutadiene	0.374	0.020	ug/L	0.43		87.8	70-130	15.3	30	
2-Hexanone (MBK)	0.200	0.020	ug/L	0.16		122	70-130	5.89	30	
Isopropanol (IPA)	0.102	0.20	ug/L	0.098		103	70-130	6.16	30	
Methylene Chloride	0.126	0.020	ug/L	0.14		90.3	70-130	1.25	30	
4-Methyl-2-pentanone (MIBK)	0.208	0.020	ug/L	0.16		127	70-130	0.0983	30	
Styrene	0.177	0.020	ug/L	0.17		104	70-130	10.8	30	
1,1,2,2-Tetrachloroethane	0.211	0.020	ug/L	0.27		76.8	70-130	11.8	30	
Tetrachloroethylene (PCE)	0.290	0.010	ug/L	0.27		107	70-130	7.33	30	
Toluene	0.162	0.020	ug/L	0.15		108	70-130	6.17	30	
1,2,4-Trichlorobenzene	0.215	0.020	ug/L	0.30		72.5	70-130	8.67	30	
1,1,2-Trichloroethane	0.241	0.020	ug/L	0.22		111	70-130	8.02	30	
1,1,1-Trichloroethane	0.243	0.020	ug/L	0.22		111	70-130	6.11	30	
Trichloroethylene (TCE)	0.223	0.020	ug/L	0.21		104	70-130	9.64	30	
Trichlorofluoromethane (R11)	0.251	0.020	ug/L	0.22		112	70-130	7.39	30	
1,1,2-Trichloro-1,2,2-trifluoroethane (R113)	0.339	0.020	ug/L	0.31		111	70-130	4.15	30	
1,3,5-Trimethylbenzene	0.195	0.020	ug/L	0.20		99.0	70-130	7.36	30	
1,2,4-Trimethylbenzene	0.189	0.020	ug/L	0.20		96.2	70-130	11.3	30	
Vinyl acetate	0.141	0.020	ug/L	0.14		100	70-130	3.80	30	
Vinyl chloride	0.110	0.020	ug/L	0.10		108	70-130	1.64	30	
o-Xylene	0.180	0.020	ug/L	0.17		104	70-130	10.9	30	
m,p-Xylenes	0.342	0.020	ug/L	0.35		98.5	70-130	8.05	30	
1,2,3-Trichloropropane	0.266	0.020	ug/L	0.24		110	70-130	13.8	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:** MB187328  
**Date Received:** 06/11/19  
**Date Reported:** 06/24/19

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**VOCs by GCMS EPA TO-15 (Mid Level) - Quality Control**

*Batch B9F2020 - \*\*\* DEFAULT PREP \*\*\**

**LCS Dup (B9F2020-BSD1) Continued**

Prepared & Analyzed: 06/18/19

sec-Butylbenzene	0.282	0.020	ug/L	0.22		128	70-130	6.25	30	
Isopropylbenzene	0.229	0.020	ug/L	0.20		116	70-130	9.86	30	
n-Propylbenzene	0.215	0.020	ug/L	0.20		110	70-130	8.62	30	
4-Isopropyltoluene	0.318	0.020	ug/L	0.22		145	70-130	11.1	30	**

*Surrogate: 4-Bromofluorobenzene 0.159 ug/L 0.14 111 70-130*

**Fixed Gases by TCD - Quality Control**

*Batch B9F2011 - \*\*\* DEFAULT PREP \*\*\**

**Blank (B9F2011-BLK1)**

Prepared & Analyzed: 06/20/19

Methane	<0.10	0.10	% by Volume							
Oxygen	<0.10	0.10	% by Volume							
Carbon Dioxide	<0.10	0.10	% by Volume							

**LCS (B9F2011-BS1)**

Prepared & Analyzed: 06/20/19

Methane	4.16	0.10	% by Volume	5.0		83.1	75-125			
Oxygen	3.49	0.10	% by Volume	4.0		87.2	75-125			
Carbon Dioxide	13.3	0.10	% by Volume	15		88.9	75-125			

**LCS Dup (B9F2011-BSD1)**

Prepared & Analyzed: 06/20/19

Methane	4.11	0.10	% by Volume	5.0		82.2	75-125	1.06	30	
Oxygen	3.38	0.10	% by Volume	4.0		84.5	75-125	3.15	30	
Carbon Dioxide	13.4	0.10	% by Volume	15		89.5	75-125	0.687	30	

**Duplicate (B9F2011-DUP1)**

**Source: 9F17010-03** Prepared & Analyzed: 06/20/19

Methane	<0.10	0.10	% by Volume						30	
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*Allen A*

**Allen Aminian**  
QA/QC Manager



## LABORATORY ANALYSIS RESULTS

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

**AA Project No:** MB187328  
**Date Received:** 06/11/19  
**Date Reported:** 06/24/19

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Fixed Gases by TCD - Quality Control</b>										
<i>Batch B9F2011 - *** DEFAULT PREP ***</i>										
<b>Duplicate (B9F2011-DUP1) Continued</b> Source: 9F17010-03 Prepared & Analyzed: 06/20/19										
Oxygen	16.0	0.10	% by Volume						30	
Carbon Dioxide	0.576	0.10	% by Volume						30	
<i>Batch B9F2424 - *** DEFAULT PREP ***</i>										
<b>Blank (B9F2424-BLK1)</b> Prepared & Analyzed: 06/21/19										
Methane	<0.10	0.10	% by Volume							
Oxygen	<0.10	0.10	% by Volume							
Carbon Dioxide	<0.10	0.10	% by Volume							
<b>LCS (B9F2424-BS1)</b> Prepared & Analyzed: 06/21/19										
Methane	4.20	0.10	% by Volume	5.0		84.1	75-125			
Oxygen	4.10	0.10	% by Volume	4.0		103	75-125			
Carbon Dioxide	13.6	0.10	% by Volume	15		90.8	75-125			
<b>LCS Dup (B9F2424-BSD1)</b> Prepared & Analyzed: 06/21/19										
Methane	4.30	0.10	% by Volume	5.0		85.9	75-125	2.14	30	
Oxygen	3.99	0.10	% by Volume	4.0		99.8	75-125	2.82	30	
Carbon Dioxide	13.8	0.10	% by Volume	15		91.8	75-125	1.10	30	
<b>Duplicate (B9F2424-DUP1)</b> Source: 9F11013-19 Prepared & Analyzed: 06/21/19										
Methane	<0.20	0.20	% by Volume		<0.20				30	
Oxygen	18.0	0.20	% by Volume		18.1			1.01	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:** MB187328  
**Date Received:** 06/11/19  
**Date Reported:** 06/24/19

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Fixed Gases by TCD - Quality Control</b>										
<i>Batch B9F2424 - *** DEFAULT PREP ***</i>										
<b>Duplicate (B9F2424-DUP1) Continued Source: 9F11013-19 Prepared &amp; Analyzed: 06/21/19</b>										
Carbon Dioxide	<0.20	0.20	% by Volume		<0.20				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:** MB187328  
**Date Received:** 06/11/19  
**Date Reported:** 06/24/19

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### Special Notes

- [1] = \*\* : Exceeds upper control limit.  
[2] = \*\*\* : Exceeds lower control limit.  
[3] = **AA-C2** : Analyte may be a lab contaminant.

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A handwritten signature in cursive script, appearing to read 'Allen A.'.

---

**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.: 18336

70056181

Page 1 of 2

Client: JACOBS Project Name / No.: KINDA MORGAN NORWALK Sampler's Name: AMERICAN SPECIALLY  
 Project Manager: Site Address: 15306 NORWALK BLVD Sampler's Signature: [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)

Client I.D.	A.A. I.D.	Date	Time	Sample Matrix	No. of Cont	Please enter the TAT Turnaround Codes ** below										Special Instructions		
						T015	T03	FIXED COST										
SUM-1-15	9F11013 -01	6-11-19	0840	✓	1	X	X	X										
SUM-1-15	-02		0844	✓	1	X	X	X										
SUM-2-5	-03		0852	✓	1	X	X	X										
SUM-15-15	-04		0874	✓	1	X	X	X										
SUM-15-7	-05		0837	✓	1	X	X	X										
SUM-15-22	-06		0838	✓	1	X	X	X										
SUM-6-7	-07		0854	✓	1	X	X	X										
SUM-6-15	-08		0859	✓	1	X	X	X										
SUM-7-7	-09		0909	✓	1	X	X	X										
SUM-7-13	-10		0916	✓	1	X	X	X										
SUM-10-15	-11		0925	✓	1	X	X	X										
SUM-5-5	-12		0959	✓	1	X	X											
AMBIENT AIR	-13		1003	✓	1	X	X	X										
SUM-5-15	-14		1001	✓	1	X	X	X										
SUM-8-15	-15		1014	✓	1	X	X	X										

For Laboratory Use

REVIEWED

Date 6/14/19 Time 16:33

TAT 5 Days Sign: [Signature]

Relinquished by [Signature]

Date 6-11-19

Time 11:00

Received by [Signature]

Relinquished by [Signature]

Date 6-11-19

Time 13:30

Received by [Signature]

Relinquished by

Date

Time

Received by

A.A. Project No.: MB187328 / 9F11013

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.





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

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June 24, 2019

Vladimir Carino  
CH2M Hill, Inc.  
P.O. Box 241329  
Denver, CO 80224

**Re : KMEP Norwalk Biosparge Startup / 693142  
MB187329 / 9F13006**

Enclosed is an analytical report for the above-referenced project. The samples included in this report were received on 06/13/19 13:00 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 Analyticals.

Sincerely,

A handwritten signature in black ink, appearing to read 'Allen A.'.

Allen Aminian  
QA/QC Manager



**LABORATORY ANALYSIS RESULTS**

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

**AA Project No:** MB187329  
**Date Received:** 06/13/19  
**Date Reported:** 06/24/19

Sample ID	Laboratory ID	Matrix	TAT	Date Sampled	Date Received
<b><u>Fixed Gases - Field</u></b>					
SVM-3-5	9F13006-01	Vapor	5	06/12/19 07:15	06/13/19 13:00
SVM-3-15	9F13006-02	Vapor	5	06/12/19 07:20	06/13/19 13:00
SVM-16-22	9F13006-03	Vapor	5	06/12/19 08:02	06/13/19 13:00
SVM-11-7	9F13006-04	Vapor	5	06/12/19 08:47	06/13/19 13:00
SVM-11-22	9F13006-05	Vapor	5	06/12/19 08:48	06/13/19 13:00
SVM-11-15	9F13006-06	Vapor	5	06/12/19 08:49	06/13/19 13:00
SVM-13-7	9F13006-07	Vapor	5	06/12/19 09:17	06/13/19 13:00
SVM-13-22	9F13006-08	Vapor	5	06/12/19 09:20	06/13/19 13:00
SVM-13-15	9F13006-09	Vapor	5	06/12/19 09:21	06/13/19 13:00
SVM-14R-8	9F13006-10	Vapor	5	06/12/19 09:40	06/13/19 13:00
SVM-14R-22	9F13006-11	Vapor	5	06/12/19 09:42	06/13/19 13:00
SVM-14R-22DUP	9F13006-12	Vapor	5	06/12/19 09:42	06/13/19 13:00
SVM-12-7	9F13006-14	Vapor	5	06/12/19 10:19	06/13/19 13:00
SVM-12-15	9F13006-15	Vapor	5	06/12/19 10:20	06/13/19 13:00
SVM-12-22	9F13006-16	Vapor	5	06/12/19 10:22	06/13/19 13:00
SVM-14R-15	9F13006-17	Vapor	5	06/12/19 09:40	06/13/19 13:00
<b><u>TO-15 (Mid Level)</u></b>					
SVM-3-5	9F13006-01	Vapor	5	06/12/19 07:15	06/13/19 13:00

**Allen Aminian**  
QA/QC Manager

**LABORATORY ANALYSIS RESULTS**

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

**AA Project No:** MB187329  
**Date Received:** 06/13/19  
**Date Reported:** 06/24/19

Sample ID	Laboratory ID	Matrix	TAT	Date Sampled	Date Received
SVM-3-15	9F13006-02	Vapor	5	06/12/19 07:20	06/13/19 13:00
SVM-16-22	9F13006-03	Vapor	5	06/12/19 08:02	06/13/19 13:00
SVM-11-7	9F13006-04	Vapor	5	06/12/19 08:47	06/13/19 13:00
SVM-11-22	9F13006-05	Vapor	5	06/12/19 08:48	06/13/19 13:00
SVM-11-15	9F13006-06	Vapor	5	06/12/19 08:49	06/13/19 13:00
SVM-13-7	9F13006-07	Vapor	5	06/12/19 09:17	06/13/19 13:00
SVM-13-22	9F13006-08	Vapor	5	06/12/19 09:20	06/13/19 13:00
SVM-13-15	9F13006-09	Vapor	5	06/12/19 09:21	06/13/19 13:00
SVM-14R-8	9F13006-10	Vapor	5	06/12/19 09:40	06/13/19 13:00
SVM-14R-22	9F13006-11	Vapor	5	06/12/19 09:42	06/13/19 13:00
SVM-14R-22DUP	9F13006-12	Vapor	5	06/12/19 09:42	06/13/19 13:00
Ambient Air	9F13006-13	Vapor	5	06/12/19 10:10	06/13/19 13:00
SVM-12-7	9F13006-14	Vapor	5	06/12/19 10:19	06/13/19 13:00
SVM-12-15	9F13006-15	Vapor	5	06/12/19 10:20	06/13/19 13:00
SVM-12-22	9F13006-16	Vapor	5	06/12/19 10:22	06/13/19 13:00
SVM-14R-15	9F13006-17	Vapor	5	06/12/19 09:40	06/13/19 13:00

**TO-3**

SVM-3-5	9F13006-01	Vapor	5	06/12/19 07:15	06/13/19 13:00
SVM-3-15	9F13006-02	Vapor	5	06/12/19 07:20	06/13/19 13:00
SVM-16-22	9F13006-03	Vapor	5	06/12/19 08:02	06/13/19 13:00

**Allen Aminian**  
QA/QC Manager



### LABORATORY ANALYSIS RESULTS

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

**AA Project No:** MB187329  
**Date Received:** 06/13/19  
**Date Reported:** 06/24/19

Sample ID	Laboratory ID	Matrix	TAT	Date Sampled	Date Received
SVM-11-7	9F13006-04	Vapor	5	06/12/19 08:47	06/13/19 13:00
SVM-11-22	9F13006-05	Vapor	5	06/12/19 08:48	06/13/19 13:00
SVM-11-15	9F13006-06	Vapor	5	06/12/19 08:49	06/13/19 13:00
SVM-13-7	9F13006-07	Vapor	5	06/12/19 09:17	06/13/19 13:00
SVM-13-22	9F13006-08	Vapor	5	06/12/19 09:20	06/13/19 13:00
SVM-13-15	9F13006-09	Vapor	5	06/12/19 09:21	06/13/19 13:00
SVM-14R-8	9F13006-10	Vapor	5	06/12/19 09:40	06/13/19 13:00
SVM-14R-22	9F13006-11	Vapor	5	06/12/19 09:42	06/13/19 13:00
SVM-14R-22DUP	9F13006-12	Vapor	5	06/12/19 09:42	06/13/19 13:00
Ambient Air	9F13006-13	Vapor	5	06/12/19 10:10	06/13/19 13:00
SVM-12-7	9F13006-14	Vapor	5	06/12/19 10:19	06/13/19 13:00
SVM-12-15	9F13006-15	Vapor	5	06/12/19 10:20	06/13/19 13:00
SVM-12-22	9F13006-16	Vapor	5	06/12/19 10:22	06/13/19 13:00
SVM-14R-15	9F13006-17	Vapor	5	06/12/19 09:40	06/13/19 13:00

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**Allen Aminian**  
QA/QC Manager



### LABORATORY ANALYSIS RESULTS

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

**AA Project No:** MB187329  
**Date Received:** 06/13/19  
**Date Reported:** 06/24/19

#### ANALYTICAL DATA SUMMARY

Analyte	Sample Name	Result	MRL	Units	Dilution	Prepared	Analyzed	Method
<b>Fixed Gases by TCD</b>								
Oxygen	SVM-3-5	<b>19</b>	0.20	% by Volume	2	06/21/19	06/21/19	EPA 3CM
Oxygen	SVM-3-15	<b>18</b>	0.20	% by Volume	2	06/21/19	06/21/19	EPA 3CM
Oxygen	SVM-16-22	<b>10</b>	0.20	% by Volume	2	06/21/19	06/21/19	EPA 3CM
Carbon Dioxide	SVM-16-22	<b>6.8</b>	0.20	% by Volume	2	06/21/19	06/21/19	EPA 3CM
Oxygen	SVM-11-7	<b>18</b>	0.20	% by Volume	2	06/21/19	06/21/19	EPA 3CM
Carbon Dioxide	SVM-11-7	<b>0.54</b>	0.20	% by Volume	2	06/21/19	06/21/19	EPA 3CM
Oxygen	SVM-11-22	<b>11</b>	0.20	% by Volume	2	06/21/19	06/21/19	EPA 3CM
Carbon Dioxide	SVM-11-22	<b>4.7</b>	0.20	% by Volume	2	06/21/19	06/21/19	EPA 3CM
Oxygen	SVM-11-15	<b>18</b>	0.20	% by Volume	2	06/21/19	06/21/19	EPA 3CM
Carbon Dioxide	SVM-11-15	<b>0.34</b>	0.20	% by Volume	2	06/21/19	06/21/19	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:** MB187329  
**Date Received:** 06/13/19  
**Date Reported:** 06/24/19

#### ANALYTICAL DATA SUMMARY

Analyte	Sample Name	Result	MRL	Units	Dilution	Prepared	Analyzed	Method
Oxygen	SVM-13-7	18	0.20	% by Volume	2	06/21/19	06/21/19	EPA 3CM
Oxygen	SVM-13-22	18	0.20	% by Volume	2	06/21/19	06/21/19	EPA 3CM
Carbon Dioxide	SVM-13-22	0.22	0.20	% by Volume	2	06/21/19	06/21/19	EPA 3CM
Oxygen	SVM-13-15	18	0.20	% by Volume	2	06/21/19	06/21/19	EPA 3CM
Oxygen	SVM-14R-8	18	0.20	% by Volume	2	06/21/19	06/21/19	EPA 3CM
Carbon Dioxide	SVM-14R-8	0.49	0.20	% by Volume	2	06/21/19	06/21/19	EPA 3CM
Oxygen	SVM-14R-22	18	0.20	% by Volume	2	06/21/19	06/21/19	EPA 3CM
Carbon Dioxide	SVM-14R-22	0.37	0.20	% by Volume	2	06/21/19	06/21/19	EPA 3CM
Oxygen	SVM-14R-22DUP	18	0.20	% by Volume	2	06/21/19	06/21/19	EPA 3CM
Carbon Dioxide	SVM-14R-22DUP	0.29	0.20	% by Volume	2	06/21/19	06/21/19	EPA 3CM
Oxygen	SVM-12-7	17	0.20	% by Volume	2	06/21/19	06/21/19	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:** MB187329  
**Date Received:** 06/13/19  
**Date Reported:** 06/24/19

**ANALYTICAL DATA SUMMARY**

Analyte	Sample Name	Result	MRL	Units	Dilution	Prepared	Analyzed	Method
Carbon Dioxide	SVM-12-7	<b>0.96</b>	0.20	% by Volume	2	06/21/19	06/21/19	EPA 3CM
Oxygen	SVM-12-15	<b>16</b>	0.20	% by Volume	2	06/21/19	06/21/19	EPA 3CM
Carbon Dioxide	SVM-12-15	<b>0.87</b>	0.20	% by Volume	2	06/21/19	06/21/19	EPA 3CM
Oxygen	SVM-12-22	<b>13</b>	0.20	% by Volume	2	06/21/19	06/21/19	EPA 3CM
Carbon Dioxide	SVM-12-22	<b>2.9</b>	0.20	% by Volume	2	06/21/19	06/21/19	EPA 3CM
Oxygen	SVM-14R-15	<b>17</b>	0.20	% by Volume	2	06/21/19	06/21/19	EPA 3CM
Carbon Dioxide	SVM-14R-15	<b>1.2</b>	0.20	% by Volume	2	06/21/19	06/21/19	EPA 3CM

**VOCs by EPA TO-3****VOCs by GCMS EPA TO-15 (Mid Level)**

Bromodichloromethane	SVM-3-5	<b>0.0062</b>	0.0050	ug/L	0.25	06/17/19	06/17/19	TO-15
Chloroform	SVM-3-5	<b>0.024</b>	0.0050	ug/L	0.25	06/17/19	06/17/19	TO-15
Tetrachloroethylene (PCE)	SVM-3-5	<b>0.0027</b>	0.0025	ug/L	0.25	06/17/19	06/17/19	TO-15
Chloroform	SVM-3-15	<b>0.028</b>	0.0050	ug/L	0.25	06/17/19	06/17/19	TO-15
Chloroform	SVM-16-22	<b>0.010</b>	0.0050	ug/L	0.25	06/17/19	06/17/19	TO-15
Heptane	SVM-16-22	<b>0.010</b>	0.0050	ug/L	0.25	06/17/19	06/17/19	TO-15
Tetrachloroethylene (PCE)	SVM-16-22	<b>0.012</b>	0.0025	ug/L	0.25	06/17/19	06/17/19	TO-15
Acetone	SVM-11-22	<b>0.0062</b>	0.0050	ug/L	0.25	06/18/19	06/18/19	TO-15

**Allen Aminian**  
QA/QC Manager



### LABORATORY ANALYSIS RESULTS

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

**AA Project No:** MB187329  
**Date Received:** 06/13/19  
**Date Reported:** 06/24/19

#### ANALYTICAL DATA SUMMARY

Analyte	Sample Name	Result	MRL	Units	Dilution	Prepared	Analyzed	Method
Chloroform	SVM-11-22	<b>0.034</b>	0.0050	ug/L	0.25	06/18/19	06/18/19	TO-15
Chloromethane	SVM-11-22	<b>0.0083</b>	0.0050	ug/L	0.25	06/18/19	06/18/19	TO-15
Tetrachloroethylene (PCE)	SVM-11-22	<b>0.074</b>	0.0025	ug/L	0.25	06/18/19	06/18/19	TO-15
Acetone	SVM-11-15	<b>0.0092</b>	0.0050	ug/L	0.25	06/18/19	06/18/19	TO-15
Methylene Chloride	SVM-11-15	<b>0.0096 AA-C2</b>	0.0050	ug/L	0.25	06/18/19	06/18/19	TO-15
Acetone	SVM-13-7	<b>0.0058</b>	0.0050	ug/L	0.25	06/18/19	06/18/19	TO-15
Benzene	SVM-13-7	<b>0.0012</b>	0.00075	ug/L	0.25	06/18/19	06/18/19	TO-15
Naphthalene	SVM-13-7	<b>0.0022</b>	0.00075	ug/L	0.25	06/18/19	06/18/19	TO-15
Toluene	SVM-13-7	<b>0.0051</b>	0.0050	ug/L	0.25	06/18/19	06/18/19	TO-15
m,p-Xylenes	SVM-13-7	<b>0.0091</b>	0.0050	ug/L	0.25	06/18/19	06/18/19	TO-15
Acetone	SVM-13-22	<b>0.0090</b>	0.0050	ug/L	0.25	06/18/19	06/18/19	TO-15
Benzene	SVM-13-22	<b>0.0010</b>	0.00075	ug/L	0.25	06/18/19	06/18/19	TO-15
Naphthalene	SVM-13-22	<b>0.0032</b>	0.00075	ug/L	0.25	06/18/19	06/18/19	TO-15
m,p-Xylenes	SVM-13-22	<b>0.0055</b>	0.0050	ug/L	0.25	06/18/19	06/18/19	TO-15
Acetone	SVM-13-15	<b>0.0055</b>	0.0050	ug/L	0.25	06/18/19	06/18/19	TO-15
Benzene	SVM-13-15	<b>0.0010</b>	0.00075	ug/L	0.25	06/18/19	06/18/19	TO-15
Naphthalene	SVM-13-15	<b>0.0064</b>	0.00075	ug/L	0.25	06/18/19	06/18/19	TO-15
Toluene	SVM-13-15	<b>0.0052</b>	0.0050	ug/L	0.25	06/18/19	06/18/19	TO-15
1,2,4-Trimethylbenzene	SVM-13-15	<b>0.0068</b>	0.0050	ug/L	0.25	06/18/19	06/18/19	TO-15
m,p-Xylenes	SVM-13-15	<b>0.0093</b>	0.0050	ug/L	0.25	06/18/19	06/18/19	TO-15
Acetone	SVM-14R-8	<b>0.0095</b>	0.0050	ug/L	0.25	06/18/19	06/18/19	TO-15
Acetone	SVM-14R-22	<b>0.0052</b>	0.0050	ug/L	0.25	06/18/19	06/18/19	TO-15
Benzene	SVM-14R-22	<b>0.00088</b>	0.00075	ug/L	0.25	06/18/19	06/18/19	TO-15
Acetone	SVM-14R-22DUP	<b>0.0052</b>	0.0050	ug/L	0.25	06/18/19	06/18/19	TO-15
Benzene	SVM-14R-22DUP	<b>0.00083</b>	0.00075	ug/L	0.25	06/18/19	06/18/19	TO-15
Acetone	Ambient Air	<b>0.012</b>	0.0050	ug/L	0.25	06/18/19	06/18/19	TO-15
Ethanol	Ambient Air	<b>0.0063</b>	0.0050	ug/L	0.25	06/18/19	06/18/19	TO-15
Acetone	SVM-12-7	<b>0.0059</b>	0.0050	ug/L	0.25	06/18/19	06/18/19	TO-15
Benzene	SVM-12-7	<b>0.0012</b>	0.00075	ug/L	0.25	06/18/19	06/18/19	TO-15
Chloroform	SVM-12-7	<b>0.019</b>	0.0050	ug/L	0.25	06/18/19	06/18/19	TO-15

**Allen Aminian**  
QA/QC Manager



### LABORATORY ANALYSIS RESULTS

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

**AA Project No:** MB187329  
**Date Received:** 06/13/19  
**Date Reported:** 06/24/19

#### ANALYTICAL DATA SUMMARY

Analyte	Sample Name	Result	MRL	Units	Dilution	Prepared	Analyzed	Method
Tetrachloroethylene (PCE)	SVM-12-7	<b>0.0028</b>	0.0025	ug/L	0.25	06/18/19	06/18/19	TO-15
1,2,4-Trimethylbenzene	SVM-12-7	<b>0.0051</b>	0.0050	ug/L	0.25	06/18/19	06/18/19	TO-15
m,p-Xylenes	SVM-12-7	<b>0.0079</b>	0.0050	ug/L	0.25	06/18/19	06/18/19	TO-15
Benzene	SVM-12-15	<b>0.00090</b>	0.00075	ug/L	0.25	06/18/19	06/18/19	TO-15
m,p-Xylenes	SVM-12-15	<b>0.0052</b>	0.0050	ug/L	0.25	06/18/19	06/18/19	TO-15
Acetone	SVM-12-22	<b>0.012</b>	0.0050	ug/L	0.25	06/18/19	06/18/19	TO-15
Benzene	SVM-12-22	<b>0.0017</b>	0.00075	ug/L	0.25	06/18/19	06/18/19	TO-15
Tetrachloroethylene (PCE)	SVM-12-22	<b>0.016</b>	0.0025	ug/L	0.25	06/18/19	06/18/19	TO-15
m,p-Xylenes	SVM-12-22	<b>0.0052</b>	0.0050	ug/L	0.25	06/18/19	06/18/19	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:** MB187329  
**Date Received:** 06/13/19  
**Date Reported:** 06/24/19  
**Units:** ug/L

<b>Date Sampled:</b>	06/12/19	06/12/19	06/12/19	06/12/19	
<b>Date Prepared:</b>	06/17/19	06/17/19	06/17/19	06/17/19	
<b>Date Analyzed:</b>	06/17/19	06/17/19	06/17/19	06/17/19	
<b>AA ID No:</b>	9F13006-01	9F13006-02	9F13006-03	9F13006-04	
<b>Client ID No:</b>	SVM-3-5	SVM-3-15	SVM-16-22	SVM-11-7	
<b>Matrix:</b>	Vapor	Vapor	Vapor	Vapor	
<b>Dilution Factor:</b>	1	1	1	1	MRL

#### TO-3 (TO-3)

Gasoline Range Organics (GRO)	<20	<20	<20	<20	20
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#### Surrogates

4-Bromofluorobenzene	106%	102%	105%	104%	<u>%REC Limits</u> 70-130
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**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:** MB187329  
**Date Received:** 06/13/19  
**Date Reported:** 06/24/19  
**Units:** ug/L

<b>Date Sampled:</b>	06/12/19	06/12/19	06/12/19	06/12/19	
<b>Date Prepared:</b>	06/18/19	06/18/19	06/18/19	06/18/19	
<b>Date Analyzed:</b>	06/18/19	06/18/19	06/18/19	06/18/19	
<b>AA ID No:</b>	9F13006-05	9F13006-06	9F13006-07	9F13006-08	
<b>Client ID No:</b>	SVM-11-22	SVM-11-15	SVM-13-7	SVM-13-22	
<b>Matrix:</b>	Vapor	Vapor	Vapor	Vapor	
<b>Dilution Factor:</b>	1	1	1	1	MRL

**TO-3 (TO-3)**

Gasoline Range Organics (GRO)	<20	<20	<20	<20	20
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**Surrogates**

4-Bromofluorobenzene	105%	103%	105%	103%	<b>%REC Limits</b> 70-130
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**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:** MB187329  
**Date Received:** 06/13/19  
**Date Reported:** 06/24/19  
**Units:** ug/L

<b>Date Sampled:</b>	06/12/19	06/12/19	06/12/19	06/12/19	
<b>Date Prepared:</b>	06/18/19	06/18/19	06/18/19	06/18/19	
<b>Date Analyzed:</b>	06/18/19	06/18/19	06/18/19	06/18/19	
<b>AA ID No:</b>	9F13006-09	9F13006-10	9F13006-11	9F13006-12	
<b>Client ID No:</b>	SVM-13-15	SVM-14R-8	SVM-14R-22	SVM-14R-22DUP	
<b>Matrix:</b>	Vapor	Vapor	Vapor	Vapor	
<b>Dilution Factor:</b>	1	1	1	1	MRL

#### TO-3 (TO-3)

Gasoline Range Organics (GRO)	<20	<20	<20	<20	20
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#### Surrogates

4-Bromofluorobenzene	99%	101%	102%	97%	<u>%REC Limits</u> 70-130
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**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:** MB187329  
**Date Received:** 06/13/19  
**Date Reported:** 06/24/19  
**Units:** ug/L

<b>Date Sampled:</b>	06/12/19	06/12/19	06/12/19	06/12/19	
<b>Date Prepared:</b>	06/18/19	06/18/19	06/18/19	06/18/19	
<b>Date Analyzed:</b>	06/18/19	06/18/19	06/18/19	06/18/19	
<b>AA ID No:</b>	9F13006-13	9F13006-14	9F13006-15	9F13006-16	
<b>Client ID No:</b>	Ambient Air	SVM-12-7	SVM-12-15	SVM-12-22	
<b>Matrix:</b>	Vapor	Vapor	Vapor	Vapor	
<b>Dilution Factor:</b>	1	1	1	1	MRL

#### TO-3 (TO-3)

Gasoline Range Organics (GRO)	<20	<20	<20	<20	20
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#### Surrogates

4-Bromofluorobenzene	99%	99%	103%	103%	<b>%REC Limits</b> 70-130
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**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:** MB187329  
**Date Received:** 06/13/19  
**Date Reported:** 06/24/19  
**Units:** ug/L

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<b>Date Sampled:</b>	06/12/2019	
<b>Date Prepared:</b>	06/18/19	
<b>Date Analyzed:</b>	06/18/19	
<b>AA ID No:</b>	9F13006-17	
<b>Client ID No:</b>	SVM-14R-15	
<b>Matrix:</b>	Vapor	
<b>Dilution Factor:</b>	1	MRL

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### TO-3 (TO-3)

Gasoline Range Organics (GRO)	<20	20
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### Surrogates

		<u>%REC Limits</u>
4-Bromofluorobenzene	102%	70-130

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*Allen Aminian*

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**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:** MB187329  
**Date Received:** 06/13/19  
**Date Reported:** 06/24/19  
**Units:** ug/L

<b>Date Sampled:</b>	06/12/19	06/12/19	06/12/19	06/12/19	
<b>Date Prepared:</b>	06/17/19	06/17/19	06/17/19	06/17/19	
<b>Date Analyzed:</b>	06/17/19	06/17/19	06/17/19	06/17/19	
<b>AA ID No:</b>	9F13006-01	9F13006-02	9F13006-03	9F13006-04	
<b>Client ID No:</b>	SVM-3-5	SVM-3-15	SVM-16-22	SVM-11-7	
<b>Matrix:</b>	Vapor	Vapor	Vapor	Vapor	
<b>Dilution Factor:</b>	0.25	0.25	0.25	0.25	MRL

**TO-15 (Mid Level) (TO-15)**

Acetone	<0.0050	<0.0050	<0.0050	<0.0050	0.020
Allyl chloride	<0.0050	<0.0050	<0.0050	<0.0050	0.020
tert-Amyl-Methyl Ether (TAME)	<0.0050	<0.0050	<0.0050	<0.0050	0.020
Benzene	<0.00075	<0.00075	<0.00075	<0.00075	0.0030
Benzyl chloride	<0.0050	<0.0050	<0.0050	<0.0050	0.020
Bromodichloromethane	<b>0.0062</b>	<0.0050	<0.0050	<0.0050	0.020
Bromoform	<0.0050	<0.0050	<0.0050	<0.0050	0.020
Bromomethane	<0.0050	<0.0050	<0.0050	<0.0050	0.020
1,3-Butadiene	<0.0050	<0.0050	<0.0050	<0.0050	0.020
2-Butanone (MEK)	<0.0050	<0.0050	<0.0050	<0.0050	0.020
tert-Butyl Alcohol (TBA)	<5.0	<5.0	<5.0	<5.0	20
Carbon Disulfide	<0.0050	<0.0050	<0.0050	<0.0050	0.020
Carbon Tetrachloride	<0.0050	<0.0050	<0.0050	<0.0050	0.020
Chlorobenzene	<0.0050	<0.0050	<0.0050	<0.0050	0.020
Chloroethane	<0.0050	<0.0050	<0.0050	<0.0050	0.020
Chloroform	<b>0.024</b>	<b>0.028</b>	<b>0.010</b>	<0.0050	0.020
Chloromethane	<0.0050	<0.0050	<0.0050	<0.0050	0.020
Cyclohexane	<0.0050	<0.0050	<0.0050	<0.0050	0.020
Dibromochloromethane	<0.0050	<0.0050	<0.0050	<0.0050	0.020
1,2-Dibromoethane (EDB)	<0.0050	<0.0050	<0.0050	<0.0050	0.020
1,2-Dichlorobenzene	<0.0050	<0.0050	<0.0050	<0.0050	0.020
1,3-Dichlorobenzene	<0.0050	<0.0050	<0.0050	<0.0050	0.020
1,4-Dichlorobenzene	<0.0050	<0.0050	<0.0050	<0.0050	0.020
Dichlorodifluoromethane (R12)	<0.0050	<0.0050	<0.0050	<0.0050	0.020
1,1-Dichloroethane	<0.0050	<0.0050	<0.0050	<0.0050	0.020
1,2-Dichloroethane (EDC)	<0.0010	<0.0010	<0.0010	<0.0010	0.0040
cis-1,2-Dichloroethylene	<0.0050	<0.0050	<0.0050	<0.0050	0.020

**Allen Aminian**  
QA/QC Manager



## LABORATORY ANALYSIS RESULTS

<b>Client:</b>	CH2M Hill, Inc.	<b>AA Project No:</b>	MB187329
<b>Project No:</b>	693142	<b>Date Received:</b>	06/13/19
<b>Project Name:</b>	KMEP Norwalk Biosparge Startup	<b>Date Reported:</b>	06/24/19
<b>Method:</b>	VOCs by GCMS EPA TO-15 (Mid Level)	<b>Units:</b>	ug/L

<b>Date Sampled:</b>	06/12/19	06/12/19	06/12/19	06/12/19	
<b>Date Prepared:</b>	06/17/19	06/17/19	06/17/19	06/17/19	
<b>Date Analyzed:</b>	06/17/19	06/17/19	06/17/19	06/17/19	
<b>AA ID No:</b>	9F13006-01	9F13006-02	9F13006-03	9F13006-04	
<b>Client ID No:</b>	SVM-3-5	SVM-3-15	SVM-16-22	SVM-11-7	
<b>Matrix:</b>	Vapor	Vapor	Vapor	Vapor	
<b>Dilution Factor:</b>	0.25	0.25	0.25	0.25	MRL

### TO-15 (Mid Level) (TO-15) (continued)

1,1-Dichloroethylene	<0.0050	<0.0050	<0.0050	<0.0050	0.020
trans-1,2-Dichloroethylene	<0.0050	<0.0050	<0.0050	<0.0050	0.020
1,2-Dichloropropane	<0.0050	<0.0050	<0.0050	<0.0050	0.020
trans-1,3-Dichloropropylene	<0.0050	<0.0050	<0.0050	<0.0050	0.020
cis-1,3-Dichloropropylene	<0.0050	<0.0050	<0.0050	<0.0050	0.020
Dichlorotetrafluoroethane	<0.0050	<0.0050	<0.0050	<0.0050	0.020
Diisopropyl ether (DIPE)	<0.0050	<0.0050	<0.0050	<0.0050	0.020
1,4-Dioxane	<0.0050	<0.0050	<0.0050	<0.0050	0.020
Ethanol	<0.0050	<0.0050	<0.0050	<0.0050	0.020
Ethyl Acetate	<0.0050	<0.0050	<0.0050	<0.0050	0.020
Ethylbenzene	<0.0050	<0.0050	<0.0050	<0.0050	0.020
Ethyl-tert-Butyl Ether (ETBE)	<0.0050	<0.0050	<0.0050	<0.0050	0.020
4-Ethyltoluene	<0.0050	<0.0050	<0.0050	<0.0050	0.020
Heptane	<0.0050	<0.0050	<b>0.010</b>	<0.0050	0.020
Hexachlorobutadiene	<0.0050	<0.0050	<0.0050	<0.0050	0.020
n-Hexane	<0.0050	<0.0050	<0.0050	<0.0050	0.020
2-Hexanone (MBK)	<0.0050	<0.0050	<0.0050	<0.0050	0.020
Isopropanol (IPA)	<0.050	<0.050	<0.050	<0.050	0.20
Methyl-tert-Butyl Ether (MTBE)	<0.0050	<0.0050	<0.0050	<0.0050	0.020
Methylene Chloride	<0.0050	<0.0050	<0.0050	<0.0050	0.020
4-Methyl-2-pentanone (MIBK)	<0.0050	<0.0050	<0.0050	<0.0050	0.020
Naphthalene	<0.00075	<0.00075	<0.00075	<0.00075	0.0030
Propylene	<0.0050	<0.0050	<0.0050	<0.0050	0.020
Styrene	<0.0050	<0.0050	<0.0050	<0.0050	0.020
1,1,2,2-Tetrachloroethane	<0.0050	<0.0050	<0.0050	<0.0050	0.020
Tetrachloroethylene (PCE)	<b>0.0027</b>	<0.0025	<b>0.012</b>	<0.0025	0.010
Tetrahydrofuran (THF)	<0.0050	<0.0050	<0.0050	<0.0050	0.020

**Allen Aminian**  
QA/QC Manager



## LABORATORY ANALYSIS RESULTS

<b>Client:</b>	CH2M Hill, Inc.	<b>AA Project No:</b>	MB187329
<b>Project No:</b>	693142	<b>Date Received:</b>	06/13/19
<b>Project Name:</b>	KMEP Norwalk Biosparge Startup	<b>Date Reported:</b>	06/24/19
<b>Method:</b>	VOCs by GCMS EPA TO-15 (Mid Level)	<b>Units:</b>	ug/L

<b>Date Sampled:</b>	06/12/19	06/12/19	06/12/19	06/12/19	
<b>Date Prepared:</b>	06/17/19	06/17/19	06/17/19	06/17/19	
<b>Date Analyzed:</b>	06/17/19	06/17/19	06/17/19	06/17/19	
<b>AA ID No:</b>	9F13006-01	9F13006-02	9F13006-03	9F13006-04	
<b>Client ID No:</b>	SVM-3-5	SVM-3-15	SVM-16-22	SVM-11-7	
<b>Matrix:</b>	Vapor	Vapor	Vapor	Vapor	
<b>Dilution Factor:</b>	0.25	0.25	0.25	0.25	MRL

### TO-15 (Mid Level) (TO-15) (continued)

Toluene	$<0.0050$	$<0.0050$	$<0.0050$	$<0.0050$	0.020
1,2,4-Trichlorobenzene	$<0.0050$	$<0.0050$	$<0.0050$	$<0.0050$	0.020
1,1,2-Trichloroethane	$<0.0050$	$<0.0050$	$<0.0050$	$<0.0050$	0.020
1,1,1-Trichloroethane	$<0.0050$	$<0.0050$	$<0.0050$	$<0.0050$	0.020
Trichloroethylene (TCE)	$<0.0050$	$<0.0050$	$<0.0050$	$<0.0050$	0.020
Trichlorofluoromethane (R11)	$<0.0050$	$<0.0050$	$<0.0050$	$<0.0050$	0.020
1,1,2-Trichloro-1,2,2-trifluoroethane (R113)	$<0.0050$	$<0.0050$	$<0.0050$	$<0.0050$	0.020
1,3,5-Trimethylbenzene	$<0.0050$	$<0.0050$	$<0.0050$	$<0.0050$	0.020
1,2,4-Trimethylbenzene	$<0.0050$	$<0.0050$	$<0.0050$	$<0.0050$	0.020
2,2,4-Trimethylpentane	$<0.0050$	$<0.0050$	$<0.0050$	$<0.0050$	0.020
Vinyl acetate	$<0.0050$	$<0.0050$	$<0.0050$	$<0.0050$	0.020
Vinyl bromide	$<0.0050$	$<0.0050$	$<0.0050$	$<0.0050$	0.020
Vinyl chloride	$<0.0050$	$<0.0050$	$<0.0050$	$<0.0050$	0.020
o-Xylene	$<0.0050$	$<0.0050$	$<0.0050$	$<0.0050$	0.020
m,p-Xylenes	$<0.0050$	$<0.0050$	$<0.0050$	$<0.0050$	0.020
1,2,3-Trichloropropane	$<0.0050$	$<0.0050$	$<0.0050$	$<0.0050$	0.020
sec-Butylbenzene	$<0.0050$	$<0.0050$	$<0.0050$	$<0.0050$	0.020
Isopropylbenzene	$<0.0050$	$<0.0050$	$<0.0050$	$<0.0050$	0.020
n-Propylbenzene	$<0.0050$	$<0.0050$	$<0.0050$	$<0.0050$	0.020
4-Isopropyltoluene	$<0.0050$	$<0.0050$	$<0.0050$	$<0.0050$	0.020
n-Butylbenzene	$<0.0050$	$<0.0050$	$<0.0050$	$<0.0050$	0.020

<b><u>Surrogates</u></b>					<b><u>%REC Limits</u></b>
4-Bromofluorobenzene	107%	102%	107%	107%	70-130

*Allen Aminian*

**Allen Aminian**  
QA/QC Manager





## LABORATORY ANALYSIS RESULTS

<b>Client:</b>	CH2M Hill, Inc.	<b>AA Project No:</b>	MB187329
<b>Project No:</b>	693142	<b>Date Received:</b>	06/13/19
<b>Project Name:</b>	KMEP Norwalk Biosparge Startup	<b>Date Reported:</b>	06/24/19
<b>Method:</b>	VOCs by GCMS EPA TO-15 (Mid Level)	<b>Units:</b>	ug/L

<b>Date Sampled:</b>	06/12/19	06/12/19	06/12/19	06/12/19	
<b>Date Prepared:</b>	06/18/19	06/18/19	06/18/19	06/18/19	
<b>Date Analyzed:</b>	06/18/19	06/18/19	06/18/19	06/18/19	
<b>AA ID No:</b>	9F13006-05	9F13006-06	9F13006-07	9F13006-08	
<b>Client ID No:</b>	SVM-11-22	SVM-11-15	SVM-13-7	SVM-13-22	
<b>Matrix:</b>	Vapor	Vapor	Vapor	Vapor	
<b>Dilution Factor:</b>	0.25	0.25	0.25	0.25	MRL

### TO-15 (Mid Level) (TO-15)

Acetone	<b>0.0062</b>	<b>0.0092</b>	<b>0.0058</b>	<b>0.0090</b>	0.020
Allyl chloride	<0.0050	<0.0050	<0.0050	<0.0050	0.020
tert-Amyl-Methyl Ether (TAME)	<0.0050	<0.0050	<0.0050	<0.0050	0.020
Benzene	<0.00075	<0.00075	<b>0.0012</b>	<b>0.0010</b>	0.0030
Benzyl chloride	<0.0050	<0.0050	<0.0050	<0.0050	0.020
Bromodichloromethane	<0.0050	<0.0050	<0.0050	<0.0050	0.020
Bromoform	<0.0050	<0.0050	<0.0050	<0.0050	0.020
Bromomethane	<0.0050	<0.0050	<0.0050	<0.0050	0.020
1,3-Butadiene	<0.0050	<0.0050	<0.0050	<0.0050	0.020
2-Butanone (MEK)	<0.0050	<0.0050	<0.0050	<0.0050	0.020
tert-Butyl Alcohol (TBA)	<5.0	<5.0	<5.0	<5.0	20
Carbon Disulfide	<0.0050	<0.0050	<0.0050	<0.0050	0.020
Carbon Tetrachloride	<0.0050	<0.0050	<0.0050	<0.0050	0.020
Chlorobenzene	<0.0050	<0.0050	<0.0050	<0.0050	0.020
Chloroethane	<0.0050	<0.0050	<0.0050	<0.0050	0.020
Chloroform	<b>0.034</b>	<0.0050	<0.0050	<0.0050	0.020
Chloromethane	<b>0.0083</b>	<0.0050	<0.0050	<0.0050	0.020
Cyclohexane	<0.0050	<0.0050	<0.0050	<0.0050	0.020
Dibromochloromethane	<0.0050	<0.0050	<0.0050	<0.0050	0.020
1,2-Dibromoethane (EDB)	<0.0050	<0.0050	<0.0050	<0.0050	0.020
1,2-Dichlorobenzene	<0.0050	<0.0050	<0.0050	<0.0050	0.020
1,3-Dichlorobenzene	<0.0050	<0.0050	<0.0050	<0.0050	0.020
1,4-Dichlorobenzene	<0.0050	<0.0050	<0.0050	<0.0050	0.020
Dichlorodifluoromethane (R12)	<0.0050	<0.0050	<0.0050	<0.0050	0.020
1,1-Dichloroethane	<0.0050	<0.0050	<0.0050	<0.0050	0.020
1,2-Dichloroethane (EDC)	<0.0010	<0.0010	<0.0010	<0.0010	0.0040
cis-1,2-Dichloroethylene	<0.0050	<0.0050	<0.0050	<0.0050	0.020

**Allen Aminian**  
QA/QC Manager



## LABORATORY ANALYSIS RESULTS

<b>Client:</b>	CH2M Hill, Inc.	<b>AA Project No:</b>	MB187329
<b>Project No:</b>	693142	<b>Date Received:</b>	06/13/19
<b>Project Name:</b>	KMEP Norwalk Biosparge Startup	<b>Date Reported:</b>	06/24/19
<b>Method:</b>	VOCs by GCMS EPA TO-15 (Mid Level)	<b>Units:</b>	ug/L

<b>Date Sampled:</b>	06/12/19	06/12/19	06/12/19	06/12/19	
<b>Date Prepared:</b>	06/18/19	06/18/19	06/18/19	06/18/19	
<b>Date Analyzed:</b>	06/18/19	06/18/19	06/18/19	06/18/19	
<b>AA ID No:</b>	9F13006-05	9F13006-06	9F13006-07	9F13006-08	
<b>Client ID No:</b>	SVM-11-22	SVM-11-15	SVM-13-7	SVM-13-22	
<b>Matrix:</b>	Vapor	Vapor	Vapor	Vapor	
<b>Dilution Factor:</b>	0.25	0.25	0.25	0.25	MRL

### TO-15 (Mid Level) (TO-15) (continued)

1,1-Dichloroethylene	<0.0050	<0.0050	<0.0050	<0.0050	0.020
trans-1,2-Dichloroethylene	<0.0050	<0.0050	<0.0050	<0.0050	0.020
1,2-Dichloropropane	<0.0050	<0.0050	<0.0050	<0.0050	0.020
trans-1,3-Dichloropropylene	<0.0050	<0.0050	<0.0050	<0.0050	0.020
cis-1,3-Dichloropropylene	<0.0050	<0.0050	<0.0050	<0.0050	0.020
Dichlorotetrafluoroethane	<0.0050	<0.0050	<0.0050	<0.0050	0.020
Diisopropyl ether (DIPE)	<0.0050	<0.0050	<0.0050	<0.0050	0.020
1,4-Dioxane	<0.0050	<0.0050	<0.0050	<0.0050	0.020
Ethanol	<0.0050	<0.0050	<0.0050	<0.0050	0.020
Ethyl Acetate	<0.0050	<0.0050	<0.0050	<0.0050	0.020
Ethylbenzene	<0.0050	<0.0050	<0.0050	<0.0050	0.020
Ethyl-tert-Butyl Ether (ETBE)	<0.0050	<0.0050	<0.0050	<0.0050	0.020
4-Ethyltoluene	<0.0050	<0.0050	<0.0050	<0.0050	0.020
Heptane	<0.0050	<0.0050	<0.0050	<0.0050	0.020
Hexachlorobutadiene	<0.0050	<0.0050	<0.0050	<0.0050	0.020
n-Hexane	<0.0050	<0.0050	<0.0050	<0.0050	0.020
2-Hexanone (MBK)	<0.0050	<0.0050	<0.0050	<0.0050	0.020
Isopropanol (IPA)	<0.050	<0.050	<0.050	<0.050	0.20
Methyl-tert-Butyl Ether (MTBE)	<0.0050	<0.0050	<0.0050	<0.0050	0.020
Methylene Chloride	<0.0050	<b>0.0096 [3]</b>	<0.0050	<0.0050	0.020
4-Methyl-2-pentanone (MIBK)	<0.0050	<0.0050	<0.0050	<0.0050	0.020
Naphthalene	<0.00075	<0.00075	<b>0.0022</b>	<b>0.0032</b>	0.0030
Propylene	<0.0050	<0.0050	<0.0050	<0.0050	0.020
Styrene	<0.0050	<0.0050	<0.0050	<0.0050	0.020
1,1,2,2-Tetrachloroethane	<0.0050	<0.0050	<0.0050	<0.0050	0.020
Tetrachloroethylene (PCE)	<b>0.074</b>	<0.0025	<0.0025	<0.0025	0.010
Tetrahydrofuran (THF)	<0.0050	<0.0050	<0.0050	<0.0050	0.020

**Allen Aminian**  
QA/QC Manager



## LABORATORY ANALYSIS RESULTS

<b>Client:</b>	CH2M Hill, Inc.	<b>AA Project No:</b>	MB187329
<b>Project No:</b>	693142	<b>Date Received:</b>	06/13/19
<b>Project Name:</b>	KMEP Norwalk Biosparge Startup	<b>Date Reported:</b>	06/24/19
<b>Method:</b>	VOCs by GCMS EPA TO-15 (Mid Level)	<b>Units:</b>	ug/L

<b>Date Sampled:</b>	06/12/19	06/12/19	06/12/19	06/12/19	
<b>Date Prepared:</b>	06/18/19	06/18/19	06/18/19	06/18/19	
<b>Date Analyzed:</b>	06/18/19	06/18/19	06/18/19	06/18/19	
<b>AA ID No:</b>	9F13006-05	9F13006-06	9F13006-07	9F13006-08	
<b>Client ID No:</b>	SVM-11-22	SVM-11-15	SVM-13-7	SVM-13-22	
<b>Matrix:</b>	Vapor	Vapor	Vapor	Vapor	
<b>Dilution Factor:</b>	0.25	0.25	0.25	0.25	MRL

### TO-15 (Mid Level) (TO-15) (continued)

Toluene	<0.0050	<0.0050	<b>0.0051</b>	<0.0050	0.020
1,2,4-Trichlorobenzene	<0.0050	<0.0050	<0.0050	<0.0050	0.020
1,1,2-Trichloroethane	<0.0050	<0.0050	<0.0050	<0.0050	0.020
1,1,1-Trichloroethane	<0.0050	<0.0050	<0.0050	<0.0050	0.020
Trichloroethylene (TCE)	<0.0050	<0.0050	<0.0050	<0.0050	0.020
Trichlorofluoromethane (R11)	<0.0050	<0.0050	<0.0050	<0.0050	0.020
1,1,2-Trichloro-1,2,2-trifluoroethane (R113)	<0.0050	<0.0050	<0.0050	<0.0050	0.020
1,3,5-Trimethylbenzene	<0.0050	<0.0050	<0.0050	<0.0050	0.020
1,2,4-Trimethylbenzene	<0.0050	<0.0050	<0.0050	<0.0050	0.020
2,2,4-Trimethylpentane	<0.0050	<0.0050	<0.0050	<0.0050	0.020
Vinyl acetate	<0.0050	<0.0050	<0.0050	<0.0050	0.020
Vinyl bromide	<0.0050	<0.0050	<0.0050	<0.0050	0.020
Vinyl chloride	<0.0050	<0.0050	<0.0050	<0.0050	0.020
o-Xylene	<0.0050	<0.0050	<0.0050	<0.0050	0.020
m,p-Xylenes	<0.0050	<0.0050	<b>0.0091</b>	<b>0.0055</b>	0.020
1,2,3-Trichloropropane	<0.0050	<0.0050	<0.0050	<0.0050	0.020
sec-Butylbenzene	<0.0050	<0.0050	<0.0050	<0.0050	0.020
Isopropylbenzene	<0.0050	<0.0050	<0.0050	<0.0050	0.020
n-Propylbenzene	<0.0050	<0.0050	<0.0050	<0.0050	0.020
4-Isopropyltoluene	<0.0050	<0.0050	<0.0050	<0.0050	0.020
n-Butylbenzene	<0.0050	<0.0050	<0.0050	<0.0050	0.020

<b>Surrogates</b>					<b>%REC Limits</b>
4-Bromofluorobenzene	106%	104%	108%	104%	70-130

**Allen Aminian**  
QA/QC Manager



## LABORATORY ANALYSIS RESULTS

<b>Client:</b>	CH2M Hill, Inc.	<b>AA Project No:</b>	MB187329
<b>Project No:</b>	693142	<b>Date Received:</b>	06/13/19
<b>Project Name:</b>	KMEP Norwalk Biosparge Startup	<b>Date Reported:</b>	06/24/19
<b>Method:</b>	VOCs by GCMS EPA TO-15 (Mid Level)	<b>Units:</b>	ug/L

<b>Date Sampled:</b>	06/12/19	06/12/19	06/12/19	06/12/19	
<b>Date Prepared:</b>	06/18/19	06/18/19	06/18/19	06/18/19	
<b>Date Analyzed:</b>	06/18/19	06/18/19	06/18/19	06/18/19	
<b>AA ID No:</b>	9F13006-09	9F13006-10	9F13006-11	9F13006-12	
<b>Client ID No:</b>	SVM-13-15	SVM-14R-8	SVM-14R-22	SVM-14R-22DUP	
<b>Matrix:</b>	Vapor	Vapor	Vapor	Vapor	
<b>Dilution Factor:</b>	0.25	0.25	0.25	0.25	MRL

### TO-15 (Mid Level) (TO-15)

Acetone	<b>0.0055</b>	<b>0.0095</b>	<b>0.0052</b>	<b>0.0052</b>	0.020
Allyl chloride	<0.0050	<0.0050	<0.0050	<0.0050	0.020
tert-Amyl-Methyl Ether (TAME)	<0.0050	<0.0050	<0.0050	<0.0050	0.020
Benzene	<b>0.0010</b>	<0.00075	<b>0.00088</b>	<b>0.00083</b>	0.0030
Benzyl chloride	<0.0050	<0.0050	<0.0050	<0.0050	0.020
Bromodichloromethane	<0.0050	<0.0050	<0.0050	<0.0050	0.020
Bromoform	<0.0050	<0.0050	<0.0050	<0.0050	0.020
Bromomethane	<0.0050	<0.0050	<0.0050	<0.0050	0.020
1,3-Butadiene	<0.0050	<0.0050	<0.0050	<0.0050	0.020
2-Butanone (MEK)	<0.0050	<0.0050	<0.0050	<0.0050	0.020
tert-Butyl Alcohol (TBA)	<5.0	<5.0	<5.0	<5.0	20
Carbon Disulfide	<0.0050	<0.0050	<0.0050	<0.0050	0.020
Carbon Tetrachloride	<0.0050	<0.0050	<0.0050	<0.0050	0.020
Chlorobenzene	<0.0050	<0.0050	<0.0050	<0.0050	0.020
Chloroethane	<0.0050	<0.0050	<0.0050	<0.0050	0.020
Chloroform	<0.0050	<0.0050	<0.0050	<0.0050	0.020
Chloromethane	<0.0050	<0.0050	<0.0050	<0.0050	0.020
Cyclohexane	<0.0050	<0.0050	<0.0050	<0.0050	0.020
Dibromochloromethane	<0.0050	<0.0050	<0.0050	<0.0050	0.020
1,2-Dibromoethane (EDB)	<0.0050	<0.0050	<0.0050	<0.0050	0.020
1,2-Dichlorobenzene	<0.0050	<0.0050	<0.0050	<0.0050	0.020
1,3-Dichlorobenzene	<0.0050	<0.0050	<0.0050	<0.0050	0.020
1,4-Dichlorobenzene	<0.0050	<0.0050	<0.0050	<0.0050	0.020
Dichlorodifluoromethane (R12)	<0.0050	<0.0050	<0.0050	<0.0050	0.020
1,1-Dichloroethane	<0.0050	<0.0050	<0.0050	<0.0050	0.020
1,2-Dichloroethane (EDC)	<0.0010	<0.0010	<0.0010	<0.0010	0.0040
cis-1,2-Dichloroethylene	<0.0050	<0.0050	<0.0050	<0.0050	0.020

**Allen Aminian**  
QA/QC Manager



## LABORATORY ANALYSIS RESULTS

<b>Client:</b>	CH2M Hill, Inc.	<b>AA Project No:</b>	MB187329
<b>Project No:</b>	693142	<b>Date Received:</b>	06/13/19
<b>Project Name:</b>	KMEP Norwalk Biosparge Startup	<b>Date Reported:</b>	06/24/19
<b>Method:</b>	VOCs by GCMS EPA TO-15 (Mid Level)	<b>Units:</b>	ug/L

<b>Date Sampled:</b>	06/12/19	06/12/19	06/12/19	06/12/19	
<b>Date Prepared:</b>	06/18/19	06/18/19	06/18/19	06/18/19	
<b>Date Analyzed:</b>	06/18/19	06/18/19	06/18/19	06/18/19	
<b>AA ID No:</b>	9F13006-09	9F13006-10	9F13006-11	9F13006-12	
<b>Client ID No:</b>	SVM-13-15	SVM-14R-8	SVM-14R-22	SVM-14R-22DUP	
<b>Matrix:</b>	Vapor	Vapor	Vapor	Vapor	
<b>Dilution Factor:</b>	0.25	0.25	0.25	0.25	MRL

### TO-15 (Mid Level) (TO-15) (continued)

1,1-Dichloroethylene	<0.0050	<0.0050	<0.0050	<0.0050	0.020
trans-1,2-Dichloroethylene	<0.0050	<0.0050	<0.0050	<0.0050	0.020
1,2-Dichloropropane	<0.0050	<0.0050	<0.0050	<0.0050	0.020
trans-1,3-Dichloropropylene	<0.0050	<0.0050	<0.0050	<0.0050	0.020
cis-1,3-Dichloropropylene	<0.0050	<0.0050	<0.0050	<0.0050	0.020
Dichlorotetrafluoroethane	<0.0050	<0.0050	<0.0050	<0.0050	0.020
Diisopropyl ether (DIPE)	<0.0050	<0.0050	<0.0050	<0.0050	0.020
1,4-Dioxane	<0.0050	<0.0050	<0.0050	<0.0050	0.020
Ethanol	<0.0050	<0.0050	<0.0050	<0.0050	0.020
Ethyl Acetate	<0.0050	<0.0050	<0.0050	<0.0050	0.020
Ethylbenzene	<0.0050	<0.0050	<0.0050	<0.0050	0.020
Ethyl-tert-Butyl Ether (ETBE)	<0.0050	<0.0050	<0.0050	<0.0050	0.020
4-Ethyltoluene	<0.0050	<0.0050	<0.0050	<0.0050	0.020
Heptane	<0.0050	<0.0050	<0.0050	<0.0050	0.020
Hexachlorobutadiene	<0.0050	<0.0050	<0.0050	<0.0050	0.020
n-Hexane	<0.0050	<0.0050	<0.0050	<0.0050	0.020
2-Hexanone (MBK)	<0.0050	<0.0050	<0.0050	<0.0050	0.020
Isopropanol (IPA)	<0.050	<0.050	<0.050	<0.050	0.20
Methyl-tert-Butyl Ether (MTBE)	<0.0050	<0.0050	<0.0050	<0.0050	0.020
Methylene Chloride	<0.0050	<0.0050	<0.0050	<0.0050	0.020
4-Methyl-2-pentanone (MIBK)	<0.0050	<0.0050	<0.0050	<0.0050	0.020
Naphthalene	<b>0.0064</b>	<0.00075	<0.00075	<0.00075	0.0030
Propylene	<0.0050	<0.0050	<0.0050	<0.0050	0.020
Styrene	<0.0050	<0.0050	<0.0050	<0.0050	0.020
1,1,2,2-Tetrachloroethane	<0.0050	<0.0050	<0.0050	<0.0050	0.020
Tetrachloroethylene (PCE)	<0.0025	<0.0025	<0.0025	<0.0025	0.010
Tetrahydrofuran (THF)	<0.0050	<0.0050	<0.0050	<0.0050	0.020

**Allen Aminian**  
QA/QC Manager



## LABORATORY ANALYSIS RESULTS

<b>Client:</b>	CH2M Hill, Inc.	<b>AA Project No:</b>	MB187329
<b>Project No:</b>	693142	<b>Date Received:</b>	06/13/19
<b>Project Name:</b>	KMEP Norwalk Biosparge Startup	<b>Date Reported:</b>	06/24/19
<b>Method:</b>	VOCs by GCMS EPA TO-15 (Mid Level)	<b>Units:</b>	ug/L

<b>Date Sampled:</b>	06/12/19	06/12/19	06/12/19	06/12/19	
<b>Date Prepared:</b>	06/18/19	06/18/19	06/18/19	06/18/19	
<b>Date Analyzed:</b>	06/18/19	06/18/19	06/18/19	06/18/19	
<b>AA ID No:</b>	9F13006-09	9F13006-10	9F13006-11	9F13006-12	
<b>Client ID No:</b>	SVM-13-15	SVM-14R-8	SVM-14R-22	SVM-14R-22DUP	
<b>Matrix:</b>	Vapor	Vapor	Vapor	Vapor	
<b>Dilution Factor:</b>	0.25	0.25	0.25	0.25	MRL

### TO-15 (Mid Level) (TO-15) (continued)

Toluene	<b>0.0052</b>	<0.0050	<0.0050	<0.0050	0.020
1,2,4-Trichlorobenzene	<0.0050	<0.0050	<0.0050	<0.0050	0.020
1,1,2-Trichloroethane	<0.0050	<0.0050	<0.0050	<0.0050	0.020
1,1,1-Trichloroethane	<0.0050	<0.0050	<0.0050	<0.0050	0.020
Trichloroethylene (TCE)	<0.0050	<0.0050	<0.0050	<0.0050	0.020
Trichlorofluoromethane (R11)	<0.0050	<0.0050	<0.0050	<0.0050	0.020
1,1,2-Trichloro-1,2,2-trifluoroethane (R113)	<0.0050	<0.0050	<0.0050	<0.0050	0.020
1,3,5-Trimethylbenzene	<0.0050	<0.0050	<0.0050	<0.0050	0.020
1,2,4-Trimethylbenzene	<b>0.0068</b>	<0.0050	<0.0050	<0.0050	0.020
2,2,4-Trimethylpentane	<0.0050	<0.0050	<0.0050	<0.0050	0.020
Vinyl acetate	<0.0050	<0.0050	<0.0050	<0.0050	0.020
Vinyl bromide	<0.0050	<0.0050	<0.0050	<0.0050	0.020
Vinyl chloride	<0.0050	<0.0050	<0.0050	<0.0050	0.020
o-Xylene	<0.0050	<0.0050	<0.0050	<0.0050	0.020
m,p-Xylenes	<b>0.0093</b>	<0.0050	<0.0050	<0.0050	0.020
1,2,3-Trichloropropane	<0.0050	<0.0050	<0.0050	<0.0050	0.020
sec-Butylbenzene	<0.0050	<0.0050	<0.0050	<0.0050	0.020
Isopropylbenzene	<0.0050	<0.0050	<0.0050	<0.0050	0.020
n-Propylbenzene	<0.0050	<0.0050	<0.0050	<0.0050	0.020
4-Isopropyltoluene	<0.0050	<0.0050	<0.0050	<0.0050	0.020
n-Butylbenzene	<0.0050	<0.0050	<0.0050	<0.0050	0.020

<u>Surrogates</u>					<u>%REC Limits</u>
4-Bromofluorobenzene	102%	104%	102%	96%	70-130

**Allen Aminian**  
QA/QC Manager



## LABORATORY ANALYSIS RESULTS

<b>Client:</b>	CH2M Hill, Inc.	<b>AA Project No:</b>	MB187329
<b>Project No:</b>	693142	<b>Date Received:</b>	06/13/19
<b>Project Name:</b>	KMEP Norwalk Biosparge Startup	<b>Date Reported:</b>	06/24/19
<b>Method:</b>	VOCs by GCMS EPA TO-15 (Mid Level)	<b>Units:</b>	ug/L

<b>Date Sampled:</b>	06/12/19	06/12/19	06/12/19	06/12/19	
<b>Date Prepared:</b>	06/18/19	06/18/19	06/18/19	06/18/19	
<b>Date Analyzed:</b>	06/18/19	06/18/19	06/18/19	06/18/19	
<b>AA ID No:</b>	9F13006-13	9F13006-14	9F13006-15	9F13006-16	
<b>Client ID No:</b>	Ambient Air	SVM-12-7	SVM-12-15	SVM-12-22	
<b>Matrix:</b>	Vapor	Vapor	Vapor	Vapor	
<b>Dilution Factor:</b>	0.25	0.25	0.25	0.25	MRL

### TO-15 (Mid Level) (TO-15)

Acetone	0.012	0.0059	<0.0050	0.012	0.020
Allyl chloride	<0.0050	<0.0050	<0.0050	<0.0050	0.020
tert-Amyl-Methyl Ether (TAME)	<0.0050	<0.0050	<0.0050	<0.0050	0.020
Benzene	<0.00075	0.0012	0.00090	0.0017	0.0030
Benzyl chloride	<0.0050	<0.0050	<0.0050	<0.0050	0.020
Bromodichloromethane	<0.0050	<0.0050	<0.0050	<0.0050	0.020
Bromoform	<0.0050	<0.0050	<0.0050	<0.0050	0.020
Bromomethane	<0.0050	<0.0050	<0.0050	<0.0050	0.020
1,3-Butadiene	<0.0050	<0.0050	<0.0050	<0.0050	0.020
2-Butanone (MEK)	<0.0050	<0.0050	<0.0050	<0.0050	0.020
tert-Butyl Alcohol (TBA)	<5.0	<5.0	<5.0	<5.0	20
Carbon Disulfide	<0.0050	<0.0050	<0.0050	<0.0050	0.020
Carbon Tetrachloride	<0.0050	<0.0050	<0.0050	<0.0050	0.020
Chlorobenzene	<0.0050	<0.0050	<0.0050	<0.0050	0.020
Chloroethane	<0.0050	<0.0050	<0.0050	<0.0050	0.020
Chloroform	<0.0050	0.019	<0.0050	<0.0050	0.020
Chloromethane	<0.0050	<0.0050	<0.0050	<0.0050	0.020
Cyclohexane	<0.0050	<0.0050	<0.0050	<0.0050	0.020
Dibromochloromethane	<0.0050	<0.0050	<0.0050	<0.0050	0.020
1,2-Dibromoethane (EDB)	<0.0050	<0.0050	<0.0050	<0.0050	0.020
1,2-Dichlorobenzene	<0.0050	<0.0050	<0.0050	<0.0050	0.020
1,3-Dichlorobenzene	<0.0050	<0.0050	<0.0050	<0.0050	0.020
1,4-Dichlorobenzene	<0.0050	<0.0050	<0.0050	<0.0050	0.020
Dichlorodifluoromethane (R12)	<0.0050	<0.0050	<0.0050	<0.0050	0.020
1,1-Dichloroethane	<0.0050	<0.0050	<0.0050	<0.0050	0.020
1,2-Dichloroethane (EDC)	<0.0010	<0.0010	<0.0010	<0.0010	0.0040
cis-1,2-Dichloroethylene	<0.0050	<0.0050	<0.0050	<0.0050	0.020

**Allen Aminian**  
QA/QC Manager



## LABORATORY ANALYSIS RESULTS

<b>Client:</b>	CH2M Hill, Inc.	<b>AA Project No:</b>	MB187329
<b>Project No:</b>	693142	<b>Date Received:</b>	06/13/19
<b>Project Name:</b>	KMEP Norwalk Biosparge Startup	<b>Date Reported:</b>	06/24/19
<b>Method:</b>	VOCs by GCMS EPA TO-15 (Mid Level)	<b>Units:</b>	ug/L

<b>Date Sampled:</b>	06/12/19	06/12/19	06/12/19	06/12/19	
<b>Date Prepared:</b>	06/18/19	06/18/19	06/18/19	06/18/19	
<b>Date Analyzed:</b>	06/18/19	06/18/19	06/18/19	06/18/19	
<b>AA ID No:</b>	9F13006-13	9F13006-14	9F13006-15	9F13006-16	
<b>Client ID No:</b>	Ambient Air	SVM-12-7	SVM-12-15	SVM-12-22	
<b>Matrix:</b>	Vapor	Vapor	Vapor	Vapor	
<b>Dilution Factor:</b>	0.25	0.25	0.25	0.25	MRL

### TO-15 (Mid Level) (TO-15) (continued)

1,1-Dichloroethylene	<0.0050	<0.0050	<0.0050	<0.0050	0.020
trans-1,2-Dichloroethylene	<0.0050	<0.0050	<0.0050	<0.0050	0.020
1,2-Dichloropropane	<0.0050	<0.0050	<0.0050	<0.0050	0.020
trans-1,3-Dichloropropylene	<0.0050	<0.0050	<0.0050	<0.0050	0.020
cis-1,3-Dichloropropylene	<0.0050	<0.0050	<0.0050	<0.0050	0.020
Dichlorotetrafluoroethane	<0.0050	<0.0050	<0.0050	<0.0050	0.020
Diisopropyl ether (DIPE)	<0.0050	<0.0050	<0.0050	<0.0050	0.020
1,4-Dioxane	<0.0050	<0.0050	<0.0050	<0.0050	0.020
Ethanol	<b>0.0063</b>	<0.0050	<0.0050	<0.0050	0.020
Ethyl Acetate	<0.0050	<0.0050	<0.0050	<0.0050	0.020
Ethylbenzene	<0.0050	<0.0050	<0.0050	<0.0050	0.020
Ethyl-tert-Butyl Ether (ETBE)	<0.0050	<0.0050	<0.0050	<0.0050	0.020
4-Ethyltoluene	<0.0050	<0.0050	<0.0050	<0.0050	0.020
Heptane	<0.0050	<0.0050	<0.0050	<0.0050	0.020
Hexachlorobutadiene	<0.0050	<0.0050	<0.0050	<0.0050	0.020
n-Hexane	<0.0050	<0.0050	<0.0050	<0.0050	0.020
2-Hexanone (MBK)	<0.0050	<0.0050	<0.0050	<0.0050	0.020
Isopropanol (IPA)	<0.050	<0.050	<0.050	<0.050	0.20
Methyl-tert-Butyl Ether (MTBE)	<0.0050	<0.0050	<0.0050	<0.0050	0.020
Methylene Chloride	<0.0050	<0.0050	<0.0050	<0.0050	0.020
4-Methyl-2-pentanone (MIBK)	<0.0050	<0.0050	<0.0050	<0.0050	0.020
Naphthalene	<0.00075	<0.00075	<0.00075	<0.00075	0.0030
Propylene	<0.0050	<0.0050	<0.0050	<0.0050	0.020
Styrene	<0.0050	<0.0050	<0.0050	<0.0050	0.020
1,1,2,2-Tetrachloroethane	<0.0050	<0.0050	<0.0050	<0.0050	0.020
Tetrachloroethylene (PCE)	<0.0025	<b>0.0028</b>	<0.0025	<b>0.016</b>	0.010
Tetrahydrofuran (THF)	<0.0050	<0.0050	<0.0050	<0.0050	0.020

**Allen Aminian**  
QA/QC Manager





## LABORATORY ANALYSIS RESULTS

<b>Client:</b>	CH2M Hill, Inc.	<b>AA Project No:</b>	MB187329
<b>Project No:</b>	693142	<b>Date Received:</b>	06/13/19
<b>Project Name:</b>	KMEP Norwalk Biosparge Startup	<b>Date Reported:</b>	06/24/19
<b>Method:</b>	VOCs by GCMS EPA TO-15 (Mid Level)	<b>Units:</b>	ug/L

<b>Date Sampled:</b>	06/12/19	06/12/19	06/12/19	06/12/19	
<b>Date Prepared:</b>	06/18/19	06/18/19	06/18/19	06/18/19	
<b>Date Analyzed:</b>	06/18/19	06/18/19	06/18/19	06/18/19	
<b>AA ID No:</b>	9F13006-13	9F13006-14	9F13006-15	9F13006-16	
<b>Client ID No:</b>	Ambient Air	SVM-12-7	SVM-12-15	SVM-12-22	
<b>Matrix:</b>	Vapor	Vapor	Vapor	Vapor	
<b>Dilution Factor:</b>	0.25	0.25	0.25	0.25	MRL

### TO-15 (Mid Level) (TO-15) (continued)

Toluene	$<0.0050$	$<0.0050$	$<0.0050$	$<0.0050$	0.020
1,2,4-Trichlorobenzene	$<0.0050$	$<0.0050$	$<0.0050$	$<0.0050$	0.020
1,1,2-Trichloroethane	$<0.0050$	$<0.0050$	$<0.0050$	$<0.0050$	0.020
1,1,1-Trichloroethane	$<0.0050$	$<0.0050$	$<0.0050$	$<0.0050$	0.020
Trichloroethylene (TCE)	$<0.0050$	$<0.0050$	$<0.0050$	$<0.0050$	0.020
Trichlorofluoromethane (R11)	$<0.0050$	$<0.0050$	$<0.0050$	$<0.0050$	0.020
1,1,2-Trichloro-1,2,2-trifluoroethane (R113)	$<0.0050$	$<0.0050$	$<0.0050$	$<0.0050$	0.020
1,3,5-Trimethylbenzene	$<0.0050$	$<0.0050$	$<0.0050$	$<0.0050$	0.020
1,2,4-Trimethylbenzene	$<0.0050$	<b>0.0051</b>	$<0.0050$	$<0.0050$	0.020
2,2,4-Trimethylpentane	$<0.0050$	$<0.0050$	$<0.0050$	$<0.0050$	0.020
Vinyl acetate	$<0.0050$	$<0.0050$	$<0.0050$	$<0.0050$	0.020
Vinyl bromide	$<0.0050$	$<0.0050$	$<0.0050$	$<0.0050$	0.020
Vinyl chloride	$<0.0050$	$<0.0050$	$<0.0050$	$<0.0050$	0.020
o-Xylene	$<0.0050$	$<0.0050$	$<0.0050$	$<0.0050$	0.020
m,p-Xylenes	$<0.0050$	<b>0.0079</b>	<b>0.0052</b>	<b>0.0052</b>	0.020
1,2,3-Trichloropropane	$<0.0050$	$<0.0050$	$<0.0050$	$<0.0050$	0.020
sec-Butylbenzene	$<0.0050$	$<0.0050$	$<0.0050$	$<0.0050$	0.020
Isopropylbenzene	$<0.0050$	$<0.0050$	$<0.0050$	$<0.0050$	0.020
n-Propylbenzene	$<0.0050$	$<0.0050$	$<0.0050$	$<0.0050$	0.020
4-Isopropyltoluene	$<0.0050$	$<0.0050$	$<0.0050$	$<0.0050$	0.020
n-Butylbenzene	$<0.0050$	$<0.0050$	$<0.0050$	$<0.0050$	0.020

<b>Surrogates</b>					<b>%REC Limits</b>
4-Bromofluorobenzene	100%	101%	101%	103%	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:** MB187329  
**Date Received:** 06/13/19  
**Date Reported:** 06/24/19  
**Units:** ug/L

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<b>Date Sampled:</b>	06/12/2019	
<b>Date Prepared:</b>	06/18/19	
<b>Date Analyzed:</b>	06/18/19	
<b>AA ID No:</b>	9F13006-17	
<b>Client ID No:</b>	SVM-14R-15	
<b>Matrix:</b>	Vapor	
<b>Dilution Factor:</b>	0.25	MRL

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### TO-15 (Mid Level) (TO-15)

Acetone	<0.0050	0.020
Allyl chloride	<0.0050	0.020
tert-Amyl-Methyl Ether (TAME)	<0.0050	0.020
Benzene	<0.00075	0.0030
Benzyl chloride	<0.0050	0.020
Bromodichloromethane	<0.0050	0.020
Bromoform	<0.0050	0.020
Bromomethane	<0.0050	0.020
1,3-Butadiene	<0.0050	0.020
2-Butanone (MEK)	<0.0050	0.020
tert-Butyl Alcohol (TBA)	<5.0	20
Carbon Disulfide	<0.0050	0.020
Carbon Tetrachloride	<0.0050	0.020
Chlorobenzene	<0.0050	0.020
Chloroethane	<0.0050	0.020
Chloroform	<0.0050	0.020
Chloromethane	<0.0050	0.020
Cyclohexane	<0.0050	0.020
Dibromochloromethane	<0.0050	0.020
1,2-Dibromoethane (EDB)	<0.0050	0.020
1,2-Dichlorobenzene	<0.0050	0.020
1,3-Dichlorobenzene	<0.0050	0.020
1,4-Dichlorobenzene	<0.0050	0.020
Dichlorodifluoromethane (R12)	<0.0050	0.020
1,1-Dichloroethane	<0.0050	0.020
1,2-Dichloroethane (EDC)	<0.0010	0.0040
cis-1,2-Dichloroethylene	<0.0050	0.020

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**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:** MB187329  
**Date Received:** 06/13/19  
**Date Reported:** 06/24/19  
**Units:** ug/L

---

<b>Date Sampled:</b>	06/12/2019	
<b>Date Prepared:</b>	06/18/19	
<b>Date Analyzed:</b>	06/18/19	
<b>AA ID No:</b>	9F13006-17	
<b>Client ID No:</b>	SVM-14R-15	
<b>Matrix:</b>	Vapor	
<b>Dilution Factor:</b>	0.25	MRL

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### TO-15 (Mid Level) (TO-15) (continued)

1,1-Dichloroethylene	<0.0050	0.020
trans-1,2-Dichloroethylene	<0.0050	0.020
1,2-Dichloropropane	<0.0050	0.020
trans-1,3-Dichloropropylene	<0.0050	0.020
cis-1,3-Dichloropropylene	<0.0050	0.020
Dichlorotetrafluoroethane	<0.0050	0.020
Diisopropyl ether (DIPE)	<0.0050	0.020
1,4-Dioxane	<0.0050	0.020
Ethanol	<0.0050	0.020
Ethyl Acetate	<0.0050	0.020
Ethylbenzene	<0.0050	0.020
Ethyl-tert-Butyl Ether (ETBE)	<0.0050	0.020
4-Ethyltoluene	<0.0050	0.020
Heptane	<0.0050	0.020
Hexachlorobutadiene	<0.0050	0.020
n-Hexane	<0.0050	0.020
2-Hexanone (MBK)	<0.0050	0.020
Isopropanol (IPA)	<0.050	0.20
Methyl-tert-Butyl Ether (MTBE)	<0.0050	0.020
Methylene Chloride	<0.0050	0.020
4-Methyl-2-pentanone (MIBK)	<0.0050	0.020
Naphthalene	<0.00075	0.0030
Propylene	<0.0050	0.020
Styrene	<0.0050	0.020
1,1,2,2-Tetrachloroethane	<0.0050	0.020
Tetrachloroethylene (PCE)	<0.0025	0.010
Tetrahydrofuran (THF)	<0.0050	0.020

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**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:** MB187329  
**Date Received:** 06/13/19  
**Date Reported:** 06/24/19  
**Units:** ug/L

<b>Date Sampled:</b>	06/12/2019	
<b>Date Prepared:</b>	06/18/19	
<b>Date Analyzed:</b>	06/18/19	
<b>AA ID No:</b>	9F13006-17	
<b>Client ID No:</b>	SVM-14R-15	
<b>Matrix:</b>	Vapor	
<b>Dilution Factor:</b>	0.25	MRL

### TO-15 (Mid Level) (TO-15) (continued)

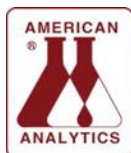
Toluene	<0.0050	0.020
1,2,4-Trichlorobenzene	<0.0050	0.020
1,1,2-Trichloroethane	<0.0050	0.020
1,1,1-Trichloroethane	<0.0050	0.020
Trichloroethylene (TCE)	<0.0050	0.020
Trichlorofluoromethane (R11)	<0.0050	0.020
1,1,2-Trichloro-1,2,2-trifluoroethane (R113)	<0.0050	0.020
1,3,5-Trimethylbenzene	<0.0050	0.020
1,2,4-Trimethylbenzene	<0.0050	0.020
2,2,4-Trimethylpentane	<0.0050	0.020
Vinyl acetate	<0.0050	0.020
Vinyl bromide	<0.0050	0.020
Vinyl chloride	<0.0050	0.020
o-Xylene	<0.0050	0.020
m,p-Xylenes	<0.0050	0.020
1,2,3-Trichloropropane	<0.0050	0.020
sec-Butylbenzene	<0.0050	0.020
Isopropylbenzene	<0.0050	0.020
n-Propylbenzene	<0.0050	0.020
4-Isopropyltoluene	<0.0050	0.020
n-Butylbenzene	<0.0050	0.020

### Surrogates

4-Bromofluorobenzene	102%	<b><u>%REC Limits</u></b> 70-130
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*Allen Aminian*

**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:** MB187329  
**Date Received:** 06/13/19  
**Date Reported:** 06/24/19  
**Units:** % by Volume

<b>Date Sampled:</b>	06/12/19	06/12/19	06/12/19	06/12/19	
<b>Date Prepared:</b>	06/21/19	06/21/19	06/21/19	06/21/19	
<b>Date Analyzed:</b>	06/21/19	06/21/19	06/21/19	06/21/19	
<b>AA ID No:</b>	9F13006-01	9F13006-02	9F13006-03	9F13006-04	
<b>Client ID No:</b>	SVM-3-5	SVM-3-15	SVM-16-22	SVM-11-7	
<b>Matrix:</b>	Vapor	Vapor	Vapor	Vapor	
<b>Dilution Factor:</b>	2	2	2	2	MRL

### Fixed Gases - Field (EPA 3CM)

Methane	<0.20	<0.20	<0.20	<0.20	0.10
Oxygen	<b>19</b>	<b>18</b>	<b>10</b>	<b>18</b>	0.10
Carbon Dioxide	<0.20	<0.20	<b>6.8</b>	<b>0.54</b>	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:** MB187329  
**Date Received:** 06/13/19  
**Date Reported:** 06/24/19  
**Units:** % by Volume

<b>Date Sampled:</b>	06/12/19	06/12/19	06/12/19	06/12/19	
<b>Date Prepared:</b>	06/21/19	06/21/19	06/21/19	06/21/19	
<b>Date Analyzed:</b>	06/21/19	06/21/19	06/21/19	06/21/19	
<b>AA ID No:</b>	9F13006-05	9F13006-06	9F13006-07	9F13006-08	
<b>Client ID No:</b>	SVM-11-22	SVM-11-15	SVM-13-7	SVM-13-22	
<b>Matrix:</b>	Vapor	Vapor	Vapor	Vapor	
<b>Dilution Factor:</b>	2	2	2	2	MRL

### Fixed Gases - Field (EPA 3CM)

Methane	<0.20	<0.20	<0.20	<0.20	0.10
Oxygen	<b>11</b>	<b>18</b>	<b>18</b>	<b>18</b>	0.10
Carbon Dioxide	<b>4.7</b>	<b>0.34</b>	<0.20	<b>0.22</b>	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:** MB187329  
**Date Received:** 06/13/19  
**Date Reported:** 06/24/19  
**Units:** % by Volume

<b>Date Sampled:</b>	06/12/19	06/12/19	06/12/19	06/12/19	
<b>Date Prepared:</b>	06/21/19	06/21/19	06/21/19	06/21/19	
<b>Date Analyzed:</b>	06/21/19	06/21/19	06/21/19	06/21/19	
<b>AA ID No:</b>	9F13006-09	9F13006-10	9F13006-11	9F13006-12	
<b>Client ID No:</b>	SVM-13-15	SVM-14R-8	SVM-14R-22	SVM-14R-22DUP	
<b>Matrix:</b>	Vapor	Vapor	Vapor	Vapor	
<b>Dilution Factor:</b>	2	2	2	2	MRL

#### Fixed Gases - Field (EPA 3CM)

Methane	<0.20	<0.20	<0.20	<0.20	0.10
Oxygen	<b>18</b>	<b>18</b>	<b>18</b>	<b>18</b>	0.10
Carbon Dioxide	<0.20	<b>0.49</b>	<b>0.37</b>	<b>0.29</b>	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:** MB187329  
**Date Received:** 06/13/19  
**Date Reported:** 06/24/19  
**Units:** % by Volume

<b>Date Sampled:</b>	06/12/19	06/12/19	06/12/19	06/12/19	
<b>Date Prepared:</b>	06/21/19	06/21/19	06/21/19	06/21/19	
<b>Date Analyzed:</b>	06/21/19	06/21/19	06/21/19	06/21/19	
<b>AA ID No:</b>	9F13006-14	9F13006-15	9F13006-16	9F13006-17	
<b>Client ID No:</b>	SVM-12-7	SVM-12-15	SVM-12-22	SVM-14R-15	
<b>Matrix:</b>	Vapor	Vapor	Vapor	Vapor	
<b>Dilution Factor:</b>	2	2	2	2	MRL

#### Fixed Gases - Field (EPA 3CM)

Methane	<0.20	<0.20	<0.20	<0.20	0.10
Oxygen	<b>17</b>	<b>16</b>	<b>13</b>	<b>17</b>	0.10
Carbon Dioxide	<b>0.96</b>	<b>0.87</b>	<b>2.9</b>	<b>1.2</b>	0.10

**Allen Aminian**  
 QA/QC Manager





## LABORATORY ANALYSIS RESULTS

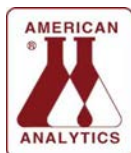
**Client:** CH2M Hill, Inc.  
**Project No:** 693142  
**Project Name:** KMEP Norwalk Biosparge Startup

**AA Project No:** MB187329  
**Date Received:** 06/13/19  
**Date Reported:** 06/24/19

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC %REC Limits	RPD	RPD Limit	Notes
<b>VOCs by EPA TO-3 - Quality Control</b>									
<i>Batch B9F2023 - *** DEFAULT PREP ***</i>									
<b>Blank (B9F2023-BLK1)</b>				Prepared & Analyzed: 06/17/19					
Gasoline Range Organics (GRO)	<20	20	ug/L						
Surrogate: 4-Bromofluorobenzene	0.0362		ug/L	0.036	101	70-130			
<b>LCS (B9F2023-BS1)</b>				Prepared & Analyzed: 06/18/19					
Gasoline Range Organics (GRO)	<b>0.803</b>	20	ug/L	0.82	98.2	70-130			
Surrogate: 4-Bromofluorobenzene	0.0348		ug/L	0.036	97.2	70-130			
<b>LCS Dup (B9F2023-BSD1)</b>				Prepared & Analyzed: 06/18/19					
Gasoline Range Organics (GRO)	<b>0.810</b>	20	ug/L	0.82	99.1	70-130	0.852	30	
Surrogate: 4-Bromofluorobenzene	0.0349		ug/L	0.036	97.4	70-130			
<i>Batch B9F2024 - *** DEFAULT PREP ***</i>									
<b>Blank (B9F2024-BLK1)</b>				Prepared & Analyzed: 06/18/19					
Gasoline Range Organics (GRO)	<20	20	ug/L						
Surrogate: 4-Bromofluorobenzene	0.0353		ug/L	0.036	98.6	70-130			
<b>LCS (B9F2024-BS1)</b>				Prepared & Analyzed: 06/19/19					
Gasoline Range Organics (GRO)	<b>0.782</b>	20	ug/L	0.82	95.6	70-130			
Surrogate: 4-Bromofluorobenzene	0.0359		ug/L	0.036	100	70-130			
<b>LCS Dup (B9F2024-BSD1)</b>				Prepared & Analyzed: 06/19/19					
Gasoline Range Organics (GRO)	<b>0.776</b>	20	ug/L	0.82	94.8	70-130	0.804	30	
Surrogate: 4-Bromofluorobenzene	0.0354		ug/L	0.036	99.0	70-130			
<b>VOCs by GCMS EPA TO-15 (Mid Level) - Quality Control</b>									
<i>Batch B9F2020 - *** DEFAULT PREP ***</i>									
<b>Blank (B9F2020-BLK1)</b>				Prepared & Analyzed: 06/17/19					
Acetone	<0.0050	0.0050	ug/L						
Allyl chloride	<0.0050	0.0050	ug/L						
tert-Amyl-Methyl Ether (TAME)	<0.0050	0.0050	ug/L						
Benzene	<0.00075	0.00075	ug/L						
Benzyl chloride	<0.0050	0.0050	ug/L						
Bromodichloromethane	<0.0050	0.0050	ug/L						
Bromoform	<0.0050	0.0050	ug/L						

*Allen Aminian*

**Allen Aminian**  
 QA/QC Manager



## LABORATORY ANALYSIS RESULTS

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

**AA Project No:** MB187329  
**Date Received:** 06/13/19  
**Date Reported:** 06/24/19

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC %REC	Limit	RPD	RPD Limit	Notes
<b>VOCs by GCMS EPA TO-15 (Mid Level) - Quality Control</b>										
<i>Batch B9F2020 - *** DEFAULT PREP ***</i>										
<b>Blank (B9F2020-BLK1) Continued</b>										
Prepared & Analyzed: 06/17/19										
Bromomethane	<0.0050	0.0050	ug/L							
1,3-Butadiene	<0.0050	0.0050	ug/L							
2-Butanone (MEK)	<0.0050	0.0050	ug/L							
tert-Butyl Alcohol (TBA)	<5.0	5.0	ug/L							
Carbon Disulfide	<0.0050	0.0050	ug/L							
Carbon Tetrachloride	<0.0050	0.0050	ug/L							
Chlorobenzene	<0.0050	0.0050	ug/L							
Chloroethane	<0.0050	0.0050	ug/L							
Chloroform	<0.0050	0.0050	ug/L							
Chloromethane	<0.0050	0.0050	ug/L							
Cyclohexane	<0.0050	0.0050	ug/L							
Dibromochloromethane	<0.0050	0.0050	ug/L							
1,2-Dibromoethane (EDB)	<0.0050	0.0050	ug/L							
1,2-Dichlorobenzene	<0.0050	0.0050	ug/L							
1,3-Dichlorobenzene	<0.0050	0.0050	ug/L							
1,4-Dichlorobenzene	<0.0050	0.0050	ug/L							
Dichlorodifluoromethane (R12)	<0.0050	0.0050	ug/L							
1,1-Dichloroethane	<0.0050	0.0050	ug/L							
1,2-Dichloroethane (EDC)	<0.0010	0.0010	ug/L							
cis-1,2-Dichloroethylene	<0.0050	0.0050	ug/L							
1,1-Dichloroethylene	<0.0050	0.0050	ug/L							
trans-1,2-Dichloroethylene	<0.0050	0.0050	ug/L							
1,2-Dichloropropane	<0.0050	0.0050	ug/L							
trans-1,3-Dichloropropylene	<0.0050	0.0050	ug/L							
cis-1,3-Dichloropropylene	<0.0050	0.0050	ug/L							
Dichlorotetrafluoroethane	<0.0050	0.0050	ug/L							
Diisopropyl ether (DIPE)	<0.0050	0.0050	ug/L							
1,4-Dioxane	<0.0050	0.0050	ug/L							
Ethanol	<0.0050	0.0050	ug/L							
Ethyl Acetate	<0.0050	0.0050	ug/L							
Ethylbenzene	<0.0050	0.0050	ug/L							
Ethyl-tert-Butyl Ether (ETBE)	<0.0050	0.0050	ug/L							

**Allen Aminian**  
 QA/QC Manager



## LABORATORY ANALYSIS RESULTS

**Client:** CH2M Hill, Inc.  
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**AA Project No:** MB187329  
**Date Received:** 06/13/19  
**Date Reported:** 06/24/19

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC %REC	Limits RPD	RPD Limit	Notes
<b>VOCs by GCMS EPA TO-15 (Mid Level) - Quality Control</b>									
<i>Batch B9F2020 - *** DEFAULT PREP ***</i>									
<b>Blank (B9F2020-BLK1) Continued</b>					Prepared & Analyzed: 06/17/19				
4-Ethyltoluene	<0.0050	0.0050	ug/L						
Heptane	<0.0050	0.0050	ug/L						
Hexachlorobutadiene	<0.0050	0.0050	ug/L						
n-Hexane	<0.0050	0.0050	ug/L						
2-Hexanone (MBK)	<0.0050	0.0050	ug/L						
Isopropanol (IPA)	<0.050	0.050	ug/L						
Methyl-tert-Butyl Ether (MTBE)	<0.0050	0.0050	ug/L						
Methylene Chloride	<0.0050	0.0050	ug/L						
4-Methyl-2-pentanone (MIBK)	<0.0050	0.0050	ug/L						
Naphthalene	<0.00075	0.00075	ug/L						
Propylene	<0.0050	0.0050	ug/L						
Styrene	<0.0050	0.0050	ug/L						
1,1,2,2-Tetrachloroethane	<0.0050	0.0050	ug/L						
Tetrachloroethylene (PCE)	<0.0025	0.0025	ug/L						
Tetrahydrofuran (THF)	<0.0050	0.0050	ug/L						
Toluene	<0.0050	0.0050	ug/L						
1,2,4-Trichlorobenzene	<0.0050	0.0050	ug/L						
1,1,2-Trichloroethane	<0.0050	0.0050	ug/L						
1,1,1-Trichloroethane	<0.0050	0.0050	ug/L						
Trichloroethylene (TCE)	<0.0050	0.0050	ug/L						
Trichlorofluoromethane (R11)	<0.0050	0.0050	ug/L						
1,1,2-Trichloro-1,2,2-trifluoroethane (R113)	<0.0050	0.0050	ug/L						
1,3,5-Trimethylbenzene	<0.0050	0.0050	ug/L						
1,2,4-Trimethylbenzene	<0.0050	0.0050	ug/L						
2,2,4-Trimethylpentane	<0.0050	0.0050	ug/L						
Vinyl acetate	<0.0050	0.0050	ug/L						
Vinyl bromide	<0.0050	0.0050	ug/L						
Vinyl chloride	<0.0050	0.0050	ug/L						
o-Xylene	<0.0050	0.0050	ug/L						
m,p-Xylenes	<0.0050	0.0050	ug/L						
1,2,3-Trichloropropane	<0.0050	0.0050	ug/L						

**Allen Aminian**  
 QA/QC Manager



## LABORATORY ANALYSIS RESULTS

**Client:** CH2M Hill, Inc.  
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Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>VOCs by GCMS EPA TO-15 (Mid Level) - Quality Control</b>										
<i>Batch B9F2020 - *** DEFAULT PREP ***</i>										
<b>Blank (B9F2020-BLK1) Continued</b>										
Prepared & Analyzed: 06/17/19										
sec-Butylbenzene	<0.0050	0.0050	ug/L							
Isopropylbenzene	<0.0050	0.0050	ug/L							
n-Propylbenzene	<0.0050	0.0050	ug/L							
4-Isopropyltoluene	<0.0050	0.0050	ug/L							
n-Butylbenzene	<0.020	0.020	ug/L							
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.153</i>		<i>ug/L</i>	<i>0.14</i>		<i>107</i>	<i>70-130</i>			
<b>LCS (B9F2020-BS1)</b>										
Prepared & Analyzed: 06/17/19										
Acetone	<b>0.0840</b>	0.020	ug/L	0.095		88.4	70-130		30	
Benzene	<b>0.123</b>	0.0030	ug/L	0.13		96.5	70-130		30	
Benzyl chloride	<b>0.191</b>	0.020	ug/L	0.21		92.1	70-130		30	
Bromodichloromethane	<b>0.287</b>	0.020	ug/L	0.27		107	70-130		30	
Bromoform	<b>0.449</b>	0.020	ug/L	0.41		109	70-130		30	
Bromomethane	<b>0.137</b>	0.020	ug/L	0.16		88.2	70-130		30	
2-Butanone (MEK)	<b>0.113</b>	0.020	ug/L	0.12		95.9	70-130		30	
Carbon Disulfide	<b>0.125</b>	0.020	ug/L	0.12		100	70-130		30	
Carbon Tetrachloride	<b>0.270</b>	0.020	ug/L	0.25		107	70-130		30	
Chlorobenzene	<b>0.184</b>	0.020	ug/L	0.18		100	70-130		30	
Chloroethane	<b>0.106</b>	0.020	ug/L	0.11		100	70-130		30	
Chloroform	<b>0.197</b>	0.020	ug/L	0.20		101	70-130		30	
Chloromethane	<b>0.0840</b>	0.020	ug/L	0.083		102	70-130		30	
Dibromochloromethane	<b>0.359</b>	0.020	ug/L	0.34		106	70-130		30	
1,2-Dibromoethane (EDB)	<b>0.306</b>	0.020	ug/L	0.31		99.6	70-130		30	
1,2-Dichlorobenzene	<b>0.202</b>	0.020	ug/L	0.24		84.0	70-130		30	
1,3-Dichlorobenzene	<b>0.184</b>	0.020	ug/L	0.24		76.5	70-130		30	
1,4-Dichlorobenzene	<b>0.205</b>	0.020	ug/L	0.24		85.4	70-130		30	
Dichlorodifluoromethane (R12)	<b>0.252</b>	0.020	ug/L	0.20		128	70-130		30	
1,1-Dichloroethane	<b>0.157</b>	0.020	ug/L	0.16		97.3	70-130		30	
1,2-Dichloroethane (EDC)	<b>0.164</b>	0.0040	ug/L	0.16		101	70-130		30	
cis-1,2-Dichloroethylene	<b>0.150</b>	0.020	ug/L	0.16		94.4	70-130		30	
1,1-Dichloroethylene	<b>0.156</b>	0.020	ug/L	0.16		98.3	70-130		30	
trans-1,2-Dichloroethylene	<b>0.158</b>	0.020	ug/L	0.16		99.4	70-130		30	

**Allen Aminian**  
 QA/QC Manager

**LABORATORY ANALYSIS RESULTS**

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**AA Project No:** MB187329  
**Date Received:** 06/13/19  
**Date Reported:** 06/24/19

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>VOCs by GCMS EPA TO-15 (Mid Level) - Quality Control</b>										
Batch B9F2020 - *** DEFAULT PREP ***										
<b>LCS (B9F2020-BS1) Continued</b>										
Prepared & Analyzed: 06/17/19										
1,2-Dichloropropane	0.184	0.020	ug/L	0.18		99.3	70-130		30	
trans-1,3-Dichloropropylene	0.178	0.020	ug/L	0.18		98.2	70-130		30	
cis-1,3-Dichloropropylene	0.181	0.020	ug/L	0.18		99.5	70-130		30	
Dichlorotetrafluoroethane	0.327	0.020	ug/L	0.28		117	70-130		30	
Ethylbenzene	0.163	0.020	ug/L	0.17		94.1	70-130		30	
4-Ethyltoluene	0.193	0.020	ug/L	0.20		98.0	70-130		30	
Hexachlorobutadiene	0.321	0.020	ug/L	0.43		75.3	70-130		30	
2-Hexanone (MBK)	0.212	0.020	ug/L	0.16		130	70-130		30	
Isopropanol (IPA)	0.108	0.20	ug/L	0.098		110	70-130		30	
Methylene Chloride	0.124	0.020	ug/L	0.14		89.2	70-130		30	
4-Methyl-2-pentanone (MIBK)	0.209	0.020	ug/L	0.16		127	70-130		30	
Styrene	0.159	0.020	ug/L	0.17		93.1	70-130		30	
1,1,2,2-Tetrachloroethane	0.187	0.020	ug/L	0.27		68.2	70-130		30	***
Tetrachloroethylene (PCE)	0.269	0.010	ug/L	0.27		99.2	70-130		30	
Toluene	0.153	0.020	ug/L	0.15		101	70-130		30	
1,2,4-Trichlorobenzene	0.197	0.020	ug/L	0.30		66.5	70-130		30	***
1,1,2-Trichloroethane	0.223	0.020	ug/L	0.22		102	70-130		30	
1,1,1-Trichloroethane	0.229	0.020	ug/L	0.22		105	70-130		30	
Trichloroethylene (TCE)	0.202	0.020	ug/L	0.21		94.0	70-130		30	
Trichlorofluoromethane (R11)	0.234	0.020	ug/L	0.22		104	70-130		30	
1,1,2-Trichloro-1,2,2-trifluoroethane (R113)	0.325	0.020	ug/L	0.31		106	70-130		30	
1,3,5-Trimethylbenzene	0.181	0.020	ug/L	0.20		91.9	70-130		30	
1,2,4-Trimethylbenzene	0.169	0.020	ug/L	0.20		85.9	70-130		30	
Vinyl acetate	0.136	0.020	ug/L	0.14		96.2	70-130		30	
Vinyl chloride	0.108	0.020	ug/L	0.10		106	70-130		30	
o-Xylene	0.161	0.020	ug/L	0.17		92.9	70-130		30	
m,p-Xylenes	0.316	0.020	ug/L	0.35		90.8	70-130		30	
1,2,3-Trichloropropane	0.305	0.020	ug/L	0.24		127	70-130		30	
sec-Butylbenzene	0.264	0.020	ug/L	0.22		120	70-130		30	
Isopropylbenzene	0.208	0.020	ug/L	0.20		106	70-130		30	
n-Propylbenzene	0.198	0.020	ug/L	0.20		100	70-130		30	

**Allen Aminian**  
QA/QC Manager

**LABORATORY ANALYSIS RESULTS**

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**AA Project No:** MB187329  
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Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>VOCs by GCMS EPA TO-15 (Mid Level) - Quality Control</b>										
<i>Batch B9F2020 - *** DEFAULT PREP ***</i>										
<b>LCS (B9F2020-BS1) Continued</b>					Prepared & Analyzed: 06/17/19					
4-Isopropyltoluene	<b>0.285</b>	0.020	ug/L	0.22		130	70-130		30	
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.155</i>		<i>ug/L</i>	<i>0.14</i>		<i>108</i>	<i>70-130</i>			
<b>LCS Dup (B9F2020-BSD1)</b>					Prepared & Analyzed: 06/18/19					
Acetone	<b>0.0871</b>	0.020	ug/L	0.095		91.6	70-130	3.55	30	
Benzene	<b>0.132</b>	0.0030	ug/L	0.13		103	70-130	6.90	30	
Benzyl chloride	<b>0.205</b>	0.020	ug/L	0.21		99.2	70-130	7.39	30	
Bromodichloromethane	<b>0.301</b>	0.020	ug/L	0.27		112	70-130	4.74	30	
Bromoform	<b>0.507</b>	0.020	ug/L	0.41		123	70-130	12.3	30	
Bromomethane	<b>0.142</b>	0.020	ug/L	0.16		91.7	70-130	3.89	30	
2-Butanone (MEK)	<b>0.116</b>	0.020	ug/L	0.12		98.2	70-130	2.42	30	
Carbon Disulfide	<b>0.130</b>	0.020	ug/L	0.12		104	70-130	4.13	30	
Carbon Tetrachloride	<b>0.292</b>	0.020	ug/L	0.25		116	70-130	7.77	30	
Chlorobenzene	<b>0.208</b>	0.020	ug/L	0.18		113	70-130	12.2	30	
Chloroethane	<b>0.109</b>	0.020	ug/L	0.11		104	70-130	3.34	30	
Chloroform	<b>0.209</b>	0.020	ug/L	0.20		107	70-130	5.97	30	
Chloromethane	<b>0.0860</b>	0.020	ug/L	0.083		104	70-130	2.36	30	
Dibromochloromethane	<b>0.386</b>	0.020	ug/L	0.34		113	70-130	7.00	30	
1,2-Dibromoethane (EDB)	<b>0.329</b>	0.020	ug/L	0.31		107	70-130	7.26	30	
1,2-Dichlorobenzene	<b>0.220</b>	0.020	ug/L	0.24		91.5	70-130	8.57	30	
1,3-Dichlorobenzene	<b>0.205</b>	0.020	ug/L	0.24		85.4	70-130	11.0	30	
1,4-Dichlorobenzene	<b>0.223</b>	0.020	ug/L	0.24		92.8	70-130	8.25	30	
Dichlorodifluoromethane (R12)	<b>0.247</b>	0.020	ug/L	0.20		125	70-130	2.18	30	
1,1-Dichloroethane	<b>0.166</b>	0.020	ug/L	0.16		103	70-130	5.28	30	
1,2-Dichloroethane (EDC)	<b>0.172</b>	0.0040	ug/L	0.16		106	70-130	4.90	30	
cis-1,2-Dichloroethylene	<b>0.155</b>	0.020	ug/L	0.16		98.0	70-130	3.69	30	
1,1-Dichloroethylene	<b>0.171</b>	0.020	ug/L	0.16		108	70-130	9.22	30	
trans-1,2-Dichloroethylene	<b>0.167</b>	0.020	ug/L	0.16		105	70-130	5.81	30	
1,2-Dichloropropane	<b>0.196</b>	0.020	ug/L	0.18		106	70-130	6.55	30	
trans-1,3-Dichloropropylene	<b>0.185</b>	0.020	ug/L	0.18		102	70-130	3.58	30	
cis-1,3-Dichloropropylene	<b>0.194</b>	0.020	ug/L	0.18		107	70-130	7.06	30	
Dichlorotetrafluoroethane	<b>0.350</b>	0.020	ug/L	0.28		125	70-130	6.78	30	

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QA/QC Manager



## LABORATORY ANALYSIS RESULTS

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Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>VOCs by GCMS EPA TO-15 (Mid Level) - Quality Control</b>										
<i>Batch B9F2020 - *** DEFAULT PREP ***</i>										
<b>LCS Dup (B9F2020-BSD1) Continued</b>										
Prepared & Analyzed: 06/18/19										
Ethylbenzene	0.179	0.020	ug/L	0.17		103	70-130	9.20	30	
4-Ethyltoluene	0.211	0.020	ug/L	0.20		107	70-130	8.78	30	
Hexachlorobutadiene	0.374	0.020	ug/L	0.43		87.8	70-130	15.3	30	
2-Hexanone (MBK)	0.200	0.020	ug/L	0.16		122	70-130	5.89	30	
Isopropanol (IPA)	0.102	0.20	ug/L	0.098		103	70-130	6.16	30	
Methylene Chloride	0.126	0.020	ug/L	0.14		90.3	70-130	1.25	30	
4-Methyl-2-pentanone (MIBK)	0.208	0.020	ug/L	0.16		127	70-130	0.0983	30	
Styrene	0.177	0.020	ug/L	0.17		104	70-130	10.8	30	
1,1,2,2-Tetrachloroethane	0.211	0.020	ug/L	0.27		76.8	70-130	11.8	30	
Tetrachloroethylene (PCE)	0.290	0.010	ug/L	0.27		107	70-130	7.33	30	
Toluene	0.162	0.020	ug/L	0.15		108	70-130	6.17	30	
1,2,4-Trichlorobenzene	0.215	0.020	ug/L	0.30		72.5	70-130	8.67	30	
1,1,2-Trichloroethane	0.241	0.020	ug/L	0.22		111	70-130	8.02	30	
1,1,1-Trichloroethane	0.243	0.020	ug/L	0.22		111	70-130	6.11	30	
Trichloroethylene (TCE)	0.223	0.020	ug/L	0.21		104	70-130	9.64	30	
Trichlorofluoromethane (R11)	0.251	0.020	ug/L	0.22		112	70-130	7.39	30	
1,1,2-Trichloro-1,2,2-trifluoroethane (R113)	0.339	0.020	ug/L	0.31		111	70-130	4.15	30	
1,3,5-Trimethylbenzene	0.195	0.020	ug/L	0.20		99.0	70-130	7.36	30	
1,2,4-Trimethylbenzene	0.189	0.020	ug/L	0.20		96.2	70-130	11.3	30	
Vinyl acetate	0.141	0.020	ug/L	0.14		100	70-130	3.80	30	
Vinyl chloride	0.110	0.020	ug/L	0.10		108	70-130	1.64	30	
o-Xylene	0.180	0.020	ug/L	0.17		104	70-130	10.9	30	
m,p-Xylenes	0.342	0.020	ug/L	0.35		98.5	70-130	8.05	30	
1,2,3-Trichloropropane	0.266	0.020	ug/L	0.24		110	70-130	13.8	30	
sec-Butylbenzene	0.282	0.020	ug/L	0.22		128	70-130	6.25	30	
Isopropylbenzene	0.229	0.020	ug/L	0.20		116	70-130	9.86	30	
n-Propylbenzene	0.215	0.020	ug/L	0.20		110	70-130	8.62	30	
4-Isopropyltoluene	0.318	0.020	ug/L	0.22		145	70-130	11.1	30	**
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.159</i>		<i>ug/L</i>	<i>0.14</i>		<i>111</i>	<i>70-130</i>			
<i>Batch B9F2021 - *** DEFAULT PREP ***</i>										

**Allen Aminian**  
 QA/QC Manager



## LABORATORY ANALYSIS RESULTS

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

**AA Project No:** MB187329  
**Date Received:** 06/13/19  
**Date Reported:** 06/24/19

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>VOCs by GCMS EPA TO-15 (Mid Level) - Quality Control</b>										
<i>Batch B9F2021 - *** DEFAULT PREP ***</i>										
<b>Blank (B9F2021-BLK1)</b>										
Prepared & Analyzed: 06/18/19										
Acetone	<0.0050	0.0050	ug/L							
Allyl chloride	<0.0050	0.0050	ug/L							
tert-Amyl-Methyl Ether (TAME)	<0.0050	0.0050	ug/L							
Benzene	<0.00075	0.00075	ug/L							
Benzyl chloride	<0.0050	0.0050	ug/L							
Bromodichloromethane	<0.0050	0.0050	ug/L							
Bromoform	<0.0050	0.0050	ug/L							
Bromomethane	<0.0050	0.0050	ug/L							
1,3-Butadiene	<0.0050	0.0050	ug/L							
2-Butanone (MEK)	<0.0050	0.0050	ug/L							
tert-Butyl Alcohol (TBA)	<5.0	5.0	ug/L							
Carbon Disulfide	<0.0050	0.0050	ug/L							
Carbon Tetrachloride	<0.0050	0.0050	ug/L							
Chlorobenzene	<0.0050	0.0050	ug/L							
Chloroethane	<0.0050	0.0050	ug/L							
Chloroform	<0.0050	0.0050	ug/L							
Chloromethane	<0.0050	0.0050	ug/L							
Cyclohexane	<0.0050	0.0050	ug/L							
Dibromochloromethane	<0.0050	0.0050	ug/L							
1,2-Dibromoethane (EDB)	<0.0050	0.0050	ug/L							
1,2-Dichlorobenzene	<0.0050	0.0050	ug/L							
1,3-Dichlorobenzene	<0.0050	0.0050	ug/L							
1,4-Dichlorobenzene	<0.0050	0.0050	ug/L							
Dichlorodifluoromethane (R12)	<0.0050	0.0050	ug/L							
1,1-Dichloroethane	<0.0050	0.0050	ug/L							
1,2-Dichloroethane (EDC)	<0.0010	0.0010	ug/L							
cis-1,2-Dichloroethylene	<0.0050	0.0050	ug/L							
1,1-Dichloroethylene	<0.0050	0.0050	ug/L							
trans-1,2-Dichloroethylene	<0.0050	0.0050	ug/L							
1,2-Dichloropropane	<0.0050	0.0050	ug/L							
trans-1,3-Dichloropropylene	<0.0050	0.0050	ug/L							
cis-1,3-Dichloropropylene	<0.0050	0.0050	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:** MB187329  
**Date Received:** 06/13/19  
**Date Reported:** 06/24/19

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC %REC	Limits	RPD	RPD Limit	Notes
<b>VOCs by GCMS EPA TO-15 (Mid Level) - Quality Control</b>										
<i>Batch B9F2021 - *** DEFAULT PREP ***</i>										
<b>Blank (B9F2021-BLK1) Continued</b>										
Prepared & Analyzed: 06/18/19										
Dichlorotetrafluoroethane	<0.0050	0.0050	ug/L							
Diisopropyl ether (DIPE)	<0.0050	0.0050	ug/L							
1,4-Dioxane	<0.0050	0.0050	ug/L							
Ethanol	<0.0050	0.0050	ug/L							
Ethyl Acetate	<0.0050	0.0050	ug/L							
Ethylbenzene	<0.0050	0.0050	ug/L							
Ethyl-tert-Butyl Ether (ETBE)	<0.0050	0.0050	ug/L							
4-Ethyltoluene	<0.0050	0.0050	ug/L							
Heptane	<0.0050	0.0050	ug/L							
Hexachlorobutadiene	<0.0050	0.0050	ug/L							
n-Hexane	<0.0050	0.0050	ug/L							
2-Hexanone (MBK)	<0.0050	0.0050	ug/L							
Isopropanol (IPA)	<0.050	0.050	ug/L							
Methyl-tert-Butyl Ether (MTBE)	<0.0050	0.0050	ug/L							
Methylene Chloride	<0.0050	0.0050	ug/L							
4-Methyl-2-pentanone (MIBK)	<0.0050	0.0050	ug/L							
Naphthalene	<0.00075	0.00075	ug/L							
Propylene	<0.0050	0.0050	ug/L							
Styrene	<0.0050	0.0050	ug/L							
1,1,2,2-Tetrachloroethane	<0.0050	0.0050	ug/L							
Tetrachloroethylene (PCE)	<0.0025	0.0025	ug/L							
Tetrahydrofuran (THF)	<0.0050	0.0050	ug/L							
Toluene	<0.0050	0.0050	ug/L							
1,2,4-Trichlorobenzene	<0.0050	0.0050	ug/L							
1,1,2-Trichloroethane	<0.0050	0.0050	ug/L							
1,1,1-Trichloroethane	<0.0050	0.0050	ug/L							
Trichloroethylene (TCE)	<0.0050	0.0050	ug/L							
Trichlorofluoromethane (R11)	<0.0050	0.0050	ug/L							
1,1,2-Trichloro-1,2,2-trifluoroethane (R113)	<0.0050	0.0050	ug/L							
1,3,5-Trimethylbenzene	<0.0050	0.0050	ug/L							
1,2,4-Trimethylbenzene	<0.0050	0.0050	ug/L							

**Allen Aminian**  
QA/QC Manager



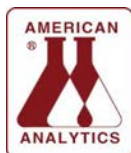
## LABORATORY ANALYSIS RESULTS

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

**AA Project No:** MB187329  
**Date Received:** 06/13/19  
**Date Reported:** 06/24/19

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>VOCs by GCMS EPA TO-15 (Mid Level) - Quality Control</b>										
<i>Batch B9F2021 - *** DEFAULT PREP ***</i>										
<b>Blank (B9F2021-BLK1) Continued</b>										
Prepared & Analyzed: 06/18/19										
2,2,4-Trimethylpentane	<0.0050	0.0050	ug/L							
Vinyl acetate	<0.0050	0.0050	ug/L							
Vinyl bromide	<0.0050	0.0050	ug/L							
Vinyl chloride	<0.0050	0.0050	ug/L							
o-Xylene	<0.0050	0.0050	ug/L							
m,p-Xylenes	<0.0050	0.0050	ug/L							
1,2,3-Trichloropropane	<0.0050	0.0050	ug/L							
sec-Butylbenzene	<0.0050	0.0050	ug/L							
Isopropylbenzene	<0.0050	0.0050	ug/L							
n-Propylbenzene	<0.0050	0.0050	ug/L							
4-Isopropyltoluene	<0.0050	0.0050	ug/L							
n-Butylbenzene	<0.0050	0.0050	ug/L							
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.144</i>		<i>ug/L</i>	<i>0.14</i>		<i>100</i>	<i>70-130</i>			
<b>LCS (B9F2021-BS1)</b>										
Prepared & Analyzed: 06/19/19										
Acetone	<b>0.0858</b>	0.020	ug/L	0.095		90.3	70-130		30	
Benzene	<b>0.131</b>	0.0030	ug/L	0.13		103	70-130		30	
Benzyl chloride	<b>0.183</b>	0.020	ug/L	0.21		88.4	70-130		30	
Bromodichloromethane	<b>0.313</b>	0.020	ug/L	0.27		117	70-130		30	
Bromoform	<b>0.474</b>	0.020	ug/L	0.41		115	70-130		30	
Bromomethane	<b>0.143</b>	0.020	ug/L	0.16		91.8	70-130		30	
2-Butanone (MEK)	<b>0.119</b>	0.020	ug/L	0.12		101	70-130		30	
Carbon Disulfide	<b>0.127</b>	0.020	ug/L	0.12		102	70-130		30	
Carbon Tetrachloride	<b>0.292</b>	0.020	ug/L	0.25		116	70-130		30	
Chlorobenzene	<b>0.193</b>	0.020	ug/L	0.18		105	70-130		30	
Chloroethane	<b>0.111</b>	0.020	ug/L	0.11		105	70-130		30	
Chloroform	<b>0.210</b>	0.020	ug/L	0.20		108	70-130		30	
Chloromethane	<b>0.0878</b>	0.020	ug/L	0.083		106	70-130		30	
Dibromochloromethane	<b>0.387</b>	0.020	ug/L	0.34		114	70-130		30	
1,2-Dibromoethane (EDB)	<b>0.329</b>	0.020	ug/L	0.31		107	70-130		30	
1,2-Dichlorobenzene	<b>0.204</b>	0.020	ug/L	0.24		85.0	70-130		30	
1,3-Dichlorobenzene	<b>0.193</b>	0.020	ug/L	0.24		80.1	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:** MB187329  
**Date Received:** 06/13/19  
**Date Reported:** 06/24/19

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>VOCs by GCMS EPA TO-15 (Mid Level) - Quality Control</b>										
<i>Batch B9F2021 - *** DEFAULT PREP ***</i>										
<b>LCS (B9F2021-BS1) Continued</b>						Prepared & Analyzed: 06/19/19				
1,4-Dichlorobenzene	<b>0.214</b>	0.020	ug/L	0.24		88.8	70-130		30	
Dichlorodifluoromethane (R12)	<b>0.255</b>	0.020	ug/L	0.20		129	70-130		30	
1,1-Dichloroethane	<b>0.166</b>	0.020	ug/L	0.16		103	70-130		30	
1,2-Dichloroethane (EDC)	<b>0.172</b>	0.0040	ug/L	0.16		106	70-130		30	
cis-1,2-Dichloroethylene	<b>0.157</b>	0.020	ug/L	0.16		98.8	70-130		30	
1,1-Dichloroethylene	<b>0.172</b>	0.020	ug/L	0.16		108	70-130		30	
trans-1,2-Dichloroethylene	<b>0.165</b>	0.020	ug/L	0.16		104	70-130		30	
1,2-Dichloropropane	<b>0.198</b>	0.020	ug/L	0.18		107	70-130		30	
trans-1,3-Dichloropropylene	<b>0.186</b>	0.020	ug/L	0.18		102	70-130		30	
cis-1,3-Dichloropropylene	<b>0.190</b>	0.020	ug/L	0.18		104	70-130		30	
Dichlorotetrafluoroethane	<b>0.347</b>	0.020	ug/L	0.28		124	70-130		30	
Ethylbenzene	<b>0.171</b>	0.020	ug/L	0.17		98.7	70-130		30	
4-Ethyltoluene	<b>0.213</b>	0.020	ug/L	0.20		109	70-130		30	
Hexachlorobutadiene	<b>0.329</b>	0.020	ug/L	0.43		77.2	70-130		30	
2-Hexanone (MBK)	<b>0.187</b>	0.020	ug/L	0.16		114	70-130		30	
Isopropanol (IPA)	<b>0.0930</b>	0.20	ug/L	0.098		94.6	70-130		30	
Methylene Chloride	<b>0.127</b>	0.020	ug/L	0.14		91.5	70-130		30	
4-Methyl-2-pentanone (MIBK)	<b>0.208</b>	0.020	ug/L	0.16		127	70-130		30	
Styrene	<b>0.166</b>	0.020	ug/L	0.17		97.3	70-130		30	
1,1,2,2-Tetrachloroethane	<b>0.197</b>	0.020	ug/L	0.27		71.7	70-130		30	
Tetrachloroethylene (PCE)	<b>0.291</b>	0.010	ug/L	0.27		107	70-130		30	
Toluene	<b>0.162</b>	0.020	ug/L	0.15		108	70-130		30	
1,2,4-Trichlorobenzene	<b>0.193</b>	0.020	ug/L	0.30		65.1	70-130		30	***
1,1,2-Trichloroethane	<b>0.238</b>	0.020	ug/L	0.22		109	70-130		30	
1,1,1-Trichloroethane	<b>0.242</b>	0.020	ug/L	0.22		111	70-130		30	
Trichloroethylene (TCE)	<b>0.223</b>	0.020	ug/L	0.21		104	70-130		30	
Trichlorofluoromethane (R11)	<b>0.252</b>	0.020	ug/L	0.22		112	70-130		30	
1,1,2-Trichloro-1,2,2-trifluoroethane (R113)	<b>0.344</b>	0.020	ug/L	0.31		112	70-130		30	
1,3,5-Trimethylbenzene	<b>0.180</b>	0.020	ug/L	0.20		91.6	70-130		30	
1,2,4-Trimethylbenzene	<b>0.172</b>	0.020	ug/L	0.20		87.3	70-130		30	
Vinyl acetate	<b>0.144</b>	0.020	ug/L	0.14		102	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:** MB187329  
**Date Received:** 06/13/19  
**Date Reported:** 06/24/19

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**VOCs by GCMS EPA TO-15 (Mid Level) - Quality Control**

Batch B9F2021 - \*\*\* DEFAULT PREP \*\*\*

**LCS (B9F2021-BS1) Continued**

Prepared &amp; Analyzed: 06/19/19

Vinyl chloride	0.112	0.020	ug/L	0.10		110	70-130		30	
o-Xylene	0.170	0.020	ug/L	0.17		97.8	70-130		30	
m,p-Xylenes	0.330	0.020	ug/L	0.35		95.1	70-130		30	
1,2,3-Trichloropropane	0.268	0.020	ug/L	0.24		111	70-130		30	
sec-Butylbenzene	0.279	0.020	ug/L	0.22		127	70-130		30	
Isopropylbenzene	0.221	0.020	ug/L	0.20		112	70-130		30	
n-Propylbenzene	0.194	0.020	ug/L	0.20		98.8	70-130		30	
4-Isopropyltoluene	0.278	0.020	ug/L	0.22		127	70-130		30	

Surrogate: 4-Bromofluorobenzene 0.145

ug/L 0.14 101 70-130

**LCS Dup (B9F2021-BSD1)**

Prepared &amp; Analyzed: 06/19/19

Acetone	0.0844	0.020	ug/L	0.095		88.8	70-130	1.65	30	
Benzene	0.127	0.0030	ug/L	0.13		99.6	70-130	3.24	30	
Benzyl chloride	0.197	0.020	ug/L	0.21		95.0	70-130	7.20	30	
Bromodichloromethane	0.310	0.020	ug/L	0.27		116	70-130	0.688	30	
Bromoform	0.481	0.020	ug/L	0.41		116	70-130	1.41	30	
Bromomethane	0.140	0.020	ug/L	0.16		90.1	70-130	1.79	30	
2-Butanone (MEK)	0.115	0.020	ug/L	0.12		97.3	70-130	3.34	30	
Carbon Disulfide	0.125	0.020	ug/L	0.12		99.9	70-130	2.25	30	
Carbon Tetrachloride	0.299	0.020	ug/L	0.25		119	70-130	2.45	30	
Chlorobenzene	0.199	0.020	ug/L	0.18		108	70-130	2.77	30	
Chloroethane	0.107	0.020	ug/L	0.11		101	70-130	3.71	30	
Chloroform	0.201	0.020	ug/L	0.20		103	70-130	4.64	30	
Chloromethane	0.0858	0.020	ug/L	0.083		104	70-130	2.26	30	
Dibromochloromethane	0.390	0.020	ug/L	0.34		114	70-130	0.790	30	
1,2-Dibromoethane (EDB)	0.335	0.020	ug/L	0.31		109	70-130	1.83	30	
1,2-Dichlorobenzene	0.216	0.020	ug/L	0.24		90.0	70-130	5.63	30	
1,3-Dichlorobenzene	0.220	0.020	ug/L	0.24		91.3	70-130	13.1	30	
1,4-Dichlorobenzene	0.226	0.020	ug/L	0.24		94.2	70-130	5.85	30	
Dichlorodifluoromethane (R12)	0.254	0.020	ug/L	0.20		128	70-130	0.622	30	
1,1-Dichloroethane	0.164	0.020	ug/L	0.16		101	70-130	1.64	30	
1,2-Dichloroethane (EDC)	0.168	0.0040	ug/L	0.16		104	70-130	2.07	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:** MB187329  
**Date Received:** 06/13/19  
**Date Reported:** 06/24/19

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>VOCs by GCMS EPA TO-15 (Mid Level) - Quality Control</b>										
<i>Batch B9F2021 - *** DEFAULT PREP ***</i>										
<b>LCS Dup (B9F2021-BSD1) Continued</b>										
Prepared & Analyzed: 06/19/19										
cis-1,2-Dichloroethylene	0.155	0.020	ug/L	0.16		97.5	70-130	1.27	30	
1,1-Dichloroethylene	0.165	0.020	ug/L	0.16		104	70-130	4.10	30	
trans-1,2-Dichloroethylene	0.163	0.020	ug/L	0.16		102	70-130	1.48	30	
1,2-Dichloropropane	0.200	0.020	ug/L	0.18		108	70-130	0.720	30	
trans-1,3-Dichloropropylene	0.191	0.020	ug/L	0.18		105	70-130	2.48	30	
cis-1,3-Dichloropropylene	0.196	0.020	ug/L	0.18		108	70-130	3.50	30	
Dichlorotetrafluoroethane	0.338	0.020	ug/L	0.28		121	70-130	2.49	30	
Ethylbenzene	0.175	0.020	ug/L	0.17		101	70-130	2.25	30	
4-Ethyltoluene	0.192	0.020	ug/L	0.20		97.8	70-130	10.3	30	
Hexachlorobutadiene	0.356	0.020	ug/L	0.43		83.4	70-130	7.72	30	
2-Hexanone (MBK)	0.210	0.020	ug/L	0.16		128	70-130	11.9	30	
Isopropanol (IPA)	0.102	0.20	ug/L	0.098		104	70-130	9.63	30	
Methylene Chloride	0.123	0.020	ug/L	0.14		88.5	70-130	3.31	30	
4-Methyl-2-pentanone (MIBK)	0.212	0.020	ug/L	0.16		129	70-130	1.86	30	
Styrene	0.167	0.020	ug/L	0.17		98.3	70-130	1.07	30	
1,1,2,2-Tetrachloroethane	0.200	0.020	ug/L	0.27		72.8	70-130	1.45	30	
Tetrachloroethylene (PCE)	0.296	0.010	ug/L	0.27		109	70-130	1.73	30	
Toluene	0.167	0.020	ug/L	0.15		111	70-130	2.77	30	
1,2,4-Trichlorobenzene	0.210	0.020	ug/L	0.30		70.7	70-130	8.21	30	
1,1,2-Trichloroethane	0.242	0.020	ug/L	0.22		111	70-130	1.52	30	
1,1,1-Trichloroethane	0.242	0.020	ug/L	0.22		111	70-130	0.180	30	
Trichloroethylene (TCE)	0.223	0.020	ug/L	0.21		104	70-130	0.0723	30	
Trichlorofluoromethane (R11)	0.249	0.020	ug/L	0.22		111	70-130	1.08	30	
1,1,2-Trichloro-1,2,2-trifluoroethane (R113)	0.338	0.020	ug/L	0.31		110	70-130	1.82	30	
1,3,5-Trimethylbenzene	0.187	0.020	ug/L	0.20		95.3	70-130	3.91	30	
1,2,4-Trimethylbenzene	0.180	0.020	ug/L	0.20		91.5	70-130	4.61	30	
Vinyl acetate	0.139	0.020	ug/L	0.14		98.6	70-130	3.54	30	
Vinyl chloride	0.109	0.020	ug/L	0.10		107	70-130	2.72	30	
o-Xylene	0.171	0.020	ug/L	0.17		98.2	70-130	0.434	30	
m,p-Xylenes	0.311	0.020	ug/L	0.35		89.5	70-130	6.07	30	
1,2,3-Trichloropropane	0.276	0.020	ug/L	0.24		114	70-130	2.79	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:** MB187329  
**Date Received:** 06/13/19  
**Date Reported:** 06/24/19

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>VOCs by GCMS EPA TO-15 (Mid Level) - Quality Control</b>										
<i>Batch B9F2021 - *** DEFAULT PREP ***</i>										
<b>LCS Dup (B9F2021-BSD1) Continued</b>					Prepared & Analyzed: 06/19/19					
sec-Butylbenzene	<b>0.281</b>	0.020	ug/L	0.22		128	70-130	0.824	30	
Isopropylbenzene	<b>0.229</b>	0.020	ug/L	0.20		117	70-130	3.85	30	
n-Propylbenzene	<b>0.214</b>	0.020	ug/L	0.20		109	70-130	9.57	30	
4-Isopropyltoluene	<b>0.278</b>	0.020	ug/L	0.22		126	70-130	0.0791	30	
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.150</i>		<i>ug/L</i>	<i>0.14</i>		<i>105</i>	<i>70-130</i>			
<b>Fixed Gases by TCD - Quality Control</b>										
<i>Batch B9F2426 - *** DEFAULT PREP ***</i>										
<b>Blank (B9F2426-BLK1)</b>					Prepared & Analyzed: 06/21/19					
Methane	<0.10	0.10	% by Volume							
Oxygen	<0.10	0.10	% by Volume							
Carbon Dioxide	<0.10	0.10	% by Volume							
<b>LCS (B9F2426-BS1)</b>					Prepared & Analyzed: 06/21/19					
Methane	<b>4.08</b>	0.10	% by Volume	5.0		81.5	75-125			
Oxygen	<b>3.81</b>	0.10	% by Volume	4.0		95.2	75-125			
Carbon Dioxide	<b>14.2</b>	0.10	% by Volume	15		94.4	75-125			
<b>LCS Dup (B9F2426-BSD1)</b>					Prepared & Analyzed: 06/21/19					
Methane	<b>4.13</b>	0.10	% by Volume	5.0		82.6	75-125	1.27	30	
Oxygen	<b>3.94</b>	0.10	% by Volume	4.0		98.6	75-125	3.46	30	
Carbon Dioxide	<b>13.6</b>	0.10	% by Volume	15		90.6	75-125	4.16	30	

**Allen Aminian**  
QA/QC Manager



## LABORATORY ANALYSIS RESULTS

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### Special Notes

- [1] = \*\* : Exceeds upper control limit.
- [2] = \*\*\* : Exceeds lower control limit.
- [3] = **AA-C2** : Analyte may be a lab contaminant.

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A handwritten signature in black ink, appearing to read 'Allen Aminian'.

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**Allen Aminian**  
QA/QC Manager





