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Los Angeles Region
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June 17, 2016

Subject: Horizontal Pilot Testing Project – Results of April 2016 Soil Vapor Monitoring at the South-Central Area of the SFPP Norwalk Pump Station, Norwalk, California

Dear Mr. Cho,

This letter report presents the results of the soil vapor monitoring conducted in April 2016 at the SFPP Norwalk Pump Station, located at 15306 Norwalk Boulevard, Norwalk, California (the site; Figure 1). The soil vapor work was performed by CH2M HILL Engineers, Inc. (CH2M), on behalf of SFPP, L.P. (SFPP), as part of the pilot testing program for SFPP's horizontal biosparge system. Groundwater monitoring data collected as part of the pilot testing will be provided under separate cover in a comprehensive evaluation report that will be prepared after additional data are collected. Both soil vapor and groundwater monitoring are conducted in general accordance with the approved *Horizontal Biosparge System Construction and Pilot Test Work Plan* (CH2M, 2013). The project background, purpose, approach, and results of the soil vapor monitoring are presented below, followed by a summary and recommendations.

Background

In August 2014, SFPP completed installation of a horizontal biosparge system to enhance mass removal of hydrocarbon constituents beneath the south-central area of the site. Construction of the biosparge well is documented in the report titled, *Horizontal Biosparge Well and Soil Vapor Monitoring Probe Completion Report SFPP Norwalk Pump Station, 15306 Norwalk Boulevard, Norwalk, California* (CH2M, 2015). Pilot testing of the system was initiated on January 6, 2016, and is anticipated to continue for approximately 1 year in order to evaluate the feasibility of system expansion.

During biosparge system startup, ambient air was injected into the biosparge well, via a rotary screw air compressor, at increasing flow rates over several weeks until the maximum design rate of approximately 500 standard cubic feet per minute (scfm) was achieved. Soil vapor monitoring of onsite and offsite soil vapor probes was conducted to ensure that shallow subsurface vapors do not pose an unacceptable human health risk to residents in the offsite area south of the site during biosparge system operations. Soil vapor monitoring results from January and February 2016 were documented in the report titled, *Horizontal Pilot Testing Project – Results of January and February 2016 Soil Vapor Monitoring at the South-Central Area of the SFPP Norwalk Pump Station, Norwalk, California* (CH2M, 2016).

Soil vapor monitoring data were not collected in March 2016 due to downtime of SFPP's soil vapor extraction (SVE) and biosparge systems. The SVE system has an interlock, which ensures that biosparging cannot occur unless the SVE system is operating. Operation of the SVE system reduces the potential for offgassing of volatile organic compounds (VOCs) during biosparge operations. The SVE and

biosparge systems remained offline until the planned first semiannual groundwater monitoring event was completed. Biosparge system operations resumed on April 14, 2016, at a flow rate of approximately 240 scfm, which is approximately 50 percent of the design flow rate of 500 scfm. Onsite and offsite soil vapor monitoring probes were monitored using a mobile laboratory under these conditions. The flow rate was maintained at approximately 240 scfm through the end of April 2016.

Purpose

The purpose of the soil vapor monitoring is to ensure that shallow subsurface vapors do not pose an unacceptable human health risk to residents in the offsite area south of the site during biosparge system operations.

Approach

CH2M retained American Analytics of Chatsworth, California, to collect and analyze soil vapor samples from the soil vapor monitoring network (SVM-1 through SVM-3, SVM-5 through SVM-8, and SVM-10 through SVM-16). Probes SVM-11 through SVM-14 are located onsite; the remaining probes are in the offsite area. Figure 2 shows the location of soil vapor monitoring probes and the horizontal biosparge well. Figure 3 shows the completion details of a typical nested probe. A mobile laboratory was used by American Analytics for onsite analysis of soil vapor samples. Field photoionization detector (PID) and vacuum measurements were also taken by CH2M staff prior to sample collection. The technical approach and analytical results are discussed below.

PID and Vacuum Measurements

A CH2M engineer collected field VOCs measurements from the south-central area soil vapor probe network using a PID calibrated against hexane. Field readings were collected after each probe was purged approximately three system volumes using a hand-held portable vacuum pump. A vacuum measurement was also collected from each probe using a digital manometer.

Monitoring with Mobile Laboratory

Soil vapor samples were collected by American Analytics and analyzed onsite using its mobile laboratory under the direction of CH2M. Sampling was conducted from April 27 to 29, 2016. The soil vapor probes at each monitoring location were purged and sampled in accordance with the recommended guidelines in the Department of Toxic Substances Control (DTSC) *Advisory for Active Soil Gas Investigations* (Advisory), dated July 2015 (DTSC, 2015). The analytical results were evaluated by comparison with soil gas screening levels based on the most current DTSC guidance (DTSC, 2015). The soil gas screening levels are calculated from indoor air screening levels published by DTSC in its Human Health Risk Assessment (HHRA) Note 3 (DTSC, 2016) using the default attenuation factors presented in DTSC's vapor intrusion guidance (DTSC, 2011).

Sampling and Analysis

As described above, soil vapor sampling was conducted from probes SVM-1 through SVM-3, SVM-5 through SVM-8, and SVM-10 through SVM-16. The soil vapor probes from each monitoring location were purged and sampled using a vacuum/pressure sampling pump calibrated to a flow rate of 200 milliliters per minute in accordance with recommended flow rates in the Advisory (DTSC, 2015).

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. The shallow and deep probes of SVM-9 are located in the southeastern area (outside of the pilot testing area) and were therefore not monitored.

Soil vapor samples were collected using 1.4-liter Summa canisters and glass syringes, and were analyzed by the American Analytics onsite mobile laboratory for VOCs using U.S. Environmental Protection Agency (EPA) Method TO-15. Total petroleum hydrocarbons quantified as gasoline (TPH-g) were analyzed using EPA Method TO-3, and fixed gases (carbon dioxide, methane, and oxygen) were analyzed using EPA Method 3C. Included in the TO-15 list of analytes were benzene, toluene, ethylbenzene, and total xylenes (BTEX); methyl tert-butyl ether (MTBE); naphthalene; tert-butyl alcohol (TBA [also known as tert-butanol]); 1,2-dichloroethane; 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 chemicals of potential concern (COPCs) based on the results of the 2006 soil gas investigation and HHRA (Geomatrix, 2006).

In accordance with the Advisory (DTSC, 2015), field duplicate soil vapor samples were collected at a minimum frequency of 1 per every 20 soil vapor samples collected. Duplicate soil vapor samples were collected at SVM-7 (7-foot depth), SVM-12 (15-foot depth), and SVM-14 (15-foot depth). The duplicate samples were collected and analyzed in the same manner as the primary samples.

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

Field PID and Vacuum Results

Table 1 presents a summary of field VOCs (using a PID) and vacuum measurements collected from the south-central area soil vapor monitoring network during the April 2016 event. The biosparge system flow rate during soil vapor monitoring was approximately 240 scfm; the SVE system was operational during monitoring. The following observations were made.

Offsite Probes

- Shallow, middle, and deep probe depths in the offsite soil vapor probes did not have detectable VOCs (concentration of 0.0 parts per million by volume [ppmv]), with the exception that the deepest probe (22-foot depth) of SVM-16 had a VOC concentration of 5.8 ppmv.
- Vacuum (pressure) measurements ranged from 0 inches of water (in. H_2O) in many offsite probes to negative 165.5 in. H_2O in the shallow probe (7.5-foot depth) of SVM-10. Negative values are indicative of negative pressure created by nearby vapor extraction wells.

Onsite Probes

- Shallow, middle, and deep probe depths in the onsite soil vapor probes did not have detectable VOCs, with the exception that the middle probe (15-foot depth) and deepest probe (22-foot depth) of SVM-14 had VOC concentrations of 2.6 ppmv and greater than 15,000 ppmv, respectively. SVM-14 is located less than 10 feet from the horizontal biosparge well; therefore, elevated VOC concentrations at this location were not unexpected.
- Vacuum measurements ranged from negative 18.6 in. H_2O in the deepest probe (22.5-foot depth) of SVM-13 to positive 25.2 in. H_2O in the deepest probe (22-foot depth) of SVM-14. The maximum positive pressure that was reported at the deepest probe of SVM-14 also was not unexpected due to its close lateral and vertical proximity to the biosparge well.

Mobile Laboratory Results

Table 2 presents the analytical results for samples collected during the April 2016 sampling event. Laboratory analytical reports are included in Attachment A. A summary of results is provided below.

Offsite Probes

- VOCs and TPH-g were nondetect at offsite probes SVM-1 through SVM-3, SVM-5 through SVM-8, SVM-10, and SVM-15.
- VOCs and TPH-g were nondetect in the shallow probe (7-foot depth) and middle probe (16-foot depth) of SVM-16. In the deepest probe (22-foot depth) of SVM-16, heptane and n-hexane were detected at concentrations of 0.071 micrograms per liter (μg/L) and 0.093 μg/L, respectively. There are no established screening levels for heptane. The reported concentration of n-hexane was below screening levels under residential and commercial scenarios. TPH-g was nondetect in the 22-foot depth of SVM-16.

Onsite Probes

- VOCs and TPH-g were nondetect at onsite probes SVM-11 and SVM-13.
- An isolated detection of 2,2,4-trimethylpentane (non-COPC; 0.03 μg/L) was reported in the deepest probe (22-foot depth) of SVM-12, at a concentration near the laboratory reporting limit. There are no established screening levels for 2,2,4-trimethylpentane. TPH-g and VOCs were nondetect in the shallow probe (7-foot depth) and middle probe (15-foot depth) of SVM-12.
- VOCs and TPH-g were nondetect in the shallow probe (5-foot depth) of SVM-14. Three VOCs (m,p-xylenes, o-xylene, and toluene) were detected in the primary and field duplicate samples of the middle probe (15-foot depth) of SVM-14 at concentrations below screening levels under residential and commercial scenarios. TPH-g and all other VOCs were nondetect at this depth. Six VOCs (1,2,4-trimethylbenzene, 1,3,5-trimethylbezene, ethylbenzene, m,p-xylenes, o-xylenes, and 4-ethyltoluene) and TPH-g were detected in the deep probe (22-foot depth) of SVM-14. Of these, 1,2,4-trimethylbenzene (100 μg/L), ethylbenzene (10 μg/L), and TPH-g (3,200 μg/L) were detected at concentrations above screening levels under residential and commercial scenarios. m,p-Xylenes (210 μg/L) and o-xylenes (120 μg/L) were detected above residential screening levels but below commercial screening levels. 1,3,5-Trimethylbenzene and non-COPC 4-ethyltoluene were detected at concentrations of 76 μg/L and 120 μg/L, respectively, in the 22-foot depth of SVM-14. There are no established screening levels for 1,3,5-trimethylbeznene and 4-ethyltoluene.

Summary and Recommendations

Soil vapor monitoring was conducted in the south-central area of the SFPP Norwalk Pump Station during biosparging operations in April 2016. The purpose of the soil vapor monitoring is to ensure that shallow subsurface vapors do not pose an unacceptable human health risk to residents in the offsite area south of the site during biosparge system operations. The SVE remained online during biosparge operations (and soil vapor monitoring) to reduce the potential for offgassing of subsurface VOCs. Monitoring included the collection of field VOCs and vacuum measurements using hand-held field equipment (PID, digital manometer) and sampling and analysis of soil vapor samples using an onsite mobile laboratory.

The soil vapor probes monitored were SVM-1 through SVM-3, SVM-5 through SVM-8, and SVM-10 through SVM-16. The deep probe of SVM-2 and shallow probe of SVM-10 were not monitored due to flow restrictions (excessive vacuum) observed during purging activities. The shallow and deep probes of SVM-4 also were not monitored due to property access restrictions. The shallow and deep probes of SVM-9 are located in the southeastern area (outside of the pilot testing area) and were therefore not monitored.

Analytical results from the mobile laboratory were generally consistent with field PID measurements collected during this event.

- In the offsite area, VOCs and TPH-g were nondetect in all probes with the exception of SVM-16 where a low-level detection of heptane and n-hexane (non-COPCs) were detected at the 22-foot depth. These isolated detections were below established screening levels under residential and commercial scenarios.
- In the onsite area, VOCs and TPH-g were nondetect in SVM-11 and SVM-13. A low-level detection of non-COPC 2,2,4-trimethylpentane was detected in the deepest (22-foot depth) of SVM-12. Detections of VOCs and/or TPH-g were reported in remaining onsite probe SVM-14 in the middle and deeper probe depths. Detections in the middle probe depth were below residential and commercial screening levels. VOCs and TPH-g detections in the deeper probe depth of SVM-14 were above either the residential and/or commercial screening level. 1,3,5-Trimethylbenene and 4-ethyltoluene also were detected in the deeper probe depth of SVM-14, but there are no established screening levels for these constituents. Elevated VOCs and TPH-g concentrations in the deepest probe (22-foot depth) of SVM-14 were not unexpected given that the hydrocarbon smear zone occurs at an average depth of approximately 27 to 31 feet below ground surface in the south-central area.

Based on the data collected thus far, SFPP recommends continued operation of the biosparge system and continued monthly sampling of the south-central soil vapor monitoring network using the mobile laboratory contractor. Shallow soil vapor in the offsite area does not pose an unacceptable human health risk to residents based on the data collected since startup. The SVE system will continue to remain online during biosparging operations. Additional soil vapor monitoring reports will be prepared and submitted to the Regional Water Quality Control Board, Los Angeles Region and Restoration Advisory Board as new data become available.

If you have any questions regarding this report, please contact Dan Jablonski at (213) 228-8271, or Mr. Stephen Defibaugh, Kinder Morgan's Remediation Project Manager, at (714) 560-4802.

Regards,

CH2M HILL Engineers, Inc.

Dan Jablonski
Project Manager

John Lowe, CIH
Vapor Intrusion Consultant

Attachments:

References

Tables

Table 1 – Soil Vapor Probe Field VOCs and Vacuum Readings – April 2016
Table 2 – Mobile Laboratory Soil Vapor Analytical Results – April 2016

Figures

Figure 1 – Site Location Map
Figure 2 – Soil Vapor Monitoring Probe Locations
Figure 3 – Typical Nested Soil Vapor Monitoring Probe Completion Diagram

Attachment A – Mobile Laboratory Analytical Reports

Distribution:

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References

CH2M HILL (CH2M). 2013. *Horizontal Biosparge System Construction and Pilot Test Work Plan, SFPP Norwalk Pump Station, 15306 Norwalk Boulevard, Norwalk, California.* November 18.

CH2M HILL (CH2M). 2015. *Horizontal Biosparge Well and Soil Vapor Monitoring Probe Completion Report SFPP Norwalk Pump Station, 15306 Norwalk Boulevard, Norwalk, California*. February 18.

CH2M HILL (CH2M). 2016. *Horizontal Pilot Testing Project – Results of January and February 2016 Soil Vapor Monitoring at the South-Central Area of the SFPP Norwalk Pump Station, Norwalk, California*. April 19.

Department of Toxic Substances Control (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

Department of Toxic Substances Control (DTSC). 2015. *Advisory for Active Soil Gas Investigations.* July.

Department of Toxic Substances Control (DTSC). 2016. *Human Health Risk Assessment (HHRA) Note Number 3: DTSC Recommended Methodology for use of U.S. EPA Regional Screening Levels (RSLs) in the Human Health Risk Assessment Process at Hazardous Waste Sites and Permitted Facilities.* https://www.dtsc.ca.gov/AssessingRisk/upload/HHRA-Note-3-2016-01.pdf

Geomatrix. 2006. *Vapor Intrusion Sampling and Human Health Risk Assessment, DFSP Norwalk Facility, Norwalk, California*. December.

Tables

Table 1. Soil Vapor Probe Field VOCs and Vacuum Readings - April 2016

SFPP Norwalk Pump Station, Norwalk, California

			Date		4/27/16 to 4/29/16	
			SVE System		On	
			BS System		On	
			BS Flow Rate (scfm)		240	
			Screen Interval (feet bgs)			
Probe	Location	Zone	From	To	VOCs[a] (ppmv)	Vacuum (in. H_2O)
SVM-1	Offsite	Shallow	5	5.5	0	-0.5
SVM-1	Offsite	Deep	14.5	15	0	-1.8
SVM-2	Offsite	Shallow	5	5.5	0	0
SVM-2	Offsite	Deep	14.5	15	--	--
SVM-3	Offsite	Shallow	5	5.5	0	0
SVM-3	Offsite	Deep	15	15.5	0	0
SVM-5	Offsite	Shallow	5	5.5	0	0
SVM-5	Offsite	Deep	15.5	16	0	-3.7
SVM-6	Offsite	Shallow	6.5	7	0	0
SVM-6	Offsite	Deep	15.5	16	0	-2.5
SVM-7	Offsite	Shallow	7	7.5	0	0
SVM-7	Offsite	Deep	13.25	13.75	0	-0.5
SVM-8	Offsite	Shallow	5	5.5	0	0
SVM-8	Offsite	Deep	15	15.5	0	-1.1
SVM-10	Offsite	Shallow	7.5	8	--	-165.5
SVM-10	Offsite	Deep	15.5	16	0	0
SVM-11	Onsite	Shallow	7	7.5	0	0
SVM-11	Onsite	Middle	15	15.5	0	0
SVM-11	Onsite	Deep	21	21.5	0	0
SVM-12	Onsite	Shallow	7	7.5	0	0
SVM-12	Onsite	Middle	15	15.5	0	0
SVM-12	Onsite	Deep	22	22.5	0	0
SVM-13	Onsite	Shallow	7	7.5	0	-2.1
SVM-13	Onsite	Middle	15.5	16	0	-14.2
SVM-13	Onsite	Deep	22.5	23	0	-18.6
SVM-14	Onsite	Shallow	7	7.5	0	0
SVM-14	Onsite	Middle	15	15.5	2.6	1
SVM-14	Onsite	Deep	22	22.5	>15000	25.2
SVM-15	Offsite	Shallow	7	7.5	0	0
SVM-15	Offsite	Middle	15	15.5	0	0
SVM-15	Offsite	Deep	22	22.5	0	-8.5
SVM-16	Offsite	Shallow	7	7.5	0	0
SVM-16	Offsite	Middle	15.5	16	0	-0.6
SVM-16	Offsite	Deep	22	22.5	5.8	-1.1

Notes:

[a] MiniRae 3000 PID calibrated to 50 ppmv hexane

bgs - below ground surface

in. H_2O - inches of water

PID - photoionization detector

ppmv - parts per million by volume

scfm - standard cubic feet per minute

SVE - soil vapor extraction

VOC = volatile organic compound

Table 2. Mobile Laboratory Soil Vapor Analytical Results - April 2016

SFPP Norwalk Pump Station, Norwalk, California

Analyte Type	Analyte	Unit	Current Residential Soil Gas Screening Level[a,b]	Current Commercial Soil Gas Screening Level[a,b]	SVM-1-5 4/27/2016 SVM-1 5-5.5	SVM-1-15 4/27/2016 SVM-1 15-15.5	SVM-2-5 4/27/2016 SVM-2 5-5.5	SVM-3-5 4/28/2016 SVM-3 5-5.5	SVM-3-15 4/28/2016 SVM-3 15-15.5	SVM-5-5 4/28/2016 SVM-5 5-5.5	SVM-5-15 4/28/2016 SVM-5 15-15.5	SVM-6-7 4/27/2016 SVM-6 7-7.5	SVM-6-16 4/27/2016 SVM-6 16-16.5	SVM-7-7 4/27/2016 SVM-7 7-7.5	SVM-7-7 DUP 4/27/2016 SVM-7 7-7.5	SVM-7-13 4/27/2016 SVM-7 13-13.5	SVM-8-5 4/28/2016 SVM-8 5-5.5	SVM-8-15 4/28/2016 SVM-8 15-15.5	SVM-10-7 4/27/2016 SVM-10 7-7.5
COPCs[d]	1,2,4-Trimethylbenzene	µg/L	7.3	31	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
	1,2-Dichloroethane	µg/L	0.11	0.47	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
	1,3,5-Trimethylbenzene	µg/L	---	---	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
	2-Propanol (leak test compound)	µg/L	---	---	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
	Benzene	µg/L	0.084	0.42	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
	Ethylbenzene	µg/L	1.1	4.9	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
	Isopropylbenzene	µg/L	---	---	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
	m,p-Xylenes	µg/L	100	440	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
	Methyl tert-butyl ether (MTBE)	µg/L	11	47	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
	Naphthalene	µg/L	0.083	0.36	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
	n-Butylbenzene	µg/L	---	---	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
	n-Propylbenzene	µg/L	1000	4400	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
	o-Xylene	µg/L	100	440	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
	sec-Butylbenzene	µg/L	---	---	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
	tert-Butanol (TBA)	µg/L	---	---	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
	Toluene	µg/L	310	1300	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Other Detected Compounds (non-COPCs)	2,2,4-Trimethylpentane	µg/L	---	---	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
	4-Ethyltoluene	µg/L	---	---	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
	Heptane	µg/L	---	---	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
	n-Hexane	µg/L	730	3100	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
	TPH-G (C4-C12)	µg/L	630[c]	2600[c]	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
Fixed Gases	Methane	% v/v	---	---	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	**18**
	Oxygen	% v/v	---	---	**18**	**19**	**19**	**19**	**18**	**18**	**18**	**18**	**19**	**18**	**18**	**19**	**19**	18	**0.21**
	Carbon Dioxide	% v/v	---	---	<0.1	<0.1	**0.16**	**0.16**	**0.2**	<0.1	<0.1	<0.1	<0.1	**0.36**	**0.34**	**0.25**	**0.14**	**0.1**	<0.1

Table 2. Mobile Laboratory Soil Vapor Analytical Results - April 2016

SFPP Norwalk Pump Station, Norwalk, California

Analyte Type	Analyte	Unit	Current Residential Soil Gas Screening Level[a,b]	Current Commercial Soil Gas Screening Level[a,b]	SVM-10-15 4/27/2016 SVM-10 15-15.5	SVM-11-7 4/29/2016 SVM-11 7-7.5	SVM-11-15 4/29/2016 SVM-11 15-15.5	SVM-11-22 4/29/2016 SVM-11 22-22.5	SVM-12-7 4/28/2016 SVM-12 7-7.5	SVM-12-15 4/28/2016 SVM-12 15-15.5	SVM-12-15 DUP 4/28/2016 SVM-12 15-15.5	SVM-12-22 4/28/2016 SVM-12 22-22.5	SVM-13-7 4/29/2016 SVM-13 7-7.5	SVM-13-15.5 4/29/2016 SVM-13 15.5-16	SVM-13-22.5 4/29/2016 SVM-13 22.5-23	SVM-14-7 4/29/2016 SVM-14 7-7.5	SVM-14-15 4/29/2016 SVM-14 15-15.5	SVM-14-15 DUP 4/29/2016 SVM-14 15-15.5	SVM-14-22 4/29/2016 SVM-14 22-22.5
COPCs[d]	1,2,4-Trimethylbenzene	µg/L	7.3	31	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	**100**
	1,2-Dichloroethane	µg/L	0.11	0.47	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<8
	1,3,5-Trimethylbenzene	µg/L	---	---	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	**76**
	2-Propanol (leak test compound)	µg/L	---	---	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<80
	Benzene	µg/L	0.084	0.42	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<8
	Ethylbenzene	µg/L	1.1	4.9	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	**10**
	Isopropylbenzene	µg/L	---	---	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<8
	m,p-Xylenes	µg/L	100	440	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	**0.1**	**0.1**	**210**
	Methyl tert-butyl ether (MTBE)	µg/L	11	47	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<8
	Naphthalene	µg/L	0.083	0.36	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<8
	n-Butylbenzene	µg/L	---	---	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<8
	n-Propylbenzene	µg/L	1000	4400	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<8
	o-Xylene	µg/L	100	440	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	**0.048**	**0.048**	**120**
	sec-Butylbenzene	µg/L	---	---	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<8
	tert-Butanol (TBA)	µg/L	---	---	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<8000
	Toluene	µg/L	310	1300	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	**0.054**	**0.054**	<8
Other Detected Compounds (non-COPCs)	2,2,4-Trimethylpentane	µg/L	---	---	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	**0.03**	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<8
	4-Ethyltoluene	µg/L	---	---	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	**120**
	Heptane	µg/L	---	---	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<8
	n-Hexane	µg/L	730	3100	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<8
	TPH-G (C4-C12)	µg/L	630[c]	2600[c]	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	**3200**
Fixed Gases	Methane	% v/v	---	---	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Oxygen	% v/v	---	---	**17**	**19**	**18**	**18**	**17**	**14**	**14**	**6**	**18**	**18**	**17**	**17**	**17**	**17**	**17**
	Carbon Dioxide	% v/v	---	---	**3.1**	**0.43**	**0.37**	<0.1	**0.51**	**2.1**	**2.1**	**8.4**	<0.1	<0.1	**0.58**	**1.4**	**1.3**	**1.2**	**0.83**

Table 2. Mobile Laboratory Soil Vapor Analytical Results - April 2016

SFPP Norwalk Pump Station, Norwalk, California

Analyte Type	Analyte	Unit	Current Residential Soil Gas Screening Level[a,b]	Current Commercial Soil Gas Screening Level[a,b]	SVM-15-7 4/27/2016 SVM-15 7-7.5	SVM-15-15 4/27/2016 SVM-15 15-15.5	SVM-15-22 4/27/2016 SVM-15 22-22.5	SVM-16-7 4/28/2016 SVM-16 7-7.5	SVM-16-16 4/28/2016 SVM-16 16-16.5	SVM-16-22 4/28/2016 SVM-16 22-22.5	Ambient Air 4/27/2016	Ambient Air 4/28/2016	Ambient Air 4/29/2016
COPCs[d]	1,2,4-Trimethylbenzene	µg/L	7.3	31	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
	1,2-Dichloroethane	µg/L	0.11	0.47	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
	1,3,5-Trimethylbenzene	µg/L	---	---	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
	2-Propanol (leak test compound)	µg/L	---	---	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
	Benzene	µg/L	0.084	0.42	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
	Ethylbenzene	µg/L	1.1	4.9	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
	Isopropylbenzene	µg/L	---	---	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
	m,p-Xylenes	µg/L	100	440	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
	Methyl tert-butyl ether (MTBE)	µg/L	11	47	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
	Naphthalene	µg/L	0.083	0.36	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
	n-Butylbenzene	µg/L	---	---	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
	n-Propylbenzene	µg/L	1000	4400	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
	o-Xylene	µg/L	100	440	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
	sec-Butylbenzene	µg/L	---	---	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
	tert-Butanol (TBA)	µg/L	---	---	<20	<20	<20	<20	<20	<20	<20	<20	<20
	Toluene	µg/L	310	1300	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Other Detected Compounds (non-COPCs)	2,2,4-Trimethylpentane	µg/L	---	---	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
	4-Ethyltoluene	µg/L	---	---	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
	Heptane	µg/L	---	---	<0.02	<0.02	<0.02	<0.02	<0.02	**0.071**	<0.02	<0.02	<0.02
	n-Hexane	µg/L	730	3100	<0.02	<0.02	<0.02	<0.02	<0.02	**0.093**	<0.02	<0.02	<0.02
	TPH-G (C4-C12)	µg/L	630[c]	2600[c]	<20	<20	<20	<20	<20	<20	<20	<20	<20
Fixed Gases	Methane	% v/v	---	---	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Oxygen	% v/v	---	---	**19**	**19**	**19**	**19**	**18**	**9.8**	**19**	**19**	**18**
	Carbon Dioxide	% v/v	---	---	**0.11**	**0.11**	**0.19**	**0.27**	**0.32**	**6.9**	<0.1	<0.1	<0.1

Notes:

[a] Source for the Indoor Air Screening Levels: DTSC. 2016. Human Health Risk Assessment (HHRA) Note Number 3: DTSC Recommended Methodology for use of U.S. EPA Regional Screening Levels (RSLs) in the Human Health Risk Assessment Process at Hazardous Waste Sites and Permitted Facilities. https://www.dtsc.ca.gov/AssessingRisk/upload/HHRA-Note-3-2016-01.pdf

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

[c] TPH aliphatic low screening level used for TPH-g screening levels

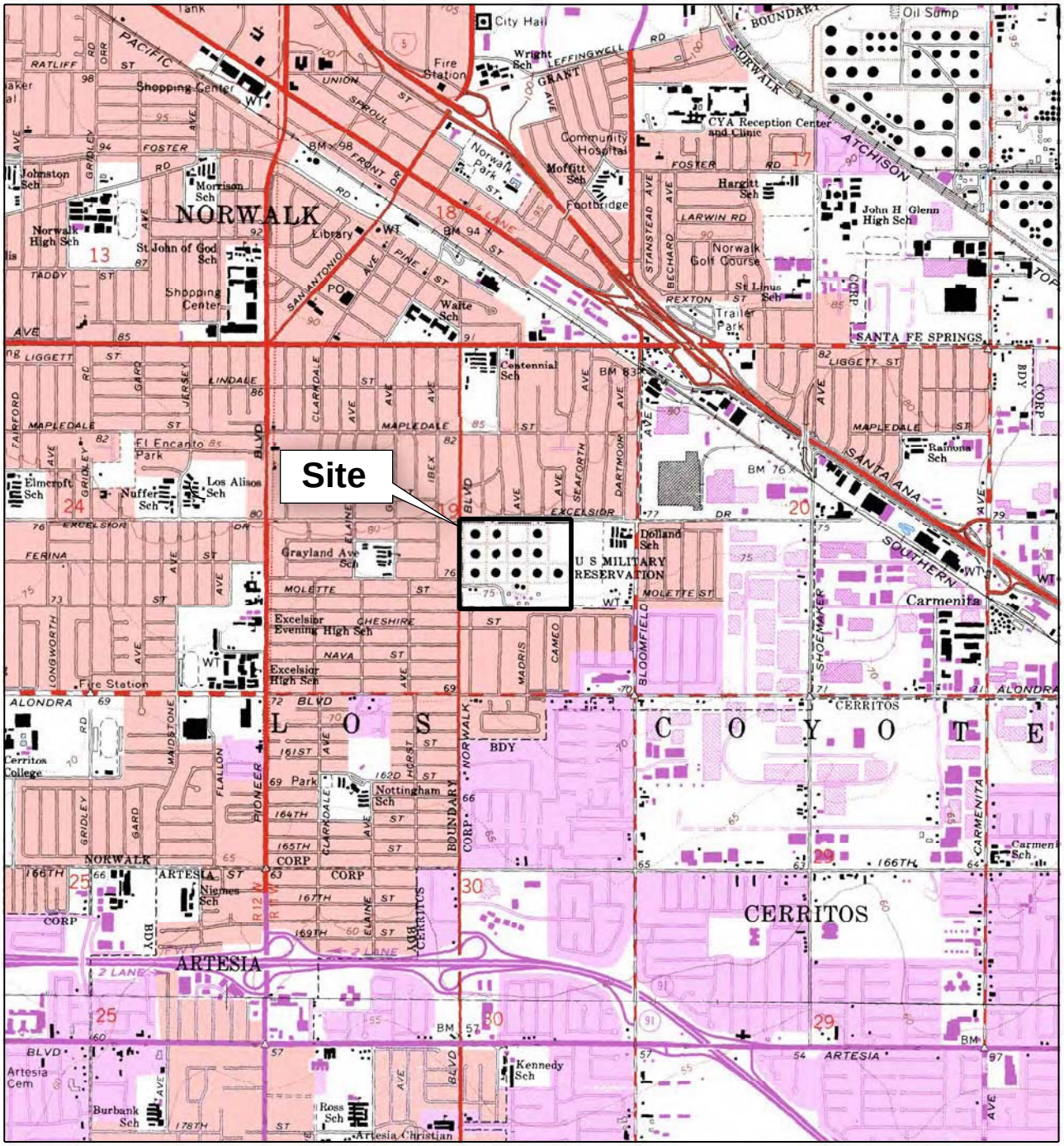
[d] Chemicals of potential concern identified from 2006 soil gas investigation and human health risk assessment (Geomatrix, 2006).

100 Yellow highlighting indicates concentration exceeds human health screening level under residential and/or commercial scenarios.

--- = 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
DUP = field duplicate
TPH-g = total petroleum hydrocarbons quantified as gasoline

5-5.5 = sample depth in feet below ground surface
4/27/2016 = sample date
SVM-1 = sample location
SVM-1-5 = sample ID

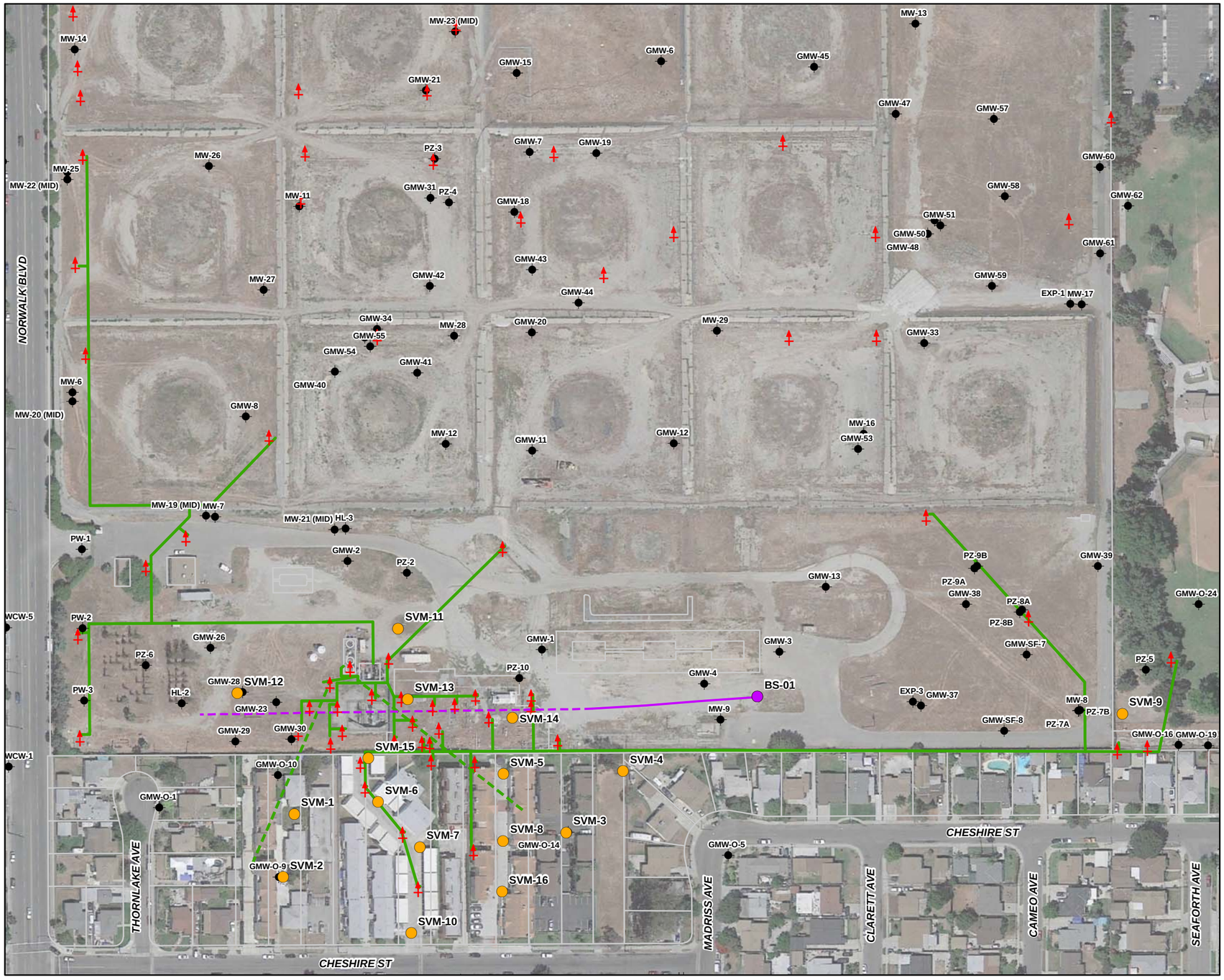
Figures



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.

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

ch2m



Legend

- Soil Vapor Monitoring Probes
- Horizontal Biosparge Well Entry Point
- Existing Groundwater Monitoring Well
- Existing Remediation Well
- Horizontal Biosparge Well (dashed line depicts approximate lateral extent of well screen)
- KMEP Remediation Piping Layout (above ground and below ground)
- Horizontal Vapor Extraction Well Piping

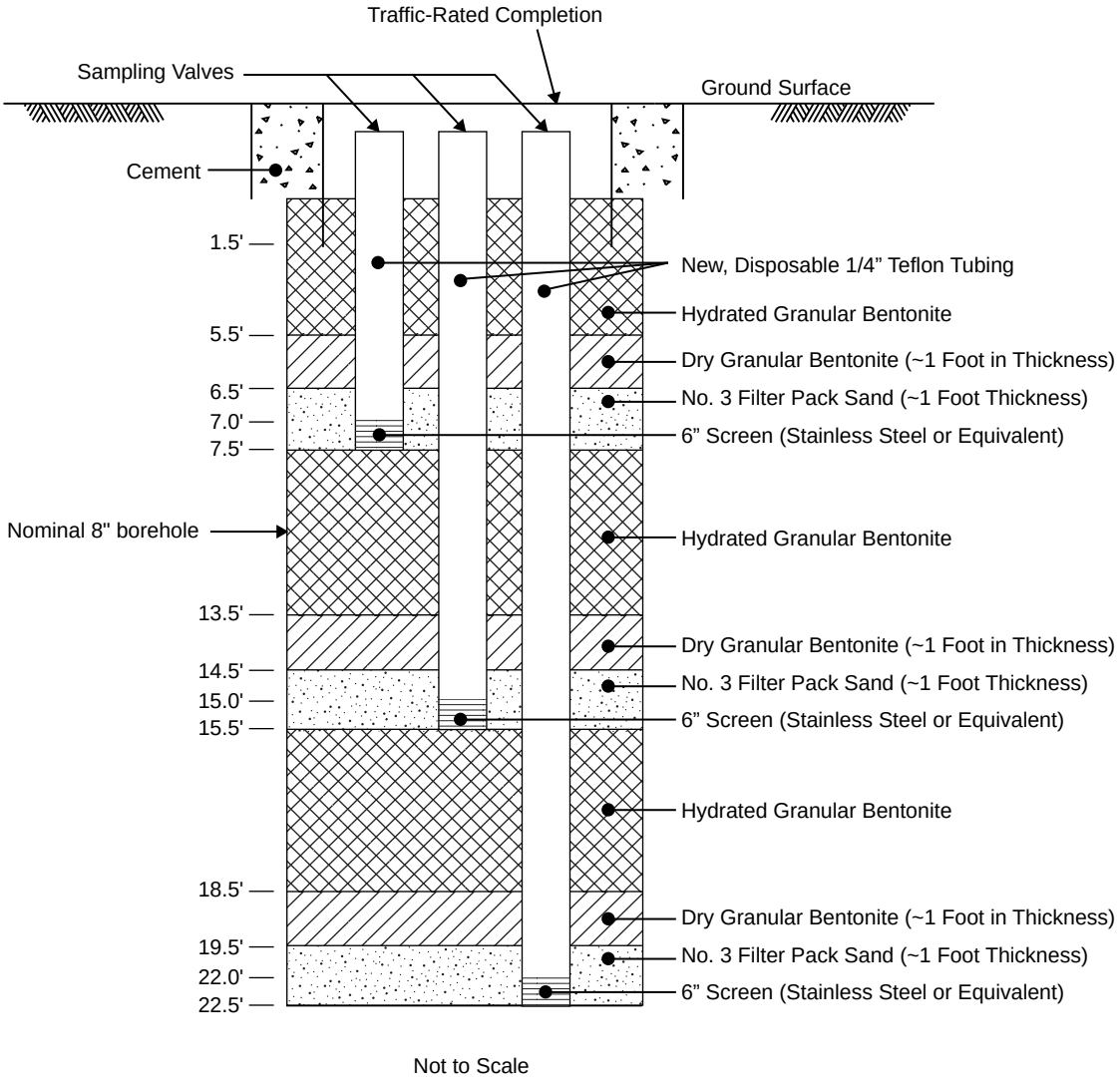
Imagery Source:
Google Earth April 17, 2013.

N

0 75 150 300
Feet

1 inch = 150 feet

Figure 2
Soil Vapor Monitoring Probe Locations
SFPP Norwalk Pump Station
Norwalk, California



Not to Scale

Figure 3
Typical Nested Soil Vapor
Monitoring Probe Completion Diagram
SFPP Norwalk Pump Station
Norwalk, California

Attachment A
Mobile Laboratory Analytical Reports

AMERICAN ANALYTICS

9765 Eton Avenue
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May 09, 2016

Dan Jablonski

CH2M Hill, Inc.

1000 Wilshire Blvd., Suite 2100

Los Angeles, CA 90017-2457

Re : KMEP Norwalk Biosparge Startup / 496965.A1.01

MB187308 / 6D28021

Enclosed is an analytical report for the above-referenced project. The samples included in this report were received on 04/27/16 17:00 and analyzed in accordance with the attached chain-of-custody.

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

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

Sincerely,

Allen Aminian

QA/QC Manager

LABORATORY ANALYSIS RESULTS

Client: CH2M Hill, Inc.
Project No: 496965.A1.01
Project Name: KMEP Norwalk Biosparge Startup

AA Project No: MB187308
Date Received: 04/27/16
Date Reported: 05/09/16

Sample ID	Laboratory ID	Matrix	TAT	Date Sampled	Date Received
Fixed Gases - Field					
SVM-1-15	6D28021-01	Vapor	5	04/27/16 07:57	04/27/16 17:00
SVM-1-5	6D28021-02	Vapor	5	04/27/16 08:07	04/27/16 17:00
SVM-2-5	6D28021-03	Vapor	5	04/27/16 08:32	04/27/16 17:00
SVM-15-22	6D28021-04	Vapor	5	04/27/16 09:19	04/27/16 17:00
SVM-15-7	6D28021-05	Vapor	5	04/27/16 09:25	04/27/16 17:00
SVM-15-15	6D28021-06	Vapor	5	04/27/16 09:48	04/27/16 17:00
SVM-6-16	6D28021-07	Vapor	5	04/27/16 10:20	04/27/16 17:00
SVM-6-7	6D28021-08	Vapor	5	04/27/16 10:22	04/27/16 17:00
SVM-7-7	6D28021-09	Vapor	5	04/27/16 11:28	04/27/16 17:00
SVM-7-7 DUP	6D28021-10	Vapor	5	04/27/16 11:28	04/27/16 17:00
SVM-7-13	6D28021-11	Vapor	5	04/27/16 11:38	04/27/16 17:00
SVM-10-15	6D28021-12	Vapor	5	04/27/16 12:32	04/27/16 17:00
Ambient Air	6D28021-13	Vapor	5	04/27/16 12:45	04/27/16 17:00
SVM-10-7	6D28021-14	Vapor	5	04/27/16 13:05	04/27/16 17:00
SVM-5-15	6D28021-15	Vapor	5	04/28/16 08:15	04/28/16 15:00
SVM-5-5	6D28021-16	Vapor	5	04/28/16 08:30	04/28/16 15:00
SVM-8-15	6D28021-17	Vapor	5	04/28/16 09:00	04/28/16 15:00
SVM-8-5	6D28021-18	Vapor	5	04/28/16 09:14	04/28/16 15:00
SVM-16-7	6D28021-19	Vapor	5	04/28/16 09:54	04/28/16 15:00

Allen Aminian
QA/QC Manager

LABORATORY ANALYSIS RESULTS

Client: CH2M Hill, Inc.
Project No: 496965.A1.01
Project Name: KMEP Norwalk Biosparge Startup

AA Project No: MB187308
Date Received: 04/27/16
Date Reported: 05/09/16

Sample ID	Laboratory ID	Matrix	TAT	Date Sampled	Date Received
SVM-16-22	6D28021-20	Vapor	5	04/28/16 09:57	04/28/16 15:00
SVM-16-16	6D28021-21	Vapor	5	04/28/16 10:12	04/28/16 15:00
SVM-3-15	6D28021-22	Vapor	5	04/28/16 11:50	04/28/16 15:00
SVM-3-5	6D28021-23	Vapor	5	04/28/16 12:05	04/28/16 15:00
SVM-12-7	6D28021-24	Vapor	5	04/28/16 12:57	04/28/16 15:00
SVM-12-22	6D28021-25	Vapor	5	04/28/16 12:58	04/28/16 15:00
Ambient Air	6D28021-26	Vapor	5	04/28/16 13:00	04/28/16 15:00
SVM-12-15	6D28021-27	Vapor	5	04/28/16 13:18	04/28/16 15:00
SVM-12-15 DUP	6D28021-28	Vapor	5	04/28/16 13:18	04/28/16 15:00
SVM-11-15	6D28021-29	Vapor	5	04/29/16 08:09	04/29/16 14:00
SVM-11-22	6D28021-30	Vapor	5	04/29/16 08:12	04/29/16 14:00
SVM-11-7	6D28021-31	Vapor	5	04/29/16 08:26	04/29/16 14:00
SVM-13-22.5	6D28021-32	Vapor	5	04/29/16 09:06	04/29/16 14:00
SVM-13-7	6D28021-33	Vapor	5	04/29/16 09:15	04/29/16 14:00
SVM-13-15.5	6D28021-34	Vapor	5	04/29/16 09:27	04/29/16 14:00
SVM-14-22	6D28021-35	Vapor	5	04/29/16 10:23	04/29/16 14:00
SVM-14-7	6D28021-36	Vapor	5	04/29/16 10:25	04/29/16 14:00
Ambient Air	6D28021-37	Vapor	5	04/29/16 10:33	04/29/16 14:00
SVM-14-15	6D28021-38	Vapor	5	04/29/16 10:50	04/29/16 14:00
SVM-14-15 DUP	6D28021-39	Vapor	5	04/29/16 10:50	04/29/16 14:00

Allen Aminian
QA/QC Manager

LABORATORY ANALYSIS RESULTS

Client: CH2M Hill, Inc.
Project No: 496965.A1.01
Project Name: KMEP Norwalk Biosparge Startup

AA Project No: MB187308
Date Received: 04/27/16
Date Reported: 05/09/16

TO-15 (Mid Level)

Sample ID	Laboratory ID	Matrix	TAT	Date Sampled	Date Received
SVM-1-15	6D28021-01	Vapor	5	04/27/16 07:57	04/27/16 17:00
SVM-1-5	6D28021-02	Vapor	5	04/27/16 08:07	04/27/16 17:00
SVM-2-5	6D28021-03	Vapor	5	04/27/16 08:32	04/27/16 17:00
SVM-15-22	6D28021-04	Vapor	5	04/27/16 09:19	04/27/16 17:00
SVM-15-7	6D28021-05	Vapor	5	04/27/16 09:25	04/27/16 17:00
SVM-15-15	6D28021-06	Vapor	5	04/27/16 09:48	04/27/16 17:00
SVM-6-16	6D28021-07	Vapor	5	04/27/16 10:20	04/27/16 17:00
SVM-6-7	6D28021-08	Vapor	5	04/27/16 10:22	04/27/16 17:00
SVM-7-7	6D28021-09	Vapor	5	04/27/16 11:28	04/27/16 17:00
SVM-7-7 DUP	6D28021-10	Vapor	5	04/27/16 11:28	04/27/16 17:00
SVM-7-13	6D28021-11	Vapor	5	04/27/16 11:38	04/27/16 17:00
SVM-10-15	6D28021-12	Vapor	5	04/27/16 12:32	04/27/16 17:00
Ambient Air	6D28021-13	Vapor	5	04/27/16 12:45	04/27/16 17:00
SVM-10-7	6D28021-14	Vapor	5	04/27/16 13:05	04/27/16 17:00
SVM-5-15	6D28021-15	Vapor	5	04/28/16 08:15	04/28/16 15:00
SVM-5-5	6D28021-16	Vapor	5	04/28/16 08:30	04/28/16 15:00
SVM-8-15	6D28021-17	Vapor	5	04/28/16 09:00	04/28/16 15:00
SVM-8-5	6D28021-18	Vapor	5	04/28/16 09:14	04/28/16 15:00
SVM-16-7	6D28021-19	Vapor	5	04/28/16 09:54	04/28/16 15:00

Allen Aminian
QA/QC Manager

LABORATORY ANALYSIS RESULTS

Client: CH2M Hill, Inc.
Project No: 496965.A1.01
Project Name: KMEP Norwalk Biosparge Startup

AA Project No: MB187308
Date Received: 04/27/16
Date Reported: 05/09/16

Sample ID	Laboratory ID	Matrix	TAT	Date Sampled	Date Received
SVM-16-22	6D28021-20	Vapor	5	04/28/16 09:57	04/28/16 15:00
SVM-16-16	6D28021-21	Vapor	5	04/28/16 10:12	04/28/16 15:00
SVM-3-15	6D28021-22	Vapor	5	04/28/16 11:50	04/28/16 15:00
SVM-3-5	6D28021-23	Vapor	5	04/28/16 12:05	04/28/16 15:00
SVM-12-7	6D28021-24	Vapor	5	04/28/16 12:57	04/28/16 15:00
SVM-12-22	6D28021-25	Vapor	5	04/28/16 12:58	04/28/16 15:00
Ambient Air	6D28021-26	Vapor	5	04/28/16 13:00	04/28/16 15:00
SVM-12-15	6D28021-27	Vapor	5	04/28/16 13:18	04/28/16 15:00
SVM-12-15 DUP	6D28021-28	Vapor	5	04/28/16 13:18	04/28/16 15:00
SVM-11-15	6D28021-29	Vapor	5	04/29/16 08:09	04/29/16 14:00
SVM-11-22	6D28021-30	Vapor	5	04/29/16 08:12	04/29/16 14:00
SVM-11-7	6D28021-31	Vapor	5	04/29/16 08:26	04/29/16 14:00
SVM-13-22.5	6D28021-32	Vapor	5	04/29/16 09:06	04/29/16 14:00
SVM-13-7	6D28021-33	Vapor	5	04/29/16 09:15	04/29/16 14:00
SVM-13-15.5	6D28021-34	Vapor	5	04/29/16 09:27	04/29/16 14:00
SVM-14-22	6D28021-35	Vapor	5	04/29/16 10:23	04/29/16 14:00
SVM-14-7	6D28021-36	Vapor	5	04/29/16 10:25	04/29/16 14:00
Ambient Air	6D28021-37	Vapor	5	04/29/16 10:33	04/29/16 14:00
SVM-14-15	6D28021-38	Vapor	5	04/29/16 10:50	04/29/16 14:00
SVM-14-15 DUP	6D28021-39	Vapor	5	04/29/16 10:50	04/29/16 14:00

Allen Aminian
QA/QC Manager

LABORATORY ANALYSIS RESULTS

Client: CH2M Hill, Inc.
Project No: 496965.A1.01
Project Name: KMEP Norwalk Biosparge Startup

AA Project No: MB187308
Date Received: 04/27/16
Date Reported: 05/09/16

Sample ID	Laboratory ID	Matrix	TAT	Date Sampled	Date Received
TO-3					
SVM-1-15	6D28021-01	Vapor	5	04/27/16 07:57	04/27/16 17:00
SVM-1-5	6D28021-02	Vapor	5	04/27/16 08:07	04/27/16 17:00
SVM-2-5	6D28021-03	Vapor	5	04/27/16 08:32	04/27/16 17:00
SVM-15-22	6D28021-04	Vapor	5	04/27/16 09:19	04/27/16 17:00
SVM-15-7	6D28021-05	Vapor	5	04/27/16 09:25	04/27/16 17:00
SVM-15-15	6D28021-06	Vapor	5	04/27/16 09:48	04/27/16 17:00
SVM-6-16	6D28021-07	Vapor	5	04/27/16 10:20	04/27/16 17:00
SVM-6-7	6D28021-08	Vapor	5	04/27/16 10:22	04/27/16 17:00
SVM-7-7	6D28021-09	Vapor	5	04/27/16 11:28	04/27/16 17:00
SVM-7-7 DUP	6D28021-10	Vapor	5	04/27/16 11:28	04/27/16 17:00
SVM-7-13	6D28021-11	Vapor	5	04/27/16 11:38	04/27/16 17:00
SVM-10-15	6D28021-12	Vapor	5	04/27/16 12:32	04/27/16 17:00
Ambient Air	6D28021-13	Vapor	5	04/27/16 12:45	04/27/16 17:00
SVM-10-7	6D28021-14	Vapor	5	04/27/16 13:05	04/27/16 17:00
SVM-5-15	6D28021-15	Vapor	5	04/28/16 08:15	04/28/16 15:00
SVM-5-5	6D28021-16	Vapor	5	04/28/16 08:30	04/28/16 15:00
SVM-8-15	6D28021-17	Vapor	5	04/28/16 09:00	04/28/16 15:00
SVM-8-5	6D28021-18	Vapor	5	04/28/16 09:14	04/28/16 15:00
SVM-16-7	6D28021-19	Vapor	5	04/28/16 09:54	04/28/16 15:00

Allen Aminian
QA/QC Manager

LABORATORY ANALYSIS RESULTS

Client: CH2M Hill, Inc.
Project No: 496965.A1.01
Project Name: KMEP Norwalk Biosparge Startup

AA Project No: MB187308
Date Received: 04/27/16
Date Reported: 05/09/16

Sample ID	Laboratory ID	Matrix	TAT	Date Sampled	Date Received
SVM-16-22	6D28021-20	Vapor	5	04/28/16 09:57	04/28/16 15:00
SVM-16-16	6D28021-21	Vapor	5	04/28/16 10:12	04/28/16 15:00
SVM-3-15	6D28021-22	Vapor	5	04/28/16 11:50	04/28/16 15:00
SVM-3-5	6D28021-23	Vapor	5	04/28/16 12:05	04/28/16 15:00
SVM-12-7	6D28021-24	Vapor	5	04/28/16 12:57	04/28/16 15:00
SVM-12-22	6D28021-25	Vapor	5	04/28/16 12:58	04/28/16 15:00
Ambient Air	6D28021-26	Vapor	5	04/28/16 13:00	04/28/16 15:00
SVM-12-15	6D28021-27	Vapor	5	04/28/16 13:18	04/28/16 15:00
SVM-12-15 DUP	6D28021-28	Vapor	5	04/28/16 13:18	04/28/16 15:00
SVM-11-15	6D28021-29	Vapor	5	04/29/16 08:09	04/29/16 14:00
SVM-11-22	6D28021-30	Vapor	5	04/29/16 08:12	04/29/16 14:00
SVM-11-7	6D28021-31	Vapor	5	04/29/16 08:26	04/29/16 14:00
SVM-13-22.5	6D28021-32	Vapor	5	04/29/16 09:06	04/29/16 14:00
SVM-13-7	6D28021-33	Vapor	5	04/29/16 09:15	04/29/16 14:00
SVM-13-15.5	6D28021-34	Vapor	5	04/29/16 09:27	04/29/16 14:00
SVM-14-22	6D28021-35	Vapor	5	04/29/16 10:23	04/29/16 14:00
SVM-14-7	6D28021-36	Vapor	5	04/29/16 10:25	04/29/16 14:00
Ambient Air	6D28021-37	Vapor	5	04/29/16 10:33	04/29/16 14:00
SVM-14-15	6D28021-38	Vapor	5	04/29/16 10:50	04/29/16 14:00
SVM-14-15 DUP	6D28021-39	Vapor	5	04/29/16 10:50	04/29/16 14:00

Allen Aminian
QA/QC Manager

LABORATORY ANALYSIS RESULTS

Client: CH2M Hill, Inc.
Project No: 496965.A1.01
Project Name: KMEP Norwalk Biosparge Startup

AA Project No: MB187308
Date Received: 04/27/16
Date Reported: 05/09/16

ANALYTICAL DATA SUMMARY

Analyte	Sample Name	Result	MRL	Units	Dilution	Prepared	Analyzed	Method
			Fixed Gases by TCD					
Oxygen	SVM-1-15	**19**	0.10	% by Volume	1	04/27/16	04/27/16	VOCs by GC/TCD
Oxygen	SVM-1-5	**18**	0.10	% by Volume	1	04/27/16	04/27/16	VOCs by GC/TCD
Oxygen	SVM-2-5	**19**	0.10	% by Volume	1	04/27/16	04/27/16	VOCs by GC/TCD
Carbon Dioxide	SVM-2-5	**0.16**	0.10	% by Volume	1	04/27/16	04/27/16	VOCs by GC/TCD
Oxygen	SVM-15-22	**19**	0.10	% by Volume	1	04/27/16	04/27/16	VOCs by GC/TCD
Carbon Dioxide	SVM-15-22	**0.19**	0.10	% by Volume	1	04/27/16	04/27/16	VOCs by GC/TCD
Oxygen	SVM-15-7	**19**	0.10	% by Volume	1	04/27/16	04/27/16	VOCs by GC/TCD
Carbon Dioxide	SVM-15-7	**0.11**	0.10	% by Volume	1	04/27/16	04/27/16	VOCs by GC/TCD
Oxygen	SVM-15-15	**19**	0.10	% by Volume	1	04/27/16	04/27/16	VOCs by GC/TCD
Carbon Dioxide	SVM-15-15	**0.11**	0.10	% by Volume	1	04/27/16	04/27/16	VOCs by GC/TCD

Allen Aminian
QA/QC Manager

LABORATORY ANALYSIS RESULTS

Client: CH2M Hill, Inc.
Project No: 496965.A1.01
Project Name: KMEP Norwalk Biosparge Startup

AA Project No: MB187308
Date Received: 04/27/16
Date Reported: 05/09/16

ANALYTICAL DATA SUMMARY

Analyte	Sample Name	Result	MRL	Units	Dilution	Prepared	Analyzed	Method
Oxygen	SVM-6-16	**19**	0.10	% by Volume	1	04/27/16	04/27/16	VOCs by GC/TCD
Oxygen	SVM-6-7	**18**	0.10	% by Volume	1	04/27/16	04/27/16	VOCs by GC/TCD
Oxygen	SVM-7-7	**18**	0.10	% by Volume	1	04/27/16	04/27/16	VOCs by GC/TCD
Carbon Dioxide	SVM-7-7	**0.36**	0.10	% by Volume	1	04/27/16	04/27/16	VOCs by GC/TCD
Oxygen	SVM-7-7 DUP	**18**	0.10	% by Volume	1	04/27/16	04/27/16	VOCs by GC/TCD
Carbon Dioxide	SVM-7-7 DUP	**0.34**	0.10	% by Volume	1	04/27/16	04/27/16	VOCs by GC/TCD
Oxygen	SVM-7-13	**19**	0.10	% by Volume	1	04/27/16	04/27/16	VOCs by GC/TCD
Carbon Dioxide	SVM-7-13	**0.25**	0.10	% by Volume	1	04/27/16	04/27/16	VOCs by GC/TCD
Oxygen	SVM-10-15	**17**	0.10	% by Volume	1	04/27/16	04/27/16	VOCs by GC/TCD
Carbon Dioxide	SVM-10-15	**3.1**	0.10	% by Volume	1	04/27/16	04/27/16	VOCs by GC/TCD
Oxygen	Ambient Air	**19**	0.10	% by Volume	1	04/27/16	04/27/16	VOCs by GC/TCD

Allen Aminian
QA/QC Manager

LABORATORY ANALYSIS RESULTS

Client: CH2M Hill, Inc.
Project No: 496965.A1.01
Project Name: KMEP Norwalk Biosparge Startup

AA Project No: MB187308
Date Received: 04/27/16
Date Reported: 05/09/16

ANALYTICAL DATA SUMMARY

Analyte	Sample Name	Result	MRL	Units	Dilution	Prepared	Analyzed	Method
Methane	SVM-10-7	**18**	0.10	% by Volume	1	04/27/16	04/27/16	VOCs by GC/TCD
Oxygen	SVM-10-7	**0.21**	0.10	% by Volume	1	04/27/16	04/27/16	VOCs by GC/TCD
Oxygen	SVM-5-15	**18**	0.10	% by Volume	1	04/28/16	04/28/16	VOCs by GC/TCD
Oxygen	SVM-5-5	**18**	0.10	% by Volume	1	04/28/16	04/28/16	VOCs by GC/TCD
Oxygen	SVM-8-15	**18**	0.10	% by Volume	1	04/28/16	04/28/16	VOCs by GC/TCD
Carbon Dioxide	SVM-8-15	**0.10**	0.10	% by Volume	1	04/28/16	04/28/16	VOCs by GC/TCD
Oxygen	SVM-8-5	**19**	0.10	% by Volume	1	04/28/16	04/28/16	VOCs by GC/TCD
Carbon Dioxide	SVM-8-5	**0.14**	0.10	% by Volume	1	04/28/16	04/28/16	VOCs by GC/TCD
Oxygen	SVM-16-7	**19**	0.10	% by Volume	1	04/28/16	04/28/16	VOCs by GC/TCD
Carbon Dioxide	SVM-16-7	**0.27**	0.10	% by Volume	1	04/28/16	04/28/16	VOCs by GC/TCD
Oxygen	SVM-16-22	**9.8**	0.10	% by Volume	1	04/28/16	04/28/16	VOCs by GC/TCD

Allen Aminian
QA/QC Manager

LABORATORY ANALYSIS RESULTS

Client: CH2M Hill, Inc.
Project No: 496965.A1.01
Project Name: KMEP Norwalk Biosparge Startup

AA Project No: MB187308
Date Received: 04/27/16
Date Reported: 05/09/16

ANALYTICAL DATA SUMMARY

Analyte	Sample Name	Result	MRL	Units	Dilution	Prepared	Analyzed	Method
Carbon Dioxide	SVM-16-22	**6.9**	0.10	% by Volume	1	04/28/16	04/28/16	VOCs by GC/TCD
Oxygen	SVM-16-16	**18**	0.10	% by Volume	1	04/28/16	04/28/16	VOCs by GC/TCD
Carbon Dioxide	SVM-16-16	**0.32**	0.10	% by Volume	1	04/28/16	04/28/16	VOCs by GC/TCD
Oxygen	SVM-3-15	**18**	0.10	% by Volume	1	04/28/16	04/28/16	VOCs by GC/TCD
Carbon Dioxide	SVM-3-15	**0.20**	0.10	% by Volume	1	04/28/16	04/28/16	VOCs by GC/TCD
Oxygen	SVM-3-5	**19**	0.10	% by Volume	1	04/28/16	04/28/16	VOCs by GC/TCD
Carbon Dioxide	SVM-3-5	**0.16**	0.10	% by Volume	1	04/28/16	04/28/16	VOCs by GC/TCD
Oxygen	SVM-12-7	**17**	0.10	% by Volume	1	04/28/16	04/28/16	VOCs by GC/TCD
Carbon Dioxide	SVM-12-7	**0.51**	0.10	% by Volume	1	04/28/16	04/28/16	VOCs by GC/TCD
Oxygen	SVM-12-22	**6.0**	0.10	% by Volume	1	04/28/16	04/28/16	VOCs by GC/TCD
Carbon Dioxide	SVM-12-22	**8.4**	0.10	% by Volume	1	04/28/16	04/28/16	VOCs by GC/TCD

Allen Aminian
QA/QC Manager

LABORATORY ANALYSIS RESULTS

Client: CH2M Hill, Inc.
Project No: 496965.A1.01
Project Name: KMEP Norwalk Biosparge Startup

AA Project No: MB187308
Date Received: 04/27/16
Date Reported: 05/09/16

ANALYTICAL DATA SUMMARY

Analyte	Sample Name	Result	MRL	Units	Dilution	Prepared	Analyzed	Method
Oxygen	Ambient Air	**19**	0.10	% by Volume	1	04/28/16	04/28/16	VOCs by GC/TCD
Oxygen	SVM-12-15	**14**	0.10	% by Volume	1	04/28/16	04/28/16	VOCs by GC/TCD
Carbon Dioxide	SVM-12-15	**2.1**	0.10	% by Volume	1	04/28/16	04/28/16	VOCs by GC/TCD
Oxygen	SVM-12-15 DUP	**14**	0.10	% by Volume	1	04/28/16	04/28/16	VOCs by GC/TCD
Carbon Dioxide	SVM-12-15 DUP	**2.1**	0.10	% by Volume	1	04/28/16	04/28/16	VOCs by GC/TCD
Oxygen	SVM-11-15	**18**	0.10	% by Volume	1	04/29/16	04/29/16	VOCs by GC/TCD
Carbon Dioxide	SVM-11-15	**0.37**	0.10	% by Volume	1	04/29/16	04/29/16	VOCs by GC/TCD
Oxygen	SVM-11-22	**18**	0.10	% by Volume	1	04/29/16	04/29/16	VOCs by GC/TCD
Oxygen	SVM-11-7	**19**	0.10	% by Volume	1	04/29/16	04/29/16	VOCs by GC/TCD
Carbon Dioxide	SVM-11-7	**0.43**	0.10	% by Volume	1	04/29/16	04/29/16	VOCs by GC/TCD
Oxygen	SVM-13-22.5	**17**	0.10	% by Volume	1	04/29/16	04/29/16	VOCs by GC/TCD

Allen Aminian
QA/QC Manager

LABORATORY ANALYSIS RESULTS

Client: CH2M Hill, Inc.
Project No: 496965.A1.01
Project Name: KMEP Norwalk Biosparge Startup

AA Project No: MB187308
Date Received: 04/27/16
Date Reported: 05/09/16

ANALYTICAL DATA SUMMARY

Analyte	Sample Name	Result	MRL	Units	Dilution	Prepared	Analyzed	Method
Carbon Dioxide	SVM-13-22.5	**0.58**	0.10	% by Volume	1	04/29/16	04/29/16	VOCs by GC/TCD
Oxygen	SVM-13-7	**18**	0.10	% by Volume	1	04/29/16	04/29/16	VOCs by GC/TCD
Oxygen	SVM-13-15.5	**18**	0.10	% by Volume	1	04/29/16	04/29/16	VOCs by GC/TCD
Oxygen	SVM-14-22	**17**	0.10	% by Volume	1	04/29/16	04/29/16	VOCs by GC/TCD
Carbon Dioxide	SVM-14-22	**0.83**	0.10	% by Volume	1	04/29/16	04/29/16	VOCs by GC/TCD
Oxygen	SVM-14-7	**17**	0.10	% by Volume	1	04/29/16	04/29/16	VOCs by GC/TCD
Carbon Dioxide	SVM-14-7	**1.4**	0.10	% by Volume	1	04/29/16	04/29/16	VOCs by GC/TCD
Oxygen	Ambient Air	**18**	0.10	% by Volume	1	04/29/16	04/29/16	VOCs by GC/TCD
Oxygen	SVM-14-15	**17**	0.10	% by Volume	1	04/29/16	04/29/16	VOCs by GC/TCD
Carbon Dioxide	SVM-14-15	**1.3**	0.10	% by Volume	1	04/29/16	04/29/16	VOCs by GC/TCD
Oxygen	SVM-14-15 DUP	**17**	0.10	% by Volume	1	04/29/16	04/29/16	VOCs by GC/TCD

Allen Aminian
QA/QC Manager

LABORATORY ANALYSIS RESULTS

Client: CH2M Hill, Inc.
Project No: 496965.A1.01
Project Name: KMEP Norwalk Biosparge Startup

AA Project No: MB187308
Date Received: 04/27/16
Date Reported: 05/09/16

ANALYTICAL DATA SUMMARY

Analyte	Sample Name	Result	MRL	Units	Dilution	Prepared	Analyzed	Method
Carbon Dioxide	SVM-14-15 DUP	**1.2**	0.10	% by Volume	1	04/29/16	04/29/16	VOCs by GC/TCD
VOCs by EPA TO-3								
Gasoline Range Organics (GRO)	SVM-14-22	**3200**	800	ug/L	40	04/29/16	04/29/16	TO-3
VOCs by GCMS EPA TO-15								
Heptane	SVM-16-22	**0.071**	0.020	ug/L	1	04/28/16	04/28/16	TO-15
n-Hexane	SVM-16-22	**0.093**	0.020	ug/L	1	04/28/16	04/28/16	TO-15
2,2,4-Trimethylpentane	SVM-12-22	**0.030**	0.020	ug/L	1	04/28/16	04/28/16	TO-15
Ethylbenzene	SVM-14-22	**10**	8.0	ug/L	400	04/29/16	04/29/16	TO-15
4-Ethyltoluene	SVM-14-22	**120**	8.0	ug/L	400	04/29/16	04/29/16	TO-15
1,3,5-Trimethylbenzene	SVM-14-22	**76**	8.0	ug/L	400	04/29/16	04/29/16	TO-15
1,2,4-Trimethylbenzene	SVM-14-22	**100**	8.0	ug/L	400	04/29/16	04/29/16	TO-15
o-Xylene	SVM-14-22	**120**	8.0	ug/L	400	04/29/16	04/29/16	TO-15
m,p-Xylenes	SVM-14-22	**210**	8.0	ug/L	400	04/29/16	04/29/16	TO-15
Toluene	SVM-14-15	**0.054**	0.020	ug/L	1	04/29/16	04/29/16	TO-15
o-Xylene	SVM-14-15	**0.048**	0.020	ug/L	1	04/29/16	04/29/16	TO-15
m,p-Xylenes	SVM-14-15	**0.10**	0.020	ug/L	1	04/29/16	04/29/16	TO-15
Toluene	SVM-14-15 DUP	**0.054**	0.020	ug/L	1	04/29/16	04/29/16	TO-15
o-Xylene	SVM-14-15 DUP	**0.048**	0.020	ug/L	1	04/29/16	04/29/16	TO-15
m,p-Xylenes	SVM-14-15 DUP	**0.10**	0.020	ug/L	1	04/29/16	04/29/16	TO-15

Allen Aminian
QA/QC Manager

LABORATORY ANALYSIS RESULTS

Client: CH2M Hill, Inc.
Project No: 496965.A1.01
Project Name: KMEP Norwalk Biosparge Startup
Method: VOCs by EPA TO-3

AA Project No: MB187308
Date Received: 04/27/16
Date Reported: 05/09/16
Units: ug/L

Date Sampled:	04/27/16	04/27/16	04/27/16	04/27/16	
Date Prepared:	04/27/16	04/27/16	04/27/16	04/27/16	
Date Analyzed:	04/27/16	04/27/16	04/27/16	04/27/16	
AA ID No:	6D28021-01	6D28021-02	6D28021-03	6D28021-04	
Client ID No:	SVM-1-15	SVM-1-5	SVM-2-5	SVM-15-22	
Matrix:	Vapor	Vapor	Vapor	Vapor	
Dilution Factor:	1	1	1	1	MRL
TO-3 (TO-3)					
Gasoline Range Organics (GRO)	<20	<20	<20	<20	20
Surrogates					**%REC Limits**
4-Bromofluorobenzene	103%	104%	105%	105%	70-130

Allen Aminian
QA/QC Manager

LABORATORY ANALYSIS RESULTS

Client: CH2M Hill, Inc.
Project No: 496965.A1.01
Project Name: KMEP Norwalk Biosparge Startup
Method: VOCs by EPA TO-3

AA Project No: MB187308
Date Received: 04/27/16
Date Reported: 05/09/16
Units: ug/L

Date Sampled:	04/27/16	04/27/16	04/27/16	04/27/16	
Date Prepared:	04/27/16	04/27/16	04/27/16	04/27/16	
Date Analyzed:	04/27/16	04/27/16	04/27/16	04/27/16	
AA ID No:	6D28021-05	6D28021-06	6D28021-07	6D28021-08	
Client ID No:	SVM-15-7	SVM-15-15	SVM-6-16	SVM-6-7	
Matrix:	Vapor	Vapor	Vapor	Vapor	
Dilution Factor:	1	1	1	1	MRL
TO-3 (TO-3)					
Gasoline Range Organics (GRO)	<20	<20	<20	<20	20
Surrogates					**%REC Limits**
4-Bromofluorobenzene	104%	104%	106%	107%	70-130

Allen Aminian
QA/QC Manager

LABORATORY ANALYSIS RESULTS

Client:	CH2M Hill, Inc.	**AA Project No:**	MB187308
Project No:	496965.A1.01	**Date Received:**	04/27/16
Project Name:	KMEP Norwalk Biosparge Startup	**Date Reported:**	05/09/16
Method:	VOCs by EPA TO-3	**Units:**	ug/L

Date Sampled:	04/27/16	04/27/16	04/27/16	04/27/16	
Date Prepared:	04/27/16	04/27/16	04/27/16	04/27/16	
Date Analyzed:	04/27/16	04/27/16	04/27/16	04/27/16	
AA ID No:	6D28021-09	6D28021-10	6D28021-11	6D28021-12	
Client ID No:	SVM-7-7	SVM-7-7 DUP	SVM-7-13	SVM-10-15	
Matrix:	Vapor	Vapor	Vapor	Vapor	
Dilution Factor:	1	1	1	1	MRL
TO-3 (TO-3)					
Gasoline Range Organics (GRO)	<20	<20	<20	<20	20
Surrogates					**%REC Limits**
4-Bromofluorobenzene	99%	101%	104%	104%	70-130

Allen Aminian
QA/QC Manager

LABORATORY ANALYSIS RESULTS

Client: CH2M Hill, Inc.
Project No: 496965.A1.01
Project Name: KMEP Norwalk Biosparge Startup
Method: VOCs by EPA TO-3

AA Project No: MB187308
Date Received: 04/27/16
Date Reported: 05/09/16
Units: ug/L

Date Sampled:	04/27/16	04/27/16	04/28/16	04/28/16	
Date Prepared:	04/27/16	04/27/16	04/28/16	04/28/16	
Date Analyzed:	04/27/16	04/27/16	04/28/16	04/28/16	
AA ID No:	6D28021-13	6D28021-14	6D28021-15	6D28021-16	
Client ID No:	Ambient Air	SVM-10-7	SVM-5-15	SVM-5-5	
Matrix:	Vapor	Vapor	Vapor	Vapor	
Dilution Factor:	1	1	1	1	MRL
TO-3 (TO-3)					
Gasoline Range Organics (GRO)	<20	<20	<20	<20	20
Surrogates					**%REC Limits**
4-Bromofluorobenzene	98%	104%	101%	103%	70-130

Allen Aminian
QA/QC Manager

LABORATORY ANALYSIS RESULTS

Client:	CH2M Hill, Inc.	**AA Project No:**	MB187308
Project No:	496965.A1.01	**Date Received:**	04/27/16
Project Name:	KMEP Norwalk Biosparge Startup	**Date Reported:**	05/09/16
Method:	VOCs by EPA TO-3	**Units:**	ug/L

Date Sampled:	04/28/2016	04/28/2016	04/28/2016	04/28/2016	
Date Prepared:	04/28/16	04/28/16	04/28/16	04/28/16	
Date Analyzed:	04/28/16	04/28/16	04/28/16	04/28/16	
AA ID No:	6D28021-17	6D28021-18	6D28021-19	6D28021-20	
Client ID No:	SVM-8-15	SVM-8-5	SVM-16-7	SVM-16-22	
Matrix:	Vapor	Vapor	Vapor	Vapor	
Dilution Factor:	1	1	1	1	MRL
TO-3 (TO-3)					
Gasoline Range Organics (GRO)	<20	<20	<20	<20	20
Surrogates					**%REC Limits**
4-Bromofluorobenzene	105%	103%	103%	103%	70-130

Allen Aminian
QA/QC Manager

LABORATORY ANALYSIS RESULTS

Client: CH2M Hill, Inc.
Project No: 496965.A1.01
Project Name: KMEP Norwalk Biosparge Startup
Method: VOCs by EPA TO-3

AA Project No: MB187308
Date Received: 04/27/16
Date Reported: 05/09/16
Units: ug/L

Date Sampled:	04/28/16	04/28/16	04/28/16	04/28/16	
Date Prepared:	04/28/16	04/28/16	04/28/16	04/28/16	
Date Analyzed:	04/28/16	04/28/16	04/28/16	04/28/16	
AA ID No:	6D28021-21	6D28021-22	6D28021-23	6D28021-24	
Client ID No:	SVM-16-16	SVM-3-15	SVM-3-5	SVM-12-7	
Matrix:	Vapor	Vapor	Vapor	Vapor	
Dilution Factor:	1	1	1	1	MRL
TO-3 (TO-3)					
Gasoline Range Organics (GRO)	<20	<20	<20	<20	20
Surrogates					**%REC Limits**
4-Bromofluorobenzene	101%	101%	100%	101%	70-130

Allen Aminian
QA/QC Manager

LABORATORY ANALYSIS RESULTS

Client:	CH2M Hill, Inc.	**AA Project No:**	MB187308
Project No:	496965.A1.01	**Date Received:**	04/27/16
Project Name:	KMEP Norwalk Biosparge Startup	**Date Reported:**	05/09/16
Method:	VOCs by EPA TO-3	**Units:**	ug/L

Date Sampled:	04/28/16	04/28/16	04/28/16	04/28/16	
Date Prepared:	04/28/16	04/28/16	04/28/16	04/28/16	
Date Analyzed:	04/28/16	04/28/16	04/28/16	04/28/16	
AA ID No:	6D28021-25	6D28021-26	6D28021-27	6D28021-28	
Client ID No:	SVM-12-22	Ambient Air	SVM-12-15	SVM-12-15 DUP	
Matrix:	Vapor	Vapor	Vapor	Vapor	
Dilution Factor:	1	1	1	1	MRL
TO-3 (TO-3)					
Gasoline Range Organics (GRO)	<20	<20	<20	<20	20
Surrogates					**%REC Limits**
4-Bromofluorobenzene	101%	102%	100%	100%	70-130

Allen Aminian
QA/QC Manager

LABORATORY ANALYSIS RESULTS

Client: CH2M Hill, Inc.
Project No: 496965.A1.01
Project Name: KMEP Norwalk Biosparge Startup
Method: VOCs by EPA TO-3

AA Project No: MB187308
Date Received: 04/27/16
Date Reported: 05/09/16
Units: ug/L

Date Sampled:	04/29/16	04/29/16	04/29/16	04/29/16	
Date Prepared:	04/29/16	04/29/16	04/29/16	04/29/16	
Date Analyzed:	04/29/16	04/29/16	04/29/16	04/29/16	
AA ID No:	6D28021-29	6D28021-30	6D28021-31	6D28021-32	
Client ID No:	SVM-11-15	SVM-11-22	SVM-11-7	SVM-13-22.5	
Matrix:	Vapor	Vapor	Vapor	Vapor	
Dilution Factor:	1	1	1	1	MRL
TO-3 (TO-3)					
Gasoline Range Organics (GRO)	<20	<20	<20	<20	20
Surrogates					**%REC Limits**
4-Bromofluorobenzene	105%	103%	102%	105%	70-130

Allen Aminian
QA/QC Manager

LABORATORY ANALYSIS RESULTS

Client: CH2M Hill, Inc.
Project No: 496965.A1.01
Project Name: KMEP Norwalk Biosparge Startup
Method: VOCs by EPA TO-3

AA Project No: MB187308
Date Received: 04/27/16
Date Reported: 05/09/16
Units: ug/L

Date Sampled:	04/29/16	04/29/16	04/29/16	04/29/16	
Date Prepared:	04/29/16	04/29/16	04/29/16	04/29/16	
Date Analyzed:	04/29/16	04/29/16	04/29/16	04/29/16	
AA ID No:	6D28021-33	6D28021-34	6D28021-35	6D28021-36	
Client ID No:	SVM-13-7	SVM-13-15.5	SVM-14-22	SVM-14-7	
Matrix:	Vapor	Vapor	Vapor	Vapor	
Dilution Factor:	1	1	40	1	MRL
TO-3 (TO-3)					
Gasoline Range Organics (GRO)	<20	<20	**3200**	<20	20
Surrogates					**%REC Limits**
4-Bromofluorobenzene	101%	104%	108%	105%	70-130

Allen Aminian
QA/QC Manager

LABORATORY ANALYSIS RESULTS

Client:	CH2M Hill, Inc.	**AA Project No:**	MB187308
Project No:	496965.A1.01	**Date Received:**	04/27/16
Project Name:	KMEP Norwalk Biosparge Startup	**Date Reported:**	05/09/16
Method:	VOCs by EPA TO-3	**Units:**	ug/L

Date Sampled:	04/29/16	04/29/16	04/29/16	
Date Prepared:	04/29/16	04/29/16	04/29/16	
Date Analyzed:	04/29/16	04/29/16	04/29/16	
AA ID No:	6D28021-37	6D28021-38	6D28021-39	
Client ID No:	Ambient Air	SVM-14-15	SVM-14-15 DUP	
Matrix:	Vapor	Vapor	Vapor	
Dilution Factor:	1	1	1	MRL
TO-3 (TO-3)				
Gasoline Range Organics (GRO)	<20	<20	<20	20
Surrogates				**%REC Limits**
4-Bromofluorobenzene	101%	101%	99%	70-130

Allen Aminian
QA/QC Manager

LABORATORY ANALYSIS RESULTS

Client: CH2M Hill, Inc.
Project No: 496965.A1.01
Project Name: KMEP Norwalk Biosparge Startup
Method: VOCs by GCMS EPA TO-15

AA Project No: MB187308
Date Received: 04/27/16
Date Reported: 05/09/16
Units: ug/L

Date Sampled:	04/27/16	04/27/16	04/27/16	04/27/16	
Date Prepared:	04/27/16	04/27/16	04/27/16	04/27/16	
Date Analyzed:	04/27/16	04/27/16	04/27/16	04/27/16	
AA ID No:	6D28021-01	6D28021-02	6D28021-03	6D28021-04	
Client ID No:	SVM-1-15	SVM-1-5	SVM-2-5	SVM-15-22	
Matrix:	Vapor	Vapor	Vapor	Vapor	
Dilution Factor:	1	1	1	1	MRL
TO-15 (Mid Level) (TO-15)					
Acetone	<0.020	<0.020	<0.020	<0.020	0.020
Allyl chloride	<0.020	<0.020	<0.020	<0.020	0.020
tert-Amyl Methyl Ether (TAME)	<0.020	<0.020	<0.020	<0.020	0.020
Benzene	<0.020	<0.020	<0.020	<0.020	0.020
Benzyl chloride	<0.020	<0.020	<0.020	<0.020	0.020
Bromodichloromethane	<0.020	<0.020	<0.020	<0.020	0.020
Bromoform	<0.020	<0.020	<0.020	<0.020	0.020
Bromomethane	<0.020	<0.020	<0.020	<0.020	0.020
1,3-Butadiene	<0.020	<0.020	<0.020	<0.020	0.020
2-Butanone (MEK)	<0.020	<0.020	<0.020	<0.020	0.020
tert-Butyl alcohol (TBA)	<20	<20	<20	<20	20
Carbon Disulfide	<0.020	<0.020	<0.020	<0.020	0.020
Carbon Tetrachloride	<0.020	<0.020	<0.020	<0.020	0.020
Chlorobenzene	<0.020	<0.020	<0.020	<0.020	0.020
Chloroethane	<0.020	<0.020	<0.020	<0.020	0.020
Chloroform	<0.020	<0.020	<0.020	<0.020	0.020
Chloromethane	<0.020	<0.020	<0.020	<0.020	0.020
Cyclohexane	<0.020	<0.020	<0.020	<0.020	0.020
Dibromochloromethane	<0.020	<0.020	<0.020	<0.020	0.020
1,2-Dibromoethane (EDB)	<0.020	<0.020	<0.020	<0.020	0.020
1,2-Dichlorobenzene	<0.020	<0.020	<0.020	<0.020	0.020
1,3-Dichlorobenzene	<0.020	<0.020	<0.020	<0.020	0.020
1,4-Dichlorobenzene	<0.020	<0.020	<0.020	<0.020	0.020
Dichlorodifluoromethane (R12)	<0.020	<0.020	<0.020	<0.020	0.020
1,1-Dichloroethane	<0.020	<0.020	<0.020	<0.020	0.020
1,2-Dichloroethane (EDC)	<0.020	<0.020	<0.020	<0.020	0.020
cis-1,2-Dichloroethylene	<0.020	<0.020	<0.020	<0.020	0.020

Allen Aminian
QA/QC Manager

LABORATORY ANALYSIS RESULTS

Client:	CH2M Hill, Inc.	**AA Project No:**	MB187308
Project No:	496965.A1.01	**Date Received:**	04/27/16
Project Name:	KMEP Norwalk Biosparge Startup	**Date Reported:**	05/09/16
Method:	VOCs by GCMS EPA TO-15	**Units:**	ug/L

Date Sampled:	04/27/16	04/27/16	04/27/16	04/27/16	
Date Prepared:	04/27/16	04/27/16	04/27/16	04/27/16	
Date Analyzed:	04/27/16	04/27/16	04/27/16	04/27/16	
AA ID No:	6D28021-01	6D28021-02	6D28021-03	6D28021-04	
Client ID No:	SVM-1-15	SVM-1-5	SVM-2-5	SVM-15-22	
Matrix:	Vapor	Vapor	Vapor	Vapor	
Dilution Factor:	1	1	1	1	MRL
TO-15 (Mid Level) (TO-15) (continued)					
1,1-Dichloroethylene	<0.020	<0.020	<0.020	<0.020	0.020
trans-1,2-Dichloroethylene	<0.020	<0.020	<0.020	<0.020	0.020
1,2-Dichloropropane	<0.020	<0.020	<0.020	<0.020	0.020
trans-1,3-Dichloropropylene	<0.020	<0.020	<0.020	<0.020	0.020
cis-1,3-Dichloropropylene	<0.020	<0.020	<0.020	<0.020	0.020
Dichlorotetrafluoroethane	<0.020	<0.020	<0.020	<0.020	0.020
Diisopropyl ether (DIPE)	<0.020	<0.020	<0.020	<0.020	0.020
1,4-Dioxane	<0.020	<0.020	<0.020	<0.020	0.020
Ethanol	<0.020	<0.020	<0.020	<0.020	0.020
Ethyl Acetate	<0.020	<0.020	<0.020	<0.020	0.020
Ethylbenzene	<0.020	<0.020	<0.020	<0.020	0.020
Ethyl-tert-Butyl Ether (ETBE)	<0.020	<0.020	<0.020	<0.020	0.020
4-Ethyltoluene	<0.020	<0.020	<0.020	<0.020	0.020
Heptane	<0.020	<0.020	<0.020	<0.020	0.020
Hexachlorobutadiene	<0.020	<0.020	<0.020	<0.020	0.020
n-Hexane	<0.020	<0.020	<0.020	<0.020	0.020
2-Hexanone (MBK)	<0.020	<0.020	<0.020	<0.020	0.020
Isopropanol (IPA)	<0.20	<0.20	<0.20	<0.20	0.20
Methyl-tert-Butyl Ether (MTBE)	<0.020	<0.020	<0.020	<0.020	0.020
Methylene Chloride	<0.020	<0.020	<0.020	<0.020	0.020
4-Methyl-2-pentanone (MIBK)	<0.020	<0.020	<0.020	<0.020	0.020
Naphthalene	<0.020	<0.020	<0.020	<0.020	0.020
Propylene	<0.020	<0.020	<0.020	<0.020	0.020
Styrene	<0.020	<0.020	<0.020	<0.020	0.020
1,1,2,2-Tetrachloroethane	<0.020	<0.020	<0.020	<0.020	0.020
Tetrachloroethylene (PCE)	<0.020	<0.020	<0.020	<0.020	0.020
Tetrahydrofuran (THF)	<0.020	<0.020	<0.020	<0.020	0.020

Allen Aminian
QA/QC Manager

LABORATORY ANALYSIS RESULTS

Client: CH2M Hill, Inc.
Project No: 496965.A1.01
Project Name: KMEP Norwalk Biosparge Startup
Method: VOCs by GCMS EPA TO-15

AA Project No: MB187308
Date Received: 04/27/16
Date Reported: 05/09/16
Units: ug/L

Date Sampled:	04/27/16	04/27/16	04/27/16	04/27/16	
Date Prepared:	04/27/16	04/27/16	04/27/16	04/27/16	
Date Analyzed:	04/27/16	04/27/16	04/27/16	04/27/16	
AA ID No:	6D28021-01	6D28021-02	6D28021-03	6D28021-04	
Client ID No:	SVM-1-15	SVM-1-5	SVM-2-5	SVM-15-22	
Matrix:	Vapor	Vapor	Vapor	Vapor	
Dilution Factor:	1	1	1	1	MRL
TO-15 (Mid Level) (TO-15) (continued)					
Toluene	<0.020	<0.020	<0.020	<0.020	0.020
1,2,4-Trichlorobenzene	<0.020	<0.020	<0.020	<0.020	0.020
1,1,2-Trichloroethane	<0.020	<0.020	<0.020	<0.020	0.020
1,1,1-Trichloroethane	<0.020	<0.020	<0.020	<0.020	0.020
Trichloroethylene (TCE)	<0.020	<0.020	<0.020	<0.020	0.020
Trichlorofluoromethane (R11)	<0.020	<0.020	<0.020	<0.020	0.020
1,1,2-Trichloro-1,2,2-trifluoroethane (R113)	<0.020	<0.020	<0.020	<0.020	0.020
1,3,5-Trimethylbenzene	<0.020	<0.020	<0.020	<0.020	0.020
1,2,4-Trimethylbenzene	<0.020	<0.020	<0.020	<0.020	0.020
2,2,4-Trimethylpentane	<0.020	<0.020	<0.020	<0.020	0.020
Vinyl acetate	<0.020	<0.020	<0.020	<0.020	0.020
Vinyl bromide	<0.020	<0.020	<0.020	<0.020	0.020
Vinyl chloride	<0.020	<0.020	<0.020	<0.020	0.020
o-Xylene	<0.020	<0.020	<0.020	<0.020	0.020
m,p-Xylenes	<0.020	<0.020	<0.020	<0.020	0.020
1,1,1,2-Tetrachloroethane	<0.020	<0.020	<0.020	<0.020	0.020
1,2,3-Trichloropropane	<0.020	<0.020	<0.020	<0.020	0.020
sec-Butylbenzene	<0.020	<0.020	<0.020	<0.020	0.020
Isopropylbenzene	<0.020	<0.020	<0.020	<0.020	0.020
n-Propylbenzene	<0.020	<0.020	<0.020	<0.020	0.020
4-Isopropyltoluene	<0.020	<0.020	<0.020	<0.020	0.020
n-Butylbenzene	<0.020	<0.020	<0.020	<0.020	0.020
Surrogates					**%REC Limits**
4-Bromofluorobenzene	103%	104%	104%	104%	70-130

Allen Aminian
QA/QC Manager

LABORATORY ANALYSIS RESULTS

Client: CH2M Hill, Inc.
Project No: 496965.A1.01
Project Name: KMEP Norwalk Biosparge Startup
Method: VOCs by GCMS EPA TO-15

AA Project No: MB187308
Date Received: 04/27/16
Date Reported: 05/09/16
Units: ug/L

Date Sampled:	04/27/16	04/27/16	04/27/16	04/27/16	
Date Prepared:	04/27/16	04/27/16	04/27/16	04/27/16	
Date Analyzed:	04/27/16	04/27/16	04/27/16	04/27/16	
AA ID No:	6D28021-05	6D28021-06	6D28021-07	6D28021-08	
Client ID No:	SVM-15-7	SVM-15-15	SVM-6-16	SVM-6-7	
Matrix:	Vapor	Vapor	Vapor	Vapor	
Dilution Factor:	1	1	1	1	MRL
TO-15 (Mid Level) (TO-15)					
Acetone	<0.020	<0.020	<0.020	<0.020	0.020
Allyl chloride	<0.020	<0.020	<0.020	<0.020	0.020
tert-Amyl Methyl Ether (TAME)	<0.020	<0.020	<0.020	<0.020	0.020
Benzene	<0.020	<0.020	<0.020	<0.020	0.020
Benzyl chloride	<0.020	<0.020	<0.020	<0.020	0.020
Bromodichloromethane	<0.020	<0.020	<0.020	<0.020	0.020
Bromoform	<0.020	<0.020	<0.020	<0.020	0.020
Bromomethane	<0.020	<0.020	<0.020	<0.020	0.020
1,3-Butadiene	<0.020	<0.020	<0.020	<0.020	0.020
2-Butanone (MEK)	<0.020	<0.020	<0.020	<0.020	0.020
tert-Butyl alcohol (TBA)	<20	<20	<20	<20	20
Carbon Disulfide	<0.020	<0.020	<0.020	<0.020	0.020
Carbon Tetrachloride	<0.020	<0.020	<0.020	<0.020	0.020
Chlorobenzene	<0.020	<0.020	<0.020	<0.020	0.020
Chloroethane	<0.020	<0.020	<0.020	<0.020	0.020
Chloroform	<0.020	<0.020	<0.020	<0.020	0.020
Chloromethane	<0.020	<0.020	<0.020	<0.020	0.020
Cyclohexane	<0.020	<0.020	<0.020	<0.020	0.020
Dibromochloromethane	<0.020	<0.020	<0.020	<0.020	0.020
1,2-Dibromoethane (EDB)	<0.020	<0.020	<0.020	<0.020	0.020
1,2-Dichlorobenzene	<0.020	<0.020	<0.020	<0.020	0.020
1,3-Dichlorobenzene	<0.020	<0.020	<0.020	<0.020	0.020
1,4-Dichlorobenzene	<0.020	<0.020	<0.020	<0.020	0.020
Dichlorodifluoromethane (R12)	<0.020	<0.020	<0.020	<0.020	0.020
1,1-Dichloroethane	<0.020	<0.020	<0.020	<0.020	0.020
1,2-Dichloroethane (EDC)	<0.020	<0.020	<0.020	<0.020	0.020
cis-1,2-Dichloroethylene	<0.020	<0.020	<0.020	<0.020	0.020

Allen Aminian
QA/QC Manager

LABORATORY ANALYSIS RESULTS

Client: CH2M Hill, Inc.
Project No: 496965.A1.01
Project Name: KMEP Norwalk Biosparge Startup
Method: VOCs by GCMS EPA TO-15

AA Project No: MB187308
Date Received: 04/27/16
Date Reported: 05/09/16
Units: ug/L

Date Sampled:	04/27/16	04/27/16	04/27/16	04/27/16	
Date Prepared:	04/27/16	04/27/16	04/27/16	04/27/16	
Date Analyzed:	04/27/16	04/27/16	04/27/16	04/27/16	
AA ID No:	6D28021-05	6D28021-06	6D28021-07	6D28021-08	
Client ID No:	SVM-15-7	SVM-15-15	SVM-6-16	SVM-6-7	
Matrix:	Vapor	Vapor	Vapor	Vapor	
Dilution Factor:	1	1	1	1	MRL
TO-15 (Mid Level) (TO-15) (continued)					
1,1-Dichloroethylene	<0.020	<0.020	<0.020	<0.020	0.020
trans-1,2-Dichloroethylene	<0.020	<0.020	<0.020	<0.020	0.020
1,2-Dichloropropane	<0.020	<0.020	<0.020	<0.020	0.020
trans-1,3-Dichloropropylene	<0.020	<0.020	<0.020	<0.020	0.020
cis-1,3-Dichloropropylene	<0.020	<0.020	<0.020	<0.020	0.020
Dichlorotetrafluoroethane	<0.020	<0.020	<0.020	<0.020	0.020
Diisopropyl ether (DIPE)	<0.020	<0.020	<0.020	<0.020	0.020
1,4-Dioxane	<0.020	<0.020	<0.020	<0.020	0.020
Ethanol	<0.020	<0.020	<0.020	<0.020	0.020
Ethyl Acetate	<0.020	<0.020	<0.020	<0.020	0.020
Ethylbenzene	<0.020	<0.020	<0.020	<0.020	0.020
Ethyl-tert-Butyl Ether (ETBE)	<0.020	<0.020	<0.020	<0.020	0.020
4-Ethyltoluene	<0.020	<0.020	<0.020	<0.020	0.020
Heptane	<0.020	<0.020	<0.020	<0.020	0.020
Hexachlorobutadiene	<0.020	<0.020	<0.020	<0.020	0.020
n-Hexane	<0.020	<0.020	<0.020	<0.020	0.020
2-Hexanone (MBK)	<0.020	<0.020	<0.020	<0.020	0.020
Isopropanol (IPA)	<0.20	<0.20	<0.20	<0.20	0.20
Methyl-tert-Butyl Ether (MTBE)	<0.020	<0.020	<0.020	<0.020	0.020
Methylene Chloride	<0.020	<0.020	<0.020	<0.020	0.020
4-Methyl-2-pentanone (MIBK)	<0.020	<0.020	<0.020	<0.020	0.020
Naphthalene	<0.020	<0.020	<0.020	<0.020	0.020
Propylene	<0.020	<0.020	<0.020	<0.020	0.020
Styrene	<0.020	<0.020	<0.020	<0.020	0.020
1,1,2,2-Tetrachloroethane	<0.020	<0.020	<0.020	<0.020	0.020
Tetrachloroethylene (PCE)	<0.020	<0.020	<0.020	<0.020	0.020
Tetrahydrofuran (THF)	<0.020	<0.020	<0.020	<0.020	0.020

Allen Aminian
QA/QC Manager

LABORATORY ANALYSIS RESULTS

Client:	CH2M Hill, Inc.	**AA Project No:**	MB187308
Project No:	496965.A1.01	**Date Received:**	04/27/16
Project Name:	KMEP Norwalk Biosparge Startup	**Date Reported:**	05/09/16
Method:	VOCs by GCMS EPA TO-15	**Units:**	ug/L

Date Sampled:	04/27/16	04/27/16	04/27/16	04/27/16	
Date Prepared:	04/27/16	04/27/16	04/27/16	04/27/16	
Date Analyzed:	04/27/16	04/27/16	04/27/16	04/27/16	
AA ID No:	6D28021-05	6D28021-06	6D28021-07	6D28021-08	
Client ID No:	SVM-15-7	SVM-15-15	SVM-6-16	SVM-6-7	
Matrix:	Vapor	Vapor	Vapor	Vapor	
Dilution Factor:	1	1	1	1	MRL
TO-15 (Mid Level) (TO-15) (continued)					
Toluene	<0.020	<0.020	<0.020	<0.020	0.020
1,2,4-Trichlorobenzene	<0.020	<0.020	<0.020	<0.020	0.020
1,1,2-Trichloroethane	<0.020	<0.020	<0.020	<0.020	0.020
1,1,1-Trichloroethane	<0.020	<0.020	<0.020	<0.020	0.020
Trichloroethylene (TCE)	<0.020	<0.020	<0.020	<0.020	0.020
Trichlorofluoromethane (R11)	<0.020	<0.020	<0.020	<0.020	0.020
1,1,2-Trichloro-1,2,2-trifluoroethane (R113)	<0.020	<0.020	<0.020	<0.020	0.020
1,3,5-Trimethylbenzene	<0.020	<0.020	<0.020	<0.020	0.020
1,2,4-Trimethylbenzene	<0.020	<0.020	<0.020	<0.020	0.020
2,2,4-Trimethylpentane	<0.020	<0.020	<0.020	<0.020	0.020
Vinyl acetate	<0.020	<0.020	<0.020	<0.020	0.020
Vinyl bromide	<0.020	<0.020	<0.020	<0.020	0.020
Vinyl chloride	<0.020	<0.020	<0.020	<0.020	0.020
o-Xylene	<0.020	<0.020	<0.020	<0.020	0.020
m,p-Xylenes	<0.020	<0.020	<0.020	<0.020	0.020
1,1,1,2-Tetrachloroethane	<0.020	<0.020	<0.020	<0.020	0.020
1,2,3-Trichloropropane	<0.020	<0.020	<0.020	<0.020	0.020
sec-Butylbenzene	<0.020	<0.020	<0.020	<0.020	0.020
Isopropylbenzene	<0.020	<0.020	<0.020	<0.020	0.020
n-Propylbenzene	<0.020	<0.020	<0.020	<0.020	0.020
4-Isopropyltoluene	<0.020	<0.020	<0.020	<0.020	0.020
n-Butylbenzene	<0.020	<0.020	<0.020	<0.020	0.020
Surrogates					**%REC Limits**
4-Bromofluorobenzene	104%	104%	105%	107%	70-130

Allen Aminian
QA/QC Manager

LABORATORY ANALYSIS RESULTS

Client: CH2M Hill, Inc.
Project No: 496965.A1.01
Project Name: KMEP Norwalk Biosparge Startup
Method: VOCs by GCMS EPA TO-15

AA Project No: MB187308
Date Received: 04/27/16
Date Reported: 05/09/16
Units: ug/L

Date Sampled:	04/27/16	04/27/16	04/27/16	04/27/16	
Date Prepared:	04/27/16	04/27/16	04/27/16	04/27/16	
Date Analyzed:	04/27/16	04/27/16	04/27/16	04/27/16	
AA ID No:	6D28021-09	6D28021-10	6D28021-11	6D28021-12	
Client ID No:	SVM-7-7	SVM-7-7 DUP	SVM-7-13	SVM-10-15	
Matrix:	Vapor	Vapor	Vapor	Vapor	
Dilution Factor:	1	1	1	1	MRL
TO-15 (Mid Level) (TO-15)					
Acetone	<0.020	<0.020	<0.020	<0.020	0.020
Allyl chloride	<0.020	<0.020	<0.020	<0.020	0.020
tert-Amyl Methyl Ether (TAME)	<0.020	<0.020	<0.020	<0.020	0.020
Benzene	<0.020	<0.020	<0.020	<0.020	0.020
Benzyl chloride	<0.020	<0.020	<0.020	<0.020	0.020
Bromodichloromethane	<0.020	<0.020	<0.020	<0.020	0.020
Bromoform	<0.020	<0.020	<0.020	<0.020	0.020
Bromomethane	<0.020	<0.020	<0.020	<0.020	0.020
1,3-Butadiene	<0.020	<0.020	<0.020	<0.020	0.020
2-Butanone (MEK)	<0.020	<0.020	<0.020	<0.020	0.020
tert-Butyl alcohol (TBA)	<20	<20	<20	<20	20
Carbon Disulfide	<0.020	<0.020	<0.020	<0.020	0.020
Carbon Tetrachloride	<0.020	<0.020	<0.020	<0.020	0.020
Chlorobenzene	<0.020	<0.020	<0.020	<0.020	0.020
Chloroethane	<0.020	<0.020	<0.020	<0.020	0.020
Chloroform	<0.020	<0.020	<0.020	<0.020	0.020
Chloromethane	<0.020	<0.020	<0.020	<0.020	0.020
Cyclohexane	<0.020	<0.020	<0.020	<0.020	0.020
Dibromochloromethane	<0.020	<0.020	<0.020	<0.020	0.020
1,2-Dibromoethane (EDB)	<0.020	<0.020	<0.020	<0.020	0.020
1,2-Dichlorobenzene	<0.020	<0.020	<0.020	<0.020	0.020
1,3-Dichlorobenzene	<0.020	<0.020	<0.020	<0.020	0.020
1,4-Dichlorobenzene	<0.020	<0.020	<0.020	<0.020	0.020
Dichlorodifluoromethane (R12)	<0.020	<0.020	<0.020	<0.020	0.020
1,1-Dichloroethane	<0.020	<0.020	<0.020	<0.020	0.020
1,2-Dichloroethane (EDC)	<0.020	<0.020	<0.020	<0.020	0.020
cis-1,2-Dichloroethylene	<0.020	<0.020	<0.020	<0.020	0.020

Allen Aminian
QA/QC Manager

LABORATORY ANALYSIS RESULTS

Client: CH2M Hill, Inc.
Project No: 496965.A1.01
Project Name: KMEP Norwalk Biosparge Startup
Method: VOCs by GCMS EPA TO-15

AA Project No: MB187308
Date Received: 04/27/16
Date Reported: 05/09/16
Units: ug/L

Date Sampled:	04/27/16	04/27/16	04/27/16	04/27/16	
Date Prepared:	04/27/16	04/27/16	04/27/16	04/27/16	
Date Analyzed:	04/27/16	04/27/16	04/27/16	04/27/16	
AA ID No:	6D28021-09	6D28021-10	6D28021-11	6D28021-12	
Client ID No:	SVM-7-7	SVM-7-7 DUP	SVM-7-13	SVM-10-15	
Matrix:	Vapor	Vapor	Vapor	Vapor	
Dilution Factor:	1	1	1	1	MRL
TO-15 (Mid Level) (TO-15) (continued)					
1,1-Dichloroethylene	<0.020	<0.020	<0.020	<0.020	0.020
trans-1,2-Dichloroethylene	<0.020	<0.020	<0.020	<0.020	0.020
1,2-Dichloropropane	<0.020	<0.020	<0.020	<0.020	0.020
trans-1,3-Dichloropropylene	<0.020	<0.020	<0.020	<0.020	0.020
cis-1,3-Dichloropropylene	<0.020	<0.020	<0.020	<0.020	0.020
Dichlorotetrafluoroethane	<0.020	<0.020	<0.020	<0.020	0.020
Diisopropyl ether (DIPE)	<0.020	<0.020	<0.020	<0.020	0.020
1,4-Dioxane	<0.020	<0.020	<0.020	<0.020	0.020
Ethanol	<0.020	<0.020	<0.020	<0.020	0.020
Ethyl Acetate	<0.020	<0.020	<0.020	<0.020	0.020
Ethylbenzene	<0.020	<0.020	<0.020	<0.020	0.020
Ethyl-tert-Butyl Ether (ETBE)	<0.020	<0.020	<0.020	<0.020	0.020
4-Ethyltoluene	<0.020	<0.020	<0.020	<0.020	0.020
Heptane	<0.020	<0.020	<0.020	<0.020	0.020
Hexachlorobutadiene	<0.020	<0.020	<0.020	<0.020	0.020
n-Hexane	<0.020	<0.020	<0.020	<0.020	0.020
2-Hexanone (MBK)	<0.020	<0.020	<0.020	<0.020	0.020
Isopropanol (IPA)	<0.20	<0.20	<0.20	<0.20	0.20
Methyl-tert-Butyl Ether (MTBE)	<0.020	<0.020	<0.020	<0.020	0.020
Methylene Chloride	<0.020	<0.020	<0.020	<0.020	0.020
4-Methyl-2-pentanone (MIBK)	<0.020	<0.020	<0.020	<0.020	0.020
Naphthalene	<0.020	<0.020	<0.020	<0.020	0.020
Propylene	<0.020	<0.020	<0.020	<0.020	0.020
Styrene	<0.020	<0.020	<0.020	<0.020	0.020
1,1,2,2-Tetrachloroethane	<0.020	<0.020	<0.020	<0.020	0.020
Tetrachloroethylene (PCE)	<0.020	<0.020	<0.020	<0.020	0.020
Tetrahydrofuran (THF)	<0.020	<0.020	<0.020	<0.020	0.020

Allen Aminian
QA/QC Manager

LABORATORY ANALYSIS RESULTS

Client: CH2M Hill, Inc.
Project No: 496965.A1.01
Project Name: KMEP Norwalk Biosparge Startup
Method: VOCs by GCMS EPA TO-15

AA Project No: MB187308
Date Received: 04/27/16
Date Reported: 05/09/16
Units: ug/L

Date Sampled:	04/27/16	04/27/16	04/27/16	04/27/16	
Date Prepared:	04/27/16	04/27/16	04/27/16	04/27/16	
Date Analyzed:	04/27/16	04/27/16	04/27/16	04/27/16	
AA ID No:	6D28021-09	6D28021-10	6D28021-11	6D28021-12	
Client ID No:	SVM-7-7	SVM-7-7 DUP	SVM-7-13	SVM-10-15	
Matrix:	Vapor	Vapor	Vapor	Vapor	
Dilution Factor:	1	1	1	1	MRL
TO-15 (Mid Level) (TO-15) (continued)					
Toluene	<0.020	<0.020	<0.020	<0.020	0.020
1,2,4-Trichlorobenzene	<0.020	<0.020	<0.020	<0.020	0.020
1,1,2-Trichloroethane	<0.020	<0.020	<0.020	<0.020	0.020
1,1,1-Trichloroethane	<0.020	<0.020	<0.020	<0.020	0.020
Trichloroethylene (TCE)	<0.020	<0.020	<0.020	<0.020	0.020
Trichlorofluoromethane (R11)	<0.020	<0.020	<0.020	<0.020	0.020
1,1,2-Trichloro-1,2,2-trifluoroethane (R113)	<0.020	<0.020	<0.020	<0.020	0.020
1,3,5-Trimethylbenzene	<0.020	<0.020	<0.020	<0.020	0.020
1,2,4-Trimethylbenzene	<0.020	<0.020	<0.020	<0.020	0.020
2,2,4-Trimethylpentane	<0.020	<0.020	<0.020	<0.020	0.020
Vinyl acetate	<0.020	<0.020	<0.020	<0.020	0.020
Vinyl bromide	<0.020	<0.020	<0.020	<0.020	0.020
Vinyl chloride	<0.020	<0.020	<0.020	<0.020	0.020
o-Xylene	<0.020	<0.020	<0.020	<0.020	0.020
m,p-Xylenes	<0.020	<0.020	<0.020	<0.020	0.020
1,1,1,2-Tetrachloroethane	<0.020	<0.020	<0.020	<0.020	0.020
1,2,3-Trichloropropane	<0.020	<0.020	<0.020	<0.020	0.020
sec-Butylbenzene	<0.020	<0.020	<0.020	<0.020	0.020
Isopropylbenzene	<0.020	<0.020	<0.020	<0.020	0.020
n-Propylbenzene	<0.020	<0.020	<0.020	<0.020	0.020
4-Isopropyltoluene	<0.020	<0.020	<0.020	<0.020	0.020
n-Butylbenzene	<0.020	<0.020	<0.020	<0.020	0.020
Surrogates					**%REC Limits**
4-Bromofluorobenzene	98%	100%	103%	103%	70-130

Allen Aminian
QA/QC Manager

LABORATORY ANALYSIS RESULTS

Client: CH2M Hill, Inc.
Project No: 496965.A1.01
Project Name: KMEP Norwalk Biosparge Startup
Method: VOCs by GCMS EPA TO-15

AA Project No: MB187308
Date Received: 04/27/16
Date Reported: 05/09/16
Units: ug/L

Date Sampled:	04/27/16	04/27/16	04/28/16	04/28/16	
Date Prepared:	04/28/16	04/27/16	04/28/16	04/28/16	
Date Analyzed:	04/28/16	04/27/16	04/28/16	04/28/16	
AA ID No:	6D28021-13	6D28021-14	6D28021-15	6D28021-16	
Client ID No:	Ambient Air	SVM-10-7	SVM-5-15	SVM-5-5	
Matrix:	Vapor	Vapor	Vapor	Vapor	
Dilution Factor:	1	1	1	1	MRL
TO-15 (Mid Level) (TO-15)					
Acetone	<0.020	<0.020	<0.020	<0.020	0.020
Allyl chloride	<0.020	<0.020	<0.020	<0.020	0.020
tert-Amyl Methyl Ether (TAME)	<0.020	<0.020	<0.020	<0.020	0.020
Benzene	<0.020	<0.020	<0.020	<0.020	0.020
Benzyl chloride	<0.020	<0.020	<0.020	<0.020	0.020
Bromodichloromethane	<0.020	<0.020	<0.020	<0.020	0.020
Bromoform	<0.020	<0.020	<0.020	<0.020	0.020
Bromomethane	<0.020	<0.020	<0.020	<0.020	0.020
1,3-Butadiene	<0.020	<0.020	<0.020	<0.020	0.020
2-Butanone (MEK)	<0.020	<0.020	<0.020	<0.020	0.020
tert-Butyl alcohol (TBA)	<20	<20	<20	<20	20
Carbon Disulfide	<0.020	<0.020	<0.020	<0.020	0.020
Carbon Tetrachloride	<0.020	<0.020	<0.020	<0.020	0.020
Chlorobenzene	<0.020	<0.020	<0.020	<0.020	0.020
Chloroethane	<0.020	<0.020	<0.020	<0.020	0.020
Chloroform	<0.020	<0.020	<0.020	<0.020	0.020
Chloromethane	<0.020	<0.020	<0.020	<0.020	0.020
Cyclohexane	<0.020	<0.020	<0.020	<0.020	0.020
Dibromochloromethane	<0.020	<0.020	<0.020	<0.020	0.020
1,2-Dibromoethane (EDB)	<0.020	<0.020	<0.020	<0.020	0.020
1,2-Dichlorobenzene	<0.020	<0.020	<0.020	<0.020	0.020
1,3-Dichlorobenzene	<0.020	<0.020	<0.020	<0.020	0.020
1,4-Dichlorobenzene	<0.020	<0.020	<0.020	<0.020	0.020
Dichlorodifluoromethane (R12)	<0.020	<0.020	<0.020	<0.020	0.020
1,1-Dichloroethane	<0.020	<0.020	<0.020	<0.020	0.020
1,2-Dichloroethane (EDC)	<0.020	<0.020	<0.020	<0.020	0.020
cis-1,2-Dichloroethylene	<0.020	<0.020	<0.020	<0.020	0.020

Allen Aminian
QA/QC Manager

LABORATORY ANALYSIS RESULTS

Client: CH2M Hill, Inc.
Project No: 496965.A1.01
Project Name: KMEP Norwalk Biosparge Startup
Method: VOCs by GCMS EPA TO-15

AA Project No: MB187308
Date Received: 04/27/16
Date Reported: 05/09/16
Units: ug/L

Date Sampled:	04/27/16	04/27/16	04/28/16	04/28/16	
Date Prepared:	04/28/16	04/27/16	04/28/16	04/28/16	
Date Analyzed:	04/28/16	04/27/16	04/28/16	04/28/16	
AA ID No:	6D28021-13	6D28021-14	6D28021-15	6D28021-16	
Client ID No:	Ambient Air	SVM-10-7	SVM-5-15	SVM-5-5	
Matrix:	Vapor	Vapor	Vapor	Vapor	
Dilution Factor:	1	1	1	1	MRL
TO-15 (Mid Level) (TO-15) (continued)					
1,1-Dichloroethylene	<0.020	<0.020	<0.020	<0.020	0.020
trans-1,2-Dichloroethylene	<0.020	<0.020	<0.020	<0.020	0.020
1,2-Dichloropropane	<0.020	<0.020	<0.020	<0.020	0.020
trans-1,3-Dichloropropylene	<0.020	<0.020	<0.020	<0.020	0.020
cis-1,3-Dichloropropylene	<0.020	<0.020	<0.020	<0.020	0.020
Dichlorotetrafluoroethane	<0.020	<0.020	<0.020	<0.020	0.020
Diisopropyl ether (DIPE)	<0.020	<0.020	<0.020	<0.020	0.020
1,4-Dioxane	<0.020	<0.020	<0.020	<0.020	0.020
Ethanol	<0.020	<0.020	<0.020	<0.020	0.020
Ethyl Acetate	<0.020	<0.020	<0.020	<0.020	0.020
Ethylbenzene	<0.020	<0.020	<0.020	<0.020	0.020
Ethyl-tert-Butyl Ether (ETBE)	<0.020	<0.020	<0.020	<0.020	0.020
4-Ethyltoluene	<0.020	<0.020	<0.020	<0.020	0.020
Heptane	<0.020	<0.020	<0.020	<0.020	0.020
Hexachlorobutadiene	<0.020	<0.020	<0.020	<0.020	0.020
n-Hexane	<0.020	<0.020	<0.020	<0.020	0.020
2-Hexanone (MBK)	<0.020	<0.020	<0.020	<0.020	0.020
Isopropanol (IPA)	<0.20	<0.20	<0.20	<0.20	0.20
Methyl-tert-Butyl Ether (MTBE)	<0.020	<0.020	<0.020	<0.020	0.020
Methylene Chloride	<0.020	<0.020	<0.020	<0.020	0.020
4-Methyl-2-pentanone (MIBK)	<0.020	<0.020	<0.020	<0.020	0.020
Naphthalene	<0.020	<0.020	<0.020	<0.020	0.020
Propylene	<0.020	<0.020	<0.020	<0.020	0.020
Styrene	<0.020	<0.020	<0.020	<0.020	0.020
1,1,2,2-Tetrachloroethane	<0.020	<0.020	<0.020	<0.020	0.020
Tetrachloroethylene (PCE)	<0.020	<0.020	<0.020	<0.020	0.020
Tetrahydrofuran (THF)	<0.020	<0.020	<0.020	<0.020	0.020

Allen Aminian
QA/QC Manager

LABORATORY ANALYSIS RESULTS

Client:	CH2M Hill, Inc.	**AA Project No:**	MB187308
Project No:	496965.A1.01	**Date Received:**	04/27/16
Project Name:	KMEP Norwalk Biosparge Startup	**Date Reported:**	05/09/16
Method:	VOCs by GCMS EPA TO-15	**Units:**	ug/L

Date Sampled:	04/27/16	04/27/16	04/28/16	04/28/16	
Date Prepared:	04/28/16	04/27/16	04/28/16	04/28/16	
Date Analyzed:	04/28/16	04/27/16	04/28/16	04/28/16	
AA ID No:	6D28021-13	6D28021-14	6D28021-15	6D28021-16	
Client ID No:	Ambient Air	SVM-10-7	SVM-5-15	SVM-5-5	
Matrix:	Vapor	Vapor	Vapor	Vapor	
Dilution Factor:	1	1	1	1	MRL
TO-15 (Mid Level) (TO-15) (continued)					
Toluene	<0.020	<0.020	<0.020	<0.020	0.020
1,2,4-Trichlorobenzene	<0.020	<0.020	<0.020	<0.020	0.020
1,1,2-Trichloroethane	<0.020	<0.020	<0.020	<0.020	0.020
1,1,1-Trichloroethane	<0.020	<0.020	<0.020	<0.020	0.020
Trichloroethylene (TCE)	<0.020	<0.020	<0.020	<0.020	0.020
Trichlorofluoromethane (R11)	<0.020	<0.020	<0.020	<0.020	0.020
1,1,2-Trichloro-1,2,2-trifluoroethane (R113)	<0.020	<0.020	<0.020	<0.020	0.020
1,3,5-Trimethylbenzene	<0.020	<0.020	<0.020	<0.020	0.020
1,2,4-Trimethylbenzene	<0.020	<0.020	<0.020	<0.020	0.020
2,2,4-Trimethylpentane	<0.020	<0.020	<0.020	<0.020	0.020
Vinyl acetate	<0.020	<0.020	<0.020	<0.020	0.020
Vinyl bromide	<0.020	<0.020	<0.020	<0.020	0.020
Vinyl chloride	<0.020	<0.020	<0.020	<0.020	0.020
o-Xylene	<0.020	<0.020	<0.020	<0.020	0.020
m,p-Xylenes	<0.020	<0.020	<0.020	<0.020	0.020
1,1,1,2-Tetrachloroethane	<0.020	<0.020	<0.020	<0.020	0.020
1,2,3-Trichloropropane	<0.020	<0.020	<0.020	<0.020	0.020
sec-Butylbenzene	<0.020	<0.020	<0.020	<0.020	0.020
Isopropylbenzene	<0.020	<0.020	<0.020	<0.020	0.020
n-Propylbenzene	<0.020	<0.020	<0.020	<0.020	0.020
4-Isopropyltoluene	<0.020	<0.020	<0.020	<0.020	0.020
n-Butylbenzene	<0.020	<0.020	<0.020	<0.020	0.020
Surrogates					**%REC Limits**
4-Bromofluorobenzene	98%	103%	100%	102%	70-130

Allen Aminian
QA/QC Manager

LABORATORY ANALYSIS RESULTS

Client: CH2M Hill, Inc.
Project No: 496965.A1.01
Project Name: KMEP Norwalk Biosparge Startup
Method: VOCs by GCMS EPA TO-15

AA Project No: MB187308
Date Received: 04/27/16
Date Reported: 05/09/16
Units: ug/L

Date Sampled:	04/28/2016	04/28/2016	04/28/2016	04/28/2016	
Date Prepared:	04/28/16	04/28/16	04/28/16	04/28/16	
Date Analyzed:	04/28/16	04/28/16	04/28/16	04/28/16	
AA ID No:	6D28021-17	6D28021-18	6D28021-19	6D28021-20	
Client ID No:	SVM-8-15	SVM-8-5	SVM-16-7	SVM-16-22	
Matrix:	Vapor	Vapor	Vapor	Vapor	
Dilution Factor:	1	1	1	1	MRL
TO-15 (Mid Level) (TO-15)					
Acetone	<0.020	<0.020	<0.020	<0.020	0.020
Allyl chloride	<0.020	<0.020	<0.020	<0.020	0.020
tert-Amyl Methyl Ether (TAME)	<0.020	<0.020	<0.020	<0.020	0.020
Benzene	<0.020	<0.020	<0.020	<0.020	0.020
Benzyl chloride	<0.020	<0.020	<0.020	<0.020	0.020
Bromodichloromethane	<0.020	<0.020	<0.020	<0.020	0.020
Bromoform	<0.020	<0.020	<0.020	<0.020	0.020
Bromomethane	<0.020	<0.020	<0.020	<0.020	0.020
1,3-Butadiene	<0.020	<0.020	<0.020	<0.020	0.020
2-Butanone (MEK)	<0.020	<0.020	<0.020	<0.020	0.020
tert-Butyl alcohol (TBA)	<20	<20	<20	<20	20
Carbon Disulfide	<0.020	<0.020	<0.020	<0.020	0.020
Carbon Tetrachloride	<0.020	<0.020	<0.020	<0.020	0.020
Chlorobenzene	<0.020	<0.020	<0.020	<0.020	0.020
Chloroethane	<0.020	<0.020	<0.020	<0.020	0.020
Chloroform	<0.020	<0.020	<0.020	<0.020	0.020
Chloromethane	<0.020	<0.020	<0.020	<0.020	0.020
Cyclohexane	<0.020	<0.020	<0.020	<0.020	0.020
Dibromochloromethane	<0.020	<0.020	<0.020	<0.020	0.020
1,2-Dibromoethane (EDB)	<0.020	<0.020	<0.020	<0.020	0.020
1,2-Dichlorobenzene	<0.020	<0.020	<0.020	<0.020	0.020
1,3-Dichlorobenzene	<0.020	<0.020	<0.020	<0.020	0.020
1,4-Dichlorobenzene	<0.020	<0.020	<0.020	<0.020	0.020
Dichlorodifluoromethane (R12)	<0.020	<0.020	<0.020	<0.020	0.020
1,1-Dichloroethane	<0.020	<0.020	<0.020	<0.020	0.020
1,2-Dichloroethane (EDC)	<0.020	<0.020	<0.020	<0.020	0.020
cis-1,2-Dichloroethylene	<0.020	<0.020	<0.020	<0.020	0.020

Allen Aminian
QA/QC Manager

LABORATORY ANALYSIS RESULTS

Client: CH2M Hill, Inc.
Project No: 496965.A1.01
Project Name: KMEP Norwalk Biosparge Startup
Method: VOCs by GCMS EPA TO-15

AA Project No: MB187308
Date Received: 04/27/16
Date Reported: 05/09/16
Units: ug/L

Date Sampled:	04/28/2016	04/28/2016	04/28/2016	04/28/2016	
Date Prepared:	04/28/16	04/28/16	04/28/16	04/28/16	
Date Analyzed:	04/28/16	04/28/16	04/28/16	04/28/16	
AA ID No:	6D28021-17	6D28021-18	6D28021-19	6D28021-20	
Client ID No:	SVM-8-15	SVM-8-5	SVM-16-7	SVM-16-22	
Matrix:	Vapor	Vapor	Vapor	Vapor	
Dilution Factor:	1	1	1	1	MRL
TO-15 (Mid Level) (TO-15) (continued)					
1,1-Dichloroethylene	<0.020	<0.020	<0.020	<0.020	0.020
trans-1,2-Dichloroethylene	<0.020	<0.020	<0.020	<0.020	0.020
1,2-Dichloropropane	<0.020	<0.020	<0.020	<0.020	0.020
trans-1,3-Dichloropropylene	<0.020	<0.020	<0.020	<0.020	0.020
cis-1,3-Dichloropropylene	<0.020	<0.020	<0.020	<0.020	0.020
Dichlorotetrafluoroethane	<0.020	<0.020	<0.020	<0.020	0.020
Diisopropyl ether (DIPE)	<0.020	<0.020	<0.020	<0.020	0.020
1,4-Dioxane	<0.020	<0.020	<0.020	<0.020	0.020
Ethanol	<0.020	<0.020	<0.020	<0.020	0.020
Ethyl Acetate	<0.020	<0.020	<0.020	<0.020	0.020
Ethylbenzene	<0.020	<0.020	<0.020	<0.020	0.020
Ethyl-tert-Butyl Ether (ETBE)	<0.020	<0.020	<0.020	<0.020	0.020
4-Ethyltoluene	<0.020	<0.020	<0.020	<0.020	0.020
Heptane	<0.020	<0.020	<0.020	**0.071**	0.020
Hexachlorobutadiene	<0.020	<0.020	<0.020	<0.020	0.020
n-Hexane	<0.020	<0.020	<0.020	**0.093**	0.020
2-Hexanone (MBK)	<0.020	<0.020	<0.020	<0.020	0.020
Isopropanol (IPA)	<0.20	<0.20	<0.20	<0.20	0.20
Methyl-tert-Butyl Ether (MTBE)	<0.020	<0.020	<0.020	<0.020	0.020
Methylene Chloride	<0.020	<0.020	<0.020	<0.020	0.020
4-Methyl-2-pentanone (MIBK)	<0.020	<0.020	<0.020	<0.020	0.020
Naphthalene	<0.020	<0.020	<0.020	<0.020	0.020
Propylene	<0.020	<0.020	<0.020	<0.020	0.020
Styrene	<0.020	<0.020	<0.020	<0.020	0.020
1,1,2,2-Tetrachloroethane	<0.020	<0.020	<0.020	<0.020	0.020
Tetrachloroethylene (PCE)	<0.020	<0.020	<0.020	<0.020	0.020
Tetrahydrofuran (THF)	<0.020	<0.020	<0.020	<0.020	0.020

Allen Aminian
QA/QC Manager

LABORATORY ANALYSIS RESULTS

Client: CH2M Hill, Inc.
Project No: 496965.A1.01
Project Name: KMEP Norwalk Biosparge Startup
Method: VOCs by GCMS EPA TO-15

AA Project No: MB187308
Date Received: 04/27/16
Date Reported: 05/09/16
Units: ug/L

Date Sampled:	04/28/2016	04/28/2016	04/28/2016	04/28/2016	
Date Prepared:	04/28/16	04/28/16	04/28/16	04/28/16	
Date Analyzed:	04/28/16	04/28/16	04/28/16	04/28/16	
AA ID No:	6D28021-17	6D28021-18	6D28021-19	6D28021-20	
Client ID No:	SVM-8-15	SVM-8-5	SVM-16-7	SVM-16-22	
Matrix:	Vapor	Vapor	Vapor	Vapor	
Dilution Factor:	1	1	1	1	MRL
TO-15 (Mid Level) (TO-15) (continued)					
Toluene	<0.020	<0.020	<0.020	<0.020	0.020
1,2,4-Trichlorobenzene	<0.020	<0.020	<0.020	<0.020	0.020
1,1,2-Trichloroethane	<0.020	<0.020	<0.020	<0.020	0.020
1,1,1-Trichloroethane	<0.020	<0.020	<0.020	<0.020	0.020
Trichloroethylene (TCE)	<0.020	<0.020	<0.020	<0.020	0.020
Trichlorofluoromethane (R11)	<0.020	<0.020	<0.020	<0.020	0.020
1,1,2-Trichloro-1,2,2-trifluoroethane (R113)	<0.020	<0.020	<0.020	<0.020	0.020
1,3,5-Trimethylbenzene	<0.020	<0.020	<0.020	<0.020	0.020
1,2,4-Trimethylbenzene	<0.020	<0.020	<0.020	<0.020	0.020
2,2,4-Trimethylpentane	<0.020	<0.020	<0.020	<0.020	0.020
Vinyl acetate	<0.020	<0.020	<0.020	<0.020	0.020
Vinyl bromide	<0.020	<0.020	<0.020	<0.020	0.020
Vinyl chloride	<0.020	<0.020	<0.020	<0.020	0.020
o-Xylene	<0.020	<0.020	<0.020	<0.020	0.020
m,p-Xylenes	<0.020	<0.020	<0.020	<0.020	0.020
1,1,1,2-Tetrachloroethane	<0.020	<0.020	<0.020	<0.020	0.020
1,2,3-Trichloropropane	<0.020	<0.020	<0.020	<0.020	0.020
sec-Butylbenzene	<0.020	<0.020	<0.020	<0.020	0.020
Isopropylbenzene	<0.020	<0.020	<0.020	<0.020	0.020
n-Propylbenzene	<0.020	<0.020	<0.020	<0.020	0.020
4-Isopropyltoluene	<0.020	<0.020	<0.020	<0.020	0.020
n-Butylbenzene	<0.020	<0.020	<0.020	<0.020	0.020
Surrogates					**%REC Limits**
4-Bromofluorobenzene	104%	102%	102%	102%	70-130

Allen Aminian
QA/QC Manager

LABORATORY ANALYSIS RESULTS

Client: CH2M Hill, Inc.
Project No: 496965.A1.01
Project Name: KMEP Norwalk Biosparge Startup
Method: VOCs by GCMS EPA TO-15

AA Project No: MB187308
Date Received: 04/27/16
Date Reported: 05/09/16
Units: ug/L

Date Sampled:	04/28/16	04/28/16	04/28/16	04/28/16	
Date Prepared:	04/28/16	04/28/16	04/28/16	04/28/16	
Date Analyzed:	04/28/16	04/28/16	04/28/16	04/28/16	
AA ID No:	6D28021-21	6D28021-22	6D28021-23	6D28021-24	
Client ID No:	SVM-16-16	SVM-3-15	SVM-3-5	SVM-12-7	
Matrix:	Vapor	Vapor	Vapor	Vapor	
Dilution Factor:	1	1	1	1	MRL
TO-15 (Mid Level) (TO-15)					
Acetone	<0.020	<0.020	<0.020	<0.020	0.020
Allyl chloride	<0.020	<0.020	<0.020	<0.020	0.020
tert-Amyl Methyl Ether (TAME)	<0.020	<0.020	<0.020	<0.020	0.020
Benzene	<0.020	<0.020	<0.020	<0.020	0.020
Benzyl chloride	<0.020	<0.020	<0.020	<0.020	0.020
Bromodichloromethane	<0.020	<0.020	<0.020	<0.020	0.020
Bromoform	<0.020	<0.020	<0.020	<0.020	0.020
Bromomethane	<0.020	<0.020	<0.020	<0.020	0.020
1,3-Butadiene	<0.020	<0.020	<0.020	<0.020	0.020
2-Butanone (MEK)	<0.020	<0.020	<0.020	<0.020	0.020
tert-Butyl alcohol (TBA)	<20	<20	<20	<20	20
Carbon Disulfide	<0.020	<0.020	<0.020	<0.020	0.020
Carbon Tetrachloride	<0.020	<0.020	<0.020	<0.020	0.020
Chlorobenzene	<0.020	<0.020	<0.020	<0.020	0.020
Chloroethane	<0.020	<0.020	<0.020	<0.020	0.020
Chloroform	<0.020	<0.020	<0.020	<0.020	0.020
Chloromethane	<0.020	<0.020	<0.020	<0.020	0.020
Cyclohexane	<0.020	<0.020	<0.020	<0.020	0.020
Dibromochloromethane	<0.020	<0.020	<0.020	<0.020	0.020
1,2-Dibromoethane (EDB)	<0.020	<0.020	<0.020	<0.020	0.020
1,2-Dichlorobenzene	<0.020	<0.020	<0.020	<0.020	0.020
1,3-Dichlorobenzene	<0.020	<0.020	<0.020	<0.020	0.020
1,4-Dichlorobenzene	<0.020	<0.020	<0.020	<0.020	0.020
Dichlorodifluoromethane (R12)	<0.020	<0.020	<0.020	<0.020	0.020
1,1-Dichloroethane	<0.020	<0.020	<0.020	<0.020	0.020
1,2-Dichloroethane (EDC)	<0.020	<0.020	<0.020	<0.020	0.020
cis-1,2-Dichloroethylene	<0.020	<0.020	<0.020	<0.020	0.020

Allen Aminian
QA/QC Manager

LABORATORY ANALYSIS RESULTS

Client: CH2M Hill, Inc.
Project No: 496965.A1.01
Project Name: KMEP Norwalk Biosparge Startup
Method: VOCs by GCMS EPA TO-15

AA Project No: MB187308
Date Received: 04/27/16
Date Reported: 05/09/16
Units: ug/L

Date Sampled:	04/28/16	04/28/16	04/28/16	04/28/16	
Date Prepared:	04/28/16	04/28/16	04/28/16	04/28/16	
Date Analyzed:	04/28/16	04/28/16	04/28/16	04/28/16	
AA ID No:	6D28021-21	6D28021-22	6D28021-23	6D28021-24	
Client ID No:	SVM-16-16	SVM-3-15	SVM-3-5	SVM-12-7	
Matrix:	Vapor	Vapor	Vapor	Vapor	
Dilution Factor:	1	1	1	1	MRL
TO-15 (Mid Level) (TO-15) (continued)					
1,1-Dichloroethylene	<0.020	<0.020	<0.020	<0.020	0.020
trans-1,2-Dichloroethylene	<0.020	<0.020	<0.020	<0.020	0.020
1,2-Dichloropropane	<0.020	<0.020	<0.020	<0.020	0.020
trans-1,3-Dichloropropylene	<0.020	<0.020	<0.020	<0.020	0.020
cis-1,3-Dichloropropylene	<0.020	<0.020	<0.020	<0.020	0.020
Dichlorotetrafluoroethane	<0.020	<0.020	<0.020	<0.020	0.020
Diisopropyl ether (DIPE)	<0.020	<0.020	<0.020	<0.020	0.020
1,4-Dioxane	<0.020	<0.020	<0.020	<0.020	0.020
Ethanol	<0.020	<0.020	<0.020	<0.020	0.020
Ethyl Acetate	<0.020	<0.020	<0.020	<0.020	0.020
Ethylbenzene	<0.020	<0.020	<0.020	<0.020	0.020
Ethyl-tert-Butyl Ether (ETBE)	<0.020	<0.020	<0.020	<0.020	0.020
4-Ethyltoluene	<0.020	<0.020	<0.020	<0.020	0.020
Heptane	<0.020	<0.020	<0.020	<0.020	0.020
Hexachlorobutadiene	<0.020	<0.020	<0.020	<0.020	0.020
n-Hexane	<0.020	<0.020	<0.020	<0.020	0.020
2-Hexanone (MBK)	<0.020	<0.020	<0.020	<0.020	0.020
Isopropanol (IPA)	<0.20	<0.20	<0.20	<0.20	0.20
Methyl-tert-Butyl Ether (MTBE)	<0.020	<0.020	<0.020	<0.020	0.020
Methylene Chloride	<0.020	<0.020	<0.020	<0.020	0.020
4-Methyl-2-pentanone (MIBK)	<0.020	<0.020	<0.020	<0.020	0.020
Naphthalene	<0.020	<0.020	<0.020	<0.020	0.020
Propylene	<0.020	<0.020	<0.020	<0.020	0.020
Styrene	<0.020	<0.020	<0.020	<0.020	0.020
1,1,2,2-Tetrachloroethane	<0.020	<0.020	<0.020	<0.020	0.020
Tetrachloroethylene (PCE)	<0.020	<0.020	<0.020	<0.020	0.020
Tetrahydrofuran (THF)	<0.020	<0.020	<0.020	<0.020	0.020

Allen Aminian
QA/QC Manager

LABORATORY ANALYSIS RESULTS

Client: CH2M Hill, Inc.
Project No: 496965.A1.01
Project Name: KMEP Norwalk Biosparge Startup
Method: VOCs by GCMS EPA TO-15

AA Project No: MB187308
Date Received: 04/27/16
Date Reported: 05/09/16
Units: ug/L

Date Sampled:	04/28/16	04/28/16	04/28/16	04/28/16	
Date Prepared:	04/28/16	04/28/16	04/28/16	04/28/16	
Date Analyzed:	04/28/16	04/28/16	04/28/16	04/28/16	
AA ID No:	6D28021-21	6D28021-22	6D28021-23	6D28021-24	
Client ID No:	SVM-16-16	SVM-3-15	SVM-3-5	SVM-12-7	
Matrix:	Vapor	Vapor	Vapor	Vapor	
Dilution Factor:	1	1	1	1	MRL
TO-15 (Mid Level) (TO-15) (continued)					
Toluene	<0.020	<0.020	<0.020	<0.020	0.020
1,2,4-Trichlorobenzene	<0.020	<0.020	<0.020	<0.020	0.020
1,1,2-Trichloroethane	<0.020	<0.020	<0.020	<0.020	0.020
1,1,1-Trichloroethane	<0.020	<0.020	<0.020	<0.020	0.020
Trichloroethylene (TCE)	<0.020	<0.020	<0.020	<0.020	0.020
Trichlorofluoromethane (R11)	<0.020	<0.020	<0.020	<0.020	0.020
1,1,2-Trichloro-1,2,2-trifluoroethane (R113)	<0.020	<0.020	<0.020	<0.020	0.020
1,3,5-Trimethylbenzene	<0.020	<0.020	<0.020	<0.020	0.020
1,2,4-Trimethylbenzene	<0.020	<0.020	<0.020	<0.020	0.020
2,2,4-Trimethylpentane	<0.020	<0.020	<0.020	<0.020	0.020
Vinyl acetate	<0.020	<0.020	<0.020	<0.020	0.020
Vinyl bromide	<0.020	<0.020	<0.020	<0.020	0.020
Vinyl chloride	<0.020	<0.020	<0.020	<0.020	0.020
o-Xylene	<0.020	<0.020	<0.020	<0.020	0.020
m,p-Xylenes	<0.020	<0.020	<0.020	<0.020	0.020
1,1,1,2-Tetrachloroethane	<0.020	<0.020	<0.020	<0.020	0.020
1,2,3-Trichloropropane	<0.020	<0.020	<0.020	<0.020	0.020
sec-Butylbenzene	<0.020	<0.020	<0.020	<0.020	0.020
Isopropylbenzene	<0.020	<0.020	<0.020	<0.020	0.020
n-Propylbenzene	<0.020	<0.020	<0.020	<0.020	0.020
4-Isopropyltoluene	<0.020	<0.020	<0.020	<0.020	0.020
n-Butylbenzene	<0.020	<0.020	<0.020	<0.020	0.020
Surrogates					**%REC Limits**
4-Bromofluorobenzene	100%	100%	100%	100%	70-130

Allen Aminian
QA/QC Manager

LABORATORY ANALYSIS RESULTS

Client: CH2M Hill, Inc.
Project No: 496965.A1.01
Project Name: KMEP Norwalk Biosparge Startup
Method: VOCs by GCMS EPA TO-15

AA Project No: MB187308
Date Received: 04/27/16
Date Reported: 05/09/16
Units: ug/L

Date Sampled:	04/28/16	04/28/16	04/28/16	04/28/16	
Date Prepared:	04/28/16	04/28/16	04/28/16	04/28/16	
Date Analyzed:	04/28/16	04/28/16	04/28/16	04/28/16	
AA ID No:	6D28021-25	6D28021-26	6D28021-27	6D28021-28	
Client ID No:	SVM-12-22	Ambient Air	SVM-12-15	SVM-12-15 DUP	
Matrix:	Vapor	Vapor	Vapor	Vapor	
Dilution Factor:	1	1	1	1	MRL
TO-15 (Mid Level) (TO-15)					
Acetone	<0.020	<0.020	<0.020	<0.020	0.020
Allyl chloride	<0.020	<0.020	<0.020	<0.020	0.020
tert-Amyl Methyl Ether (TAME)	<0.020	<0.020	<0.020	<0.020	0.020
Benzene	<0.020	<0.020	<0.020	<0.020	0.020
Benzyl chloride	<0.020	<0.020	<0.020	<0.020	0.020
Bromodichloromethane	<0.020	<0.020	<0.020	<0.020	0.020
Bromoform	<0.020	<0.020	<0.020	<0.020	0.020
Bromomethane	<0.020	<0.020	<0.020	<0.020	0.020
1,3-Butadiene	<0.020	<0.020	<0.020	<0.020	0.020
2-Butanone (MEK)	<0.020	<0.020	<0.020	<0.020	0.020
tert-Butyl alcohol (TBA)	<20	<20	<20	<20	20
Carbon Disulfide	<0.020	<0.020	<0.020	<0.020	0.020
Carbon Tetrachloride	<0.020	<0.020	<0.020	<0.020	0.020
Chlorobenzene	<0.020	<0.020	<0.020	<0.020	0.020
Chloroethane	<0.020	<0.020	<0.020	<0.020	0.020
Chloroform	<0.020	<0.020	<0.020	<0.020	0.020
Chloromethane	<0.020	<0.020	<0.020	<0.020	0.020
Cyclohexane	<0.020	<0.020	<0.020	<0.020	0.020
Dibromochloromethane	<0.020	<0.020	<0.020	<0.020	0.020
1,2-Dibromoethane (EDB)	<0.020	<0.020	<0.020	<0.020	0.020
1,2-Dichlorobenzene	<0.020	<0.020	<0.020	<0.020	0.020
1,3-Dichlorobenzene	<0.020	<0.020	<0.020	<0.020	0.020
1,4-Dichlorobenzene	<0.020	<0.020	<0.020	<0.020	0.020
Dichlorodifluoromethane (R12)	<0.020	<0.020	<0.020	<0.020	0.020
1,1-Dichloroethane	<0.020	<0.020	<0.020	<0.020	0.020
1,2-Dichloroethane (EDC)	<0.020	<0.020	<0.020	<0.020	0.020
cis-1,2-Dichloroethylene	<0.020	<0.020	<0.020	<0.020	0.020

Allen Aminian
QA/QC Manager

LABORATORY ANALYSIS RESULTS

Client: CH2M Hill, Inc.
Project No: 496965.A1.01
Project Name: KMEP Norwalk Biosparge Startup
Method: VOCs by GCMS EPA TO-15

AA Project No: MB187308
Date Received: 04/27/16
Date Reported: 05/09/16
Units: ug/L

Date Sampled:	04/28/16	04/28/16	04/28/16	04/28/16	
Date Prepared:	04/28/16	04/28/16	04/28/16	04/28/16	
Date Analyzed:	04/28/16	04/28/16	04/28/16	04/28/16	
AA ID No:	6D28021-25	6D28021-26	6D28021-27	6D28021-28	
Client ID No:	SVM-12-22	Ambient Air	SVM-12-15	SVM-12-15 DUP	
Matrix:	Vapor	Vapor	Vapor	Vapor	
Dilution Factor:	1	1	1	1	MRL
TO-15 (Mid Level) (TO-15) (continued)					
1,1-Dichloroethylene	<0.020	<0.020	<0.020	<0.020	0.020
trans-1,2-Dichloroethylene	<0.020	<0.020	<0.020	<0.020	0.020
1,2-Dichloropropane	<0.020	<0.020	<0.020	<0.020	0.020
trans-1,3-Dichloropropylene	<0.020	<0.020	<0.020	<0.020	0.020
cis-1,3-Dichloropropylene	<0.020	<0.020	<0.020	<0.020	0.020
Dichlorotetrafluoroethane	<0.020	<0.020	<0.020	<0.020	0.020
Diisopropyl ether (DIPE)	<0.020	<0.020	<0.020	<0.020	0.020
1,4-Dioxane	<0.020	<0.020	<0.020	<0.020	0.020
Ethanol	<0.020	<0.020	<0.020	<0.020	0.020
Ethyl Acetate	<0.020	<0.020	<0.020	<0.020	0.020
Ethylbenzene	<0.020	<0.020	<0.020	<0.020	0.020
Ethyl-tert-Butyl Ether (ETBE)	<0.020	<0.020	<0.020	<0.020	0.020
4-Ethyltoluene	<0.020	<0.020	<0.020	<0.020	0.020
Heptane	<0.020	<0.020	<0.020	<0.020	0.020
Hexachlorobutadiene	<0.020	<0.020	<0.020	<0.020	0.020
n-Hexane	<0.020	<0.020	<0.020	<0.020	0.020
2-Hexanone (MBK)	<0.020	<0.020	<0.020	<0.020	0.020
Isopropanol (IPA)	<0.20	<0.20	<0.20	<0.20	0.20
Methyl-tert-Butyl Ether (MTBE)	<0.020	<0.020	<0.020	<0.020	0.020
Methylene Chloride	<0.020	<0.020	<0.020	<0.020	0.020
4-Methyl-2-pentanone (MIBK)	<0.020	<0.020	<0.020	<0.020	0.020
Naphthalene	<0.020	<0.020	<0.020	<0.020	0.020
Propylene	<0.020	<0.020	<0.020	<0.020	0.020
Styrene	<0.020	<0.020	<0.020	<0.020	0.020
1,1,2,2-Tetrachloroethane	<0.020	<0.020	<0.020	<0.020	0.020
Tetrachloroethylene (PCE)	<0.020	<0.020	<0.020	<0.020	0.020
Tetrahydrofuran (THF)	<0.020	<0.020	<0.020	<0.020	0.020

Allen Aminian
QA/QC Manager

LABORATORY ANALYSIS RESULTS

Client: CH2M Hill, Inc.
Project No: 496965.A1.01
Project Name: KMEP Norwalk Biosparge Startup
Method: VOCs by GCMS EPA TO-15

AA Project No: MB187308
Date Received: 04/27/16
Date Reported: 05/09/16
Units: ug/L

Date Sampled:	04/28/16	04/28/16	04/28/16	04/28/16	
Date Prepared:	04/28/16	04/28/16	04/28/16	04/28/16	
Date Analyzed:	04/28/16	04/28/16	04/28/16	04/28/16	
AA ID No:	6D28021-25	6D28021-26	6D28021-27	6D28021-28	
Client ID No:	SVM-12-22	Ambient Air	SVM-12-15	SVM-12-15 DUP	
Matrix:	Vapor	Vapor	Vapor	Vapor	
Dilution Factor:	1	1	1	1	MRL
TO-15 (Mid Level) (TO-15) (continued)					
Toluene	<0.020	<0.020	<0.020	<0.020	0.020
1,2,4-Trichlorobenzene	<0.020	<0.020	<0.020	<0.020	0.020
1,1,2-Trichloroethane	<0.020	<0.020	<0.020	<0.020	0.020
1,1,1-Trichloroethane	<0.020	<0.020	<0.020	<0.020	0.020
Trichloroethylene (TCE)	<0.020	<0.020	<0.020	<0.020	0.020
Trichlorofluoromethane (R11)	<0.020	<0.020	<0.020	<0.020	0.020
1,1,2-Trichloro-1,2,2-trifluoroethane (R113)	<0.020	<0.020	<0.020	<0.020	0.020
1,3,5-Trimethylbenzene	<0.020	<0.020	<0.020	<0.020	0.020
1,2,4-Trimethylbenzene	<0.020	<0.020	<0.020	<0.020	0.020
2,2,4-Trimethylpentane	**0.030**	<0.020	<0.020	<0.020	0.020
Vinyl acetate	<0.020	<0.020	<0.020	<0.020	0.020
Vinyl bromide	<0.020	<0.020	<0.020	<0.020	0.020
Vinyl chloride	<0.020	<0.020	<0.020	<0.020	0.020
o-Xylene	<0.020	<0.020	<0.020	<0.020	0.020
m,p-Xylenes	<0.020	<0.020	<0.020	<0.020	0.020
1,1,1,2-Tetrachloroethane	<0.020	<0.020	<0.020	<0.020	0.020
1,2,3-Trichloropropane	<0.020	<0.020	<0.020	<0.020	0.020
sec-Butylbenzene	<0.020	<0.020	<0.020	<0.020	0.020
Isopropylbenzene	<0.020	<0.020	<0.020	<0.020	0.020
n-Propylbenzene	<0.020	<0.020	<0.020	<0.020	0.020
4-Isopropyltoluene	<0.020	<0.020	<0.020	<0.020	0.020
n-Butylbenzene	<0.020	<0.020	<0.020	<0.020	0.020
Surrogates					**%REC Limits**
4-Bromofluorobenzene	100%	102%	100%	99%	70-130

Allen Aminian
QA/QC Manager

LABORATORY ANALYSIS RESULTS

Client: CH2M Hill, Inc.
Project No: 496965.A1.01
Project Name: KMEP Norwalk Biosparge Startup
Method: VOCs by GCMS EPA TO-15

AA Project No: MB187308
Date Received: 04/27/16
Date Reported: 05/09/16
Units: ug/L

Date Sampled:	04/29/16	04/29/16	04/29/16	04/29/16	
Date Prepared:	04/29/16	04/29/16	04/29/16	04/29/16	
Date Analyzed:	04/29/16	04/29/16	04/29/16	04/29/16	
AA ID No:	6D28021-29	6D28021-30	6D28021-31	6D28021-32	
Client ID No:	SVM-11-15	SVM-11-22	SVM-11-7	SVM-13-22.5	
Matrix:	Vapor	Vapor	Vapor	Vapor	
Dilution Factor:	1	1	1	1	MRL
TO-15 (Mid Level) (TO-15)					
Acetone	<0.020	<0.020	<0.020	<0.020	0.020
Allyl chloride	<0.020	<0.020	<0.020	<0.020	0.020
tert-Amyl Methyl Ether (TAME)	<0.020	<0.020	<0.020	<0.020	0.020
Benzene	<0.020	<0.020	<0.020	<0.020	0.020
Benzyl chloride	<0.020	<0.020	<0.020	<0.020	0.020
Bromodichloromethane	<0.020	<0.020	<0.020	<0.020	0.020
Bromoform	<0.020	<0.020	<0.020	<0.020	0.020
Bromomethane	<0.020	<0.020	<0.020	<0.020	0.020
1,3-Butadiene	<0.020	<0.020	<0.020	<0.020	0.020
2-Butanone (MEK)	<0.020	<0.020	<0.020	<0.020	0.020
tert-Butyl alcohol (TBA)	<20	<20	<20	<20	20
Carbon Disulfide	<0.020	<0.020	<0.020	<0.020	0.020
Carbon Tetrachloride	<0.020	<0.020	<0.020	<0.020	0.020
Chlorobenzene	<0.020	<0.020	<0.020	<0.020	0.020
Chloroethane	<0.020	<0.020	<0.020	<0.020	0.020
Chloroform	<0.020	<0.020	<0.020	<0.020	0.020
Chloromethane	<0.020	<0.020	<0.020	<0.020	0.020
Cyclohexane	<0.020	<0.020	<0.020	<0.020	0.020
Dibromochloromethane	<0.020	<0.020	<0.020	<0.020	0.020
1,2-Dibromoethane (EDB)	<0.020	<0.020	<0.020	<0.020	0.020
1,2-Dichlorobenzene	<0.020	<0.020	<0.020	<0.020	0.020
1,3-Dichlorobenzene	<0.020	<0.020	<0.020	<0.020	0.020
1,4-Dichlorobenzene	<0.020	<0.020	<0.020	<0.020	0.020
Dichlorodifluoromethane (R12)	<0.020	<0.020	<0.020	<0.020	0.020
1,1-Dichloroethane	<0.020	<0.020	<0.020	<0.020	0.020
1,2-Dichloroethane (EDC)	<0.020	<0.020	<0.020	<0.020	0.020
cis-1,2-Dichloroethylene	<0.020	<0.020	<0.020	<0.020	0.020

Allen Aminian
QA/QC Manager

LABORATORY ANALYSIS RESULTS

Client: CH2M Hill, Inc.
Project No: 496965.A1.01
Project Name: KMEP Norwalk Biosparge Startup
Method: VOCs by GCMS EPA TO-15

AA Project No: MB187308
Date Received: 04/27/16
Date Reported: 05/09/16
Units: ug/L

Date Sampled:	04/29/16	04/29/16	04/29/16	04/29/16	
Date Prepared:	04/29/16	04/29/16	04/29/16	04/29/16	
Date Analyzed:	04/29/16	04/29/16	04/29/16	04/29/16	
AA ID No:	6D28021-29	6D28021-30	6D28021-31	6D28021-32	
Client ID No:	SVM-11-15	SVM-11-22	SVM-11-7	SVM-13-22.5	
Matrix:	Vapor	Vapor	Vapor	Vapor	
Dilution Factor:	1	1	1	1	MRL
TO-15 (Mid Level) (TO-15) (continued)					
1,1-Dichloroethylene	<0.020	<0.020	<0.020	<0.020	0.020
trans-1,2-Dichloroethylene	<0.020	<0.020	<0.020	<0.020	0.020
1,2-Dichloropropane	<0.020	<0.020	<0.020	<0.020	0.020
trans-1,3-Dichloropropylene	<0.020	<0.020	<0.020	<0.020	0.020
cis-1,3-Dichloropropylene	<0.020	<0.020	<0.020	<0.020	0.020
Dichlorotetrafluoroethane	<0.020	<0.020	<0.020	<0.020	0.020
Diisopropyl ether (DIPE)	<0.020	<0.020	<0.020	<0.020	0.020
1,4-Dioxane	<0.020	<0.020	<0.020	<0.020	0.020
Ethanol	<0.020	<0.020	<0.020	<0.020	0.020
Ethyl Acetate	<0.020	<0.020	<0.020	<0.020	0.020
Ethylbenzene	<0.020	<0.020	<0.020	<0.020	0.020
Ethyl-tert-Butyl Ether (ETBE)	<0.020	<0.020	<0.020	<0.020	0.020
4-Ethyltoluene	<0.020	<0.020	<0.020	<0.020	0.020
Heptane	<0.020	<0.020	<0.020	<0.020	0.020
Hexachlorobutadiene	<0.020	<0.020	<0.020	<0.020	0.020
n-Hexane	<0.020	<0.020	<0.020	<0.020	0.020
2-Hexanone (MBK)	<0.020	<0.020	<0.020	<0.020	0.020
Isopropanol (IPA)	<0.20	<0.20	<0.20	<0.20	0.20
Methyl-tert-Butyl Ether (MTBE)	<0.020	<0.020	<0.020	<0.020	0.020
Methylene Chloride	<0.020	<0.020	<0.020	<0.020	0.020
4-Methyl-2-pentanone (MIBK)	<0.020	<0.020	<0.020	<0.020	0.020
Naphthalene	<0.020	<0.020	<0.020	<0.020	0.020
Propylene	<0.020	<0.020	<0.020	<0.020	0.020
Styrene	<0.020	<0.020	<0.020	<0.020	0.020
1,1,2,2-Tetrachloroethane	<0.020	<0.020	<0.020	<0.020	0.020
Tetrachloroethylene (PCE)	<0.020	<0.020	<0.020	<0.020	0.020
Tetrahydrofuran (THF)	<0.020	<0.020	<0.020	<0.020	0.020

Allen Aminian
QA/QC Manager

LABORATORY ANALYSIS RESULTS

Client: CH2M Hill, Inc.
Project No: 496965.A1.01
Project Name: KMEP Norwalk Biosparge Startup
Method: VOCs by GCMS EPA TO-15

AA Project No: MB187308
Date Received: 04/27/16
Date Reported: 05/09/16
Units: ug/L

Date Sampled:	04/29/16	04/29/16	04/29/16	04/29/16	
Date Prepared:	04/29/16	04/29/16	04/29/16	04/29/16	
Date Analyzed:	04/29/16	04/29/16	04/29/16	04/29/16	
AA ID No:	6D28021-29	6D28021-30	6D28021-31	6D28021-32	
Client ID No:	SVM-11-15	SVM-11-22	SVM-11-7	SVM-13-22.5	
Matrix:	Vapor	Vapor	Vapor	Vapor	
Dilution Factor:	1	1	1	1	MRL
TO-15 (Mid Level) (TO-15) (continued)					
Toluene	<0.020	<0.020	<0.020	<0.020	0.020
1,2,4-Trichlorobenzene	<0.020	<0.020	<0.020	<0.020	0.020
1,1,2-Trichloroethane	<0.020	<0.020	<0.020	<0.020	0.020
1,1,1-Trichloroethane	<0.020	<0.020	<0.020	<0.020	0.020
Trichloroethylene (TCE)	<0.020	<0.020	<0.020	<0.020	0.020
Trichlorofluoromethane (R11)	<0.020	<0.020	<0.020	<0.020	0.020
1,1,2-Trichloro-1,2,2-trifluoroethane (R113)	<0.020	<0.020	<0.020	<0.020	0.020
1,3,5-Trimethylbenzene	<0.020	<0.020	<0.020	<0.020	0.020
1,2,4-Trimethylbenzene	<0.020	<0.020	<0.020	<0.020	0.020
2,2,4-Trimethylpentane	<0.020	<0.020	<0.020	<0.020	0.020
Vinyl acetate	<0.020	<0.020	<0.020	<0.020	0.020
Vinyl bromide	<0.020	<0.020	<0.020	<0.020	0.020
Vinyl chloride	<0.020	<0.020	<0.020	<0.020	0.020
o-Xylene	<0.020	<0.020	<0.020	<0.020	0.020
m,p-Xylenes	<0.020	<0.020	<0.020	<0.020	0.020
1,1,1,2-Tetrachloroethane	<0.020	<0.020	<0.020	<0.020	0.020
1,2,3-Trichloropropane	<0.020	<0.020	<0.020	<0.020	0.020
sec-Butylbenzene	<0.020	<0.020	<0.020	<0.020	0.020
Isopropylbenzene	<0.020	<0.020	<0.020	<0.020	0.020
n-Propylbenzene	<0.020	<0.020	<0.020	<0.020	0.020
4-Isopropyltoluene	<0.020	<0.020	<0.020	<0.020	0.020
n-Butylbenzene	<0.020	<0.020	<0.020	<0.020	0.020
Surrogates					**%REC Limits**
4-Bromofluorobenzene	104%	102%	102%	104%	70-130

Allen Aminian
QA/QC Manager

LABORATORY ANALYSIS RESULTS

Client: CH2M Hill, Inc.
Project No: 496965.A1.01
Project Name: KMEP Norwalk Biosparge Startup
Method: VOCs by GCMS EPA TO-15

AA Project No: MB187308
Date Received: 04/27/16
Date Reported: 05/09/16
Units: ug/L

Date Sampled:	04/29/16	04/29/16	04/29/16	04/29/16	
Date Prepared:	04/29/16	04/29/16	04/29/16	04/29/16	
Date Analyzed:	04/29/16	04/29/16	04/29/16	04/29/16	
AA ID No:	6D28021-33	6D28021-34	6D28021-35	6D28021-36	
Client ID No:	SVM-13-7	SVM-13-15.5	SVM-14-22	SVM-14-7	
Matrix:	Vapor	Vapor	Vapor	Vapor	
Dilution Factor:	1	1	400	1	MRL
TO-15 (Mid Level) (TO-15)					
Acetone	<0.020	<0.020	<8.0	<0.020	0.020
Allyl chloride	<0.020	<0.020	<8.0	<0.020	0.020
tert-Amyl Methyl Ether (TAME)	<0.020	<0.020	<8.0	<0.020	0.020
Benzene	<0.020	<0.020	<8.0	<0.020	0.020
Benzyl chloride	<0.020	<0.020	<8.0	<0.020	0.020
Bromodichloromethane	<0.020	<0.020	<8.0	<0.020	0.020
Bromoform	<0.020	<0.020	<8.0	<0.020	0.020
Bromomethane	<0.020	<0.020	<8.0	<0.020	0.020
1,3-Butadiene	<0.020	<0.020	<8.0	<0.020	0.020
2-Butanone (MEK)	<0.020	<0.020	<8.0	<0.020	0.020
tert-Butyl alcohol (TBA)	<20	<20	<8000	<20	20
Carbon Disulfide	<0.020	<0.020	<8.0	<0.020	0.020
Carbon Tetrachloride	<0.020	<0.020	<8.0	<0.020	0.020
Chlorobenzene	<0.020	<0.020	<8.0	<0.020	0.020
Chloroethane	<0.020	<0.020	<8.0	<0.020	0.020
Chloroform	<0.020	<0.020	<8.0	<0.020	0.020
Chloromethane	<0.020	<0.020	<8.0	<0.020	0.020
Cyclohexane	<0.020	<0.020	<8.0	<0.020	0.020
Dibromochloromethane	<0.020	<0.020	<8.0	<0.020	0.020
1,2-Dibromoethane (EDB)	<0.020	<0.020	<8.0	<0.020	0.020
1,2-Dichlorobenzene	<0.020	<0.020	<8.0	<0.020	0.020
1,3-Dichlorobenzene	<0.020	<0.020	<8.0	<0.020	0.020
1,4-Dichlorobenzene	<0.020	<0.020	<8.0	<0.020	0.020
Dichlorodifluoromethane (R12)	<0.020	<0.020	<8.0	<0.020	0.020
1,1-Dichloroethane	<0.020	<0.020	<8.0	<0.020	0.020
1,2-Dichloroethane (EDC)	<0.020	<0.020	<8.0	<0.020	0.020
cis-1,2-Dichloroethylene	<0.020	<0.020	<8.0	<0.020	0.020

Allen Aminian
QA/QC Manager

LABORATORY ANALYSIS RESULTS

Client: CH2M Hill, Inc.
Project No: 496965.A1.01
Project Name: KMEP Norwalk Biosparge Startup
Method: VOCs by GCMS EPA TO-15

AA Project No: MB187308
Date Received: 04/27/16
Date Reported: 05/09/16
Units: ug/L

Date Sampled:	04/29/16	04/29/16	04/29/16	04/29/16	
Date Prepared:	04/29/16	04/29/16	04/29/16	04/29/16	
Date Analyzed:	04/29/16	04/29/16	04/29/16	04/29/16	
AA ID No:	6D28021-33	6D28021-34	6D28021-35	6D28021-36	
Client ID No:	SVM-13-7	SVM-13-15.5	SVM-14-22	SVM-14-7	
Matrix:	Vapor	Vapor	Vapor	Vapor	
Dilution Factor:	1	1	400	1	MRL
TO-15 (Mid Level) (TO-15) (continued)					
1,1-Dichloroethylene	<0.020	<0.020	<8.0	<0.020	0.020
trans-1,2-Dichloroethylene	<0.020	<0.020	<8.0	<0.020	0.020
1,2-Dichloropropane	<0.020	<0.020	<8.0	<0.020	0.020
trans-1,3-Dichloropropylene	<0.020	<0.020	<8.0	<0.020	0.020
cis-1,3-Dichloropropylene	<0.020	<0.020	<8.0	<0.020	0.020
Dichlorotetrafluoroethane	<0.020	<0.020	<8.0	<0.020	0.020
Diisopropyl ether (DIPE)	<0.020	<0.020	<8.0	<0.020	0.020
1,4-Dioxane	<0.020	<0.020	<8.0	<0.020	0.020
Ethanol	<0.020	<0.020	<8.0	<0.020	0.020
Ethyl Acetate	<0.020	<0.020	<8.0	<0.020	0.020
Ethylbenzene	<0.020	<0.020	**10**	<0.020	0.020
Ethyl-tert-Butyl Ether (ETBE)	<0.020	<0.020	<8.0	<0.020	0.020
4-Ethyltoluene	<0.020	<0.020	**120**	<0.020	0.020
Heptane	<0.020	<0.020	<8.0	<0.020	0.020
Hexachlorobutadiene	<0.020	<0.020	<8.0	<0.020	0.020
n-Hexane	<0.020	<0.020	<8.0	<0.020	0.020
2-Hexanone (MBK)	<0.020	<0.020	<8.0	<0.020	0.020
Isopropanol (IPA)	<0.20	<0.20	<80	<0.20	0.20
Methyl-tert-Butyl Ether (MTBE)	<0.020	<0.020	<8.0	<0.020	0.020
Methylene Chloride	<0.020	<0.020	<8.0	<0.020	0.020
4-Methyl-2-pentanone (MIBK)	<0.020	<0.020	<8.0	<0.020	0.020
Naphthalene	<0.020	<0.020	<8.0	<0.020	0.020
Propylene	<0.020	<0.020	<8.0	<0.020	0.020
Styrene	<0.020	<0.020	<8.0	<0.020	0.020
1,1,2,2-Tetrachloroethane	<0.020	<0.020	<8.0	<0.020	0.020
Tetrachloroethylene (PCE)	<0.020	<0.020	<8.0	<0.020	0.020
Tetrahydrofuran (THF)	<0.020	<0.020	<8.0	<0.020	0.020

Allen Aminian
QA/QC Manager

LABORATORY ANALYSIS RESULTS

Client: CH2M Hill, Inc.
Project No: 496965.A1.01
Project Name: KMEP Norwalk Biosparge Startup
Method: VOCs by GCMS EPA TO-15

AA Project No: MB187308
Date Received: 04/27/16
Date Reported: 05/09/16
Units: ug/L

Date Sampled:	04/29/16	04/29/16	04/29/16	04/29/16	
Date Prepared:	04/29/16	04/29/16	04/29/16	04/29/16	
Date Analyzed:	04/29/16	04/29/16	04/29/16	04/29/16	
AA ID No:	6D28021-33	6D28021-34	6D28021-35	6D28021-36	
Client ID No:	SVM-13-7	SVM-13-15.5	SVM-14-22	SVM-14-7	
Matrix:	Vapor	Vapor	Vapor	Vapor	
Dilution Factor:	1	1	400	1	MRL
TO-15 (Mid Level) (TO-15) (continued)					
Toluene	<0.020	<0.020	<8.0	<0.020	0.020
1,2,4-Trichlorobenzene	<0.020	<0.020	<8.0	<0.020	0.020
1,1,2-Trichloroethane	<0.020	<0.020	<8.0	<0.020	0.020
1,1,1-Trichloroethane	<0.020	<0.020	<8.0	<0.020	0.020
Trichloroethylene (TCE)	<0.020	<0.020	<8.0	<0.020	0.020
Trichlorofluoromethane (R11)	<0.020	<0.020	<8.0	<0.020	0.020
1,1,2-Trichloro-1,2,2-trifluoroethane (R113)	<0.020	<0.020	<8.0	<0.020	0.020
1,3,5-Trimethylbenzene	<0.020	<0.020	**76**	<0.020	0.020
1,2,4-Trimethylbenzene	<0.020	<0.020	**100**	<0.020	0.020
2,2,4-Trimethylpentane	<0.020	<0.020	<8.0	<0.020	0.020
Vinyl acetate	<0.020	<0.020	<8.0	<0.020	0.020
Vinyl bromide	<0.020	<0.020	<8.0	<0.020	0.020
Vinyl chloride	<0.020	<0.020	<8.0	<0.020	0.020
o-Xylene	<0.020	<0.020	**120**	<0.020	0.020
m,p-Xylenes	<0.020	<0.020	**210**	<0.020	0.020
1,1,1,2-Tetrachloroethane	<0.020	<0.020	<8.0	<0.020	0.020
1,2,3-Trichloropropane	<0.020	<0.020	<8.0	<0.020	0.020
sec-Butylbenzene	<0.020	<0.020	<8.0	<0.020	0.020
Isopropylbenzene	<0.020	<0.020	<8.0	<0.020	0.020
n-Propylbenzene	<0.020	<0.020	<8.0	<0.020	0.020
4-Isopropyltoluene	<0.020	<0.020	<8.0	<0.020	0.020
n-Butylbenzene	<0.020	<0.020	<8.0	<0.020	0.020
Surrogates					**%REC Limits**
4-Bromofluorobenzene	100%	103%	107%	104%	70-130

Allen Aminian
QA/QC Manager

LABORATORY ANALYSIS RESULTS

Client:	CH2M Hill, Inc.	**AA Project No:**	MB187308
Project No:	496965.A1.01	**Date Received:**	04/27/16
Project Name:	KMEP Norwalk Biosparge Startup	**Date Reported:**	05/09/16
Method:	VOCs by GCMS EPA TO-15	**Units:**	ug/L

Date Sampled:	04/29/16	04/29/16	04/29/16	
Date Prepared:	04/29/16	04/29/16	04/29/16	
Date Analyzed:	04/29/16	04/29/16	04/29/16	
AA ID No:	6D28021-37	6D28021-38	6D28021-39	
Client ID No:	Ambient Air	SVM-14-15	SVM-14-15 DUP	
Matrix:	Vapor	Vapor	Vapor	
Dilution Factor:	1	1	1	MRL
TO-15 (Mid Level) (TO-15)				
Acetone	<0.020	<0.020	<0.020	0.020
Allyl chloride	<0.020	<0.020	<0.020	0.020
tert-Amyl Methyl Ether (TAME)	<0.020	<0.020	<0.020	0.020
Benzene	<0.020	<0.020	<0.020	0.020
Benzyl chloride	<0.020	<0.020	<0.020	0.020
Bromodichloromethane	<0.020	<0.020	<0.020	0.020
Bromoform	<0.020	<0.020	<0.020	0.020
Bromomethane	<0.020	<0.020	<0.020	0.020
1,3-Butadiene	<0.020	<0.020	<0.020	0.020
2-Butanone (MEK)	<0.020	<0.020	<0.020	0.020
tert-Butyl alcohol (TBA)	<20	<20	<20	20
Carbon Disulfide	<0.020	<0.020	<0.020	0.020
Carbon Tetrachloride	<0.020	<0.020	<0.020	0.020
Chlorobenzene	<0.020	<0.020	<0.020	0.020
Chloroethane	<0.020	<0.020	<0.020	0.020
Chloroform	<0.020	<0.020	<0.020	0.020
Chloromethane	<0.020	<0.020	<0.020	0.020
Cyclohexane	<0.020	<0.020	<0.020	0.020
Dibromochloromethane	<0.020	<0.020	<0.020	0.020
1,2-Dibromoethane (EDB)	<0.020	<0.020	<0.020	0.020
1,2-Dichlorobenzene	<0.020	<0.020	<0.020	0.020
1,3-Dichlorobenzene	<0.020	<0.020	<0.020	0.020
1,4-Dichlorobenzene	<0.020	<0.020	<0.020	0.020
Dichlorodifluoromethane (R12)	<0.020	<0.020	<0.020	0.020
1,1-Dichloroethane	<0.020	<0.020	<0.020	0.020
1,2-Dichloroethane (EDC)	<0.020	<0.020	<0.020	0.020
cis-1,2-Dichloroethylene	<0.020	<0.020	<0.020	0.020

Allen Aminian
QA/QC Manager

LABORATORY ANALYSIS RESULTS

Client: CH2M Hill, Inc.
Project No: 496965.A1.01
Project Name: KMEP Norwalk Biosparge Startup
Method: VOCs by GCMS EPA TO-15

AA Project No: MB187308
Date Received: 04/27/16
Date Reported: 05/09/16
Units: ug/L

Date Sampled:	04/29/16	04/29/16	04/29/16	
Date Prepared:	04/29/16	04/29/16	04/29/16	
Date Analyzed:	04/29/16	04/29/16	04/29/16	
AA ID No:	6D28021-37	6D28021-38	6D28021-39	
Client ID No:	Ambient Air	SVM-14-15	SVM-14-15 DUP	
Matrix:	Vapor	Vapor	Vapor	
Dilution Factor:	1	1	1	MRL
TO-15 (Mid Level) (TO-15) (continued)				
1,1-Dichloroethylene	<0.020	<0.020	<0.020	0.020
trans-1,2-Dichloroethylene	<0.020	<0.020	<0.020	0.020
1,2-Dichloropropane	<0.020	<0.020	<0.020	0.020
trans-1,3-Dichloropropylene	<0.020	<0.020	<0.020	0.020
cis-1,3-Dichloropropylene	<0.020	<0.020	<0.020	0.020
Dichlorotetrafluoroethane	<0.020	<0.020	<0.020	0.020
Diisopropyl ether (DIPE)	<0.020	<0.020	<0.020	0.020
1,4-Dioxane	<0.020	<0.020	<0.020	0.020
Ethanol	<0.020	<0.020	<0.020	0.020
Ethyl Acetate	<0.020	<0.020	<0.020	0.020
Ethylbenzene	<0.020	<0.020	<0.020	0.020
Ethyl-tert-Butyl Ether (ETBE)	<0.020	<0.020	<0.020	0.020
4-Ethyltoluene	<0.020	<0.020	<0.020	0.020
Heptane	<0.020	<0.020	<0.020	0.020
Hexachlorobutadiene	<0.020	<0.020	<0.020	0.020
n-Hexane	<0.020	<0.020	<0.020	0.020
2-Hexanone (MBK)	<0.020	<0.020	<0.020	0.020
Isopropanol (IPA)	<0.20	<0.20	<0.20	0.20
Methyl-tert-Butyl Ether (MTBE)	<0.020	<0.020	<0.020	0.020
Methylene Chloride	<0.020	<0.020	<0.020	0.020
4-Methyl-2-pentanone (MIBK)	<0.020	<0.020	<0.020	0.020
Naphthalene	<0.020	<0.020	<0.020	0.020
Propylene	<0.020	<0.020	<0.020	0.020
Styrene	<0.020	<0.020	<0.020	0.020
1,1,2,2-Tetrachloroethane	<0.020	<0.020	<0.020	0.020
Tetrachloroethylene (PCE)	<0.020	<0.020	<0.020	0.020
Tetrahydrofuran (THF)	<0.020	<0.020	<0.020	0.020

Allen Aminian
QA/QC Manager

LABORATORY ANALYSIS RESULTS

Client: CH2M Hill, Inc.
Project No: 496965.A1.01
Project Name: KMEP Norwalk Biosparge Startup
Method: VOCs by GCMS EPA TO-15

AA Project No: MB187308
Date Received: 04/27/16
Date Reported: 05/09/16
Units: ug/L

Date Sampled:	04/29/16	04/29/16	04/29/16	
Date Prepared:	04/29/16	04/29/16	04/29/16	
Date Analyzed:	04/29/16	04/29/16	04/29/16	
AA ID No:	6D28021-37	6D28021-38	6D28021-39	
Client ID No:	Ambient Air	SVM-14-15	SVM-14-15 DUP	
Matrix:	Vapor	Vapor	Vapor	
Dilution Factor:	1	1	1	MRL
TO-15 (Mid Level) (TO-15) (continued)				
Toluene	<0.020	**0.054**	**0.054**	0.020
1,2,4-Trichlorobenzene	<0.020	<0.020	<0.020	0.020
1,1,2-Trichloroethane	<0.020	<0.020	<0.020	0.020
1,1,1-Trichloroethane	<0.020	<0.020	<0.020	0.020
Trichloroethylene (TCE)	<0.020	<0.020	<0.020	0.020
Trichlorofluoromethane (R11)	<0.020	<0.020	<0.020	0.020
1,1,2-Trichloro-1,2,2-trifluoroethane (R113)	<0.020	<0.020	<0.020	0.020
1,3,5-Trimethylbenzene	<0.020	<0.020	<0.020	0.020
1,2,4-Trimethylbenzene	<0.020	<0.020	<0.020	0.020
2,2,4-Trimethylpentane	<0.020	<0.020	<0.020	0.020
Vinyl acetate	<0.020	<0.020	<0.020	0.020
Vinyl bromide	<0.020	<0.020	<0.020	0.020
Vinyl chloride	<0.020	<0.020	<0.020	0.020
o-Xylene	<0.020	**0.048**	**0.048**	0.020
m,p-Xylenes	<0.020	**0.10**	**0.10**	0.020
1,1,1,2-Tetrachloroethane	<0.020	<0.020	<0.020	0.020
1,2,3-Trichloropropane	<0.020	<0.020	<0.020	0.020
sec-Butylbenzene	<0.020	<0.020	<0.020	0.020
Isopropylbenzene	<0.020	<0.020	<0.020	0.020
n-Propylbenzene	<0.020	<0.020	<0.020	0.020
4-Isopropyltoluene	<0.020	<0.020	<0.020	0.020
n-Butylbenzene	<0.020	<0.020	<0.020	0.020
Surrogates				**%REC Limits**
4-Bromofluorobenzene	101%	100%	99%	70-130

Allen Aminian
QA/QC Manager

LABORATORY ANALYSIS RESULTS

Client:	CH2M Hill, Inc.	**AA Project No:**	MB187308
Project No:	496965.A1.01	**Date Received:**	04/27/16
Project Name:	KMEP Norwalk Biosparge Startup	**Date Reported:**	05/09/16
Method:	Fixed Gases by TCD	**Units:**	% by Volume

Date Sampled:	04/27/16	04/27/16	04/27/16	04/27/16	
Date Prepared:	04/27/16	04/27/16	04/27/16	04/27/16	
Date Analyzed:	04/27/16	04/27/16	04/27/16	04/27/16	
AA ID No:	6D28021-01	6D28021-02	6D28021-03	6D28021-04	
Client ID No:	SVM-1-15	SVM-1-5	SVM-2-5	SVM-15-22	
Matrix:	Vapor	Vapor	Vapor	Vapor	
Dilution Factor:	1	1	1	1	MRL
Fixed Gases - Field (VOCs by GC/TCD)					
Methane	<0.10	<0.10	<0.10	<0.10	0.10
Oxygen	**19**	**18**	**19**	**19**	0.10
Carbon Dioxide	<0.10	<0.10	**0.16**	**0.19**	0.10

Allen Aminian
QA/QC Manager

LABORATORY ANALYSIS RESULTS

Client: CH2M Hill, Inc.
Project No: 496965.A1.01
Project Name: KMEP Norwalk Biosparge Startup
Method: Fixed Gases by TCD

AA Project No: MB187308
Date Received: 04/27/16
Date Reported: 05/09/16
Units: % by Volume

Date Sampled:	04/27/16	04/27/16	04/27/16	04/27/16	
Date Prepared:	04/27/16	04/27/16	04/27/16	04/27/16	
Date Analyzed:	04/27/16	04/27/16	04/27/16	04/27/16	
AA ID No:	6D28021-05	6D28021-06	6D28021-07	6D28021-08	
Client ID No:	SVM-15-7	SVM-15-15	SVM-6-16	SVM-6-7	
Matrix:	Vapor	Vapor	Vapor	Vapor	
Dilution Factor:	1	1	1	1	MRL
Fixed Gases - Field (VOCs by GC/TCD)					
Methane	<0.10	<0.10	<0.10	<0.10	0.10
Oxygen	**19**	**19**	**19**	**18**	0.10
Carbon Dioxide	**0.11**	**0.11**	<0.10	<0.10	0.10

Allen Aminian
QA/QC Manager

LABORATORY ANALYSIS RESULTS

Client: CH2M Hill, Inc.
Project No: 496965.A1.01
Project Name: KMEP Norwalk Biosparge Startup
Method: Fixed Gases by TCD

AA Project No: MB187308
Date Received: 04/27/16
Date Reported: 05/09/16
Units: % by Volume

Date Sampled:	04/27/16	04/27/16	04/27/16	04/27/16	
Date Prepared:	04/27/16	04/27/16	04/27/16	04/27/16	
Date Analyzed:	04/27/16	04/27/16	04/27/16	04/27/16	
AA ID No:	6D28021-09	6D28021-10	6D28021-11	6D28021-12	
Client ID No:	SVM-7-7	SVM-7-7 DUP	SVM-7-13	SVM-10-15	
Matrix:	Vapor	Vapor	Vapor	Vapor	
Dilution Factor:	1	1	1	1	MRL
Fixed Gases - Field (VOCs by GC/TCD)					
Methane	<0.10	<0.10	<0.10	<0.10	0.10
Oxygen	**18**	**18**	**19**	**17**	0.10
Carbon Dioxide	**0.36**	**0.34**	**0.25**	**3.1**	0.10

Allen Aminian
QA/QC Manager

LABORATORY ANALYSIS RESULTS

Client:	CH2M Hill, Inc.	**AA Project No:**	MB187308
Project No:	496965.A1.01	**Date Received:**	04/27/16
Project Name:	KMEP Norwalk Biosparge Startup	**Date Reported:**	05/09/16
Method:	Fixed Gases by TCD	**Units:**	% by Volume

Date Sampled:	04/27/16	04/27/16	04/28/16	04/28/16	
Date Prepared:	04/27/16	04/27/16	04/28/16	04/28/16	
Date Analyzed:	04/27/16	04/27/16	04/28/16	04/28/16	
AA ID No:	6D28021-13	6D28021-14	6D28021-15	6D28021-16	
Client ID No:	Ambient Air	SVM-10-7	SVM-5-15	SVM-5-5	
Matrix:	Vapor	Vapor	Vapor	Vapor	
Dilution Factor:	1	1	1	1	MRL
Fixed Gases - Field (VOCs by GC/TCD)					
Methane	<0.10	**18**	<0.10	<0.10	0.10
Oxygen	**19**	**0.21**	**18**	**18**	0.10
Carbon Dioxide	<0.10	<0.10	<0.10	<0.10	0.10

Allen Aminian
QA/QC Manager

LABORATORY ANALYSIS RESULTS

Client: CH2M Hill, Inc.
Project No: 496965.A1.01
Project Name: KMEP Norwalk Biosparge Startup
Method: Fixed Gases by TCD

AA Project No: MB187308
Date Received: 04/27/16
Date Reported: 05/09/16
Units: % by Volume

Date Sampled:	04/28/2016	04/28/2016	04/28/2016	04/28/2016	
Date Prepared:	04/28/16	04/28/16	04/28/16	04/28/16	
Date Analyzed:	04/28/16	04/28/16	04/28/16	04/28/16	
AA ID No:	6D28021-17	6D28021-18	6D28021-19	6D28021-20	
Client ID No:	SVM-8-15	SVM-8-5	SVM-16-7	SVM-16-22	
Matrix:	Vapor	Vapor	Vapor	Vapor	
Dilution Factor:	1	1	1	1	MRL
Fixed Gases - Field (VOCs by GC/TCD)					
Methane	<0.10	<0.10	<0.10	<0.10	0.10
Oxygen	**18**	**19**	**19**	**9.8**	0.10
Carbon Dioxide	**0.10**	**0.14**	**0.27**	**6.9**	0.10

Allen Aminian
QA/QC Manager

LABORATORY ANALYSIS RESULTS

Client: CH2M Hill, Inc.
Project No: 496965.A1.01
Project Name: KMEP Norwalk Biosparge Startup
Method: Fixed Gases by TCD

AA Project No: MB187308
Date Received: 04/27/16
Date Reported: 05/09/16
Units: % by Volume

Date Sampled:	04/28/16	04/28/16	04/28/16	04/28/16	
Date Prepared:	04/28/16	04/28/16	04/28/16	04/28/16	
Date Analyzed:	04/28/16	04/28/16	04/28/16	04/28/16	
AA ID No:	6D28021-21	6D28021-22	6D28021-23	6D28021-24	
Client ID No:	SVM-16-16	SVM-3-15	SVM-3-5	SVM-12-7	
Matrix:	Vapor	Vapor	Vapor	Vapor	
Dilution Factor:	1	1	1	1	MRL
Fixed Gases - Field (VOCs by GC/TCD)					
Methane	<0.10	<0.10	<0.10	<0.10	0.10
Oxygen	**18**	**18**	**19**	**17**	0.10
Carbon Dioxide	**0.32**	**0.20**	**0.16**	**0.51**	0.10

Allen Aminian
QA/QC Manager

LABORATORY ANALYSIS RESULTS

Client: CH2M Hill, Inc.
Project No: 496965.A1.01
Project Name: KMEP Norwalk Biosparge Startup
Method: Fixed Gases by TCD

AA Project No: MB187308
Date Received: 04/27/16
Date Reported: 05/09/16
Units: % by Volume

Date Sampled:	04/28/16	04/28/16	04/28/16	04/28/16	
Date Prepared:	04/28/16	04/28/16	04/28/16	04/28/16	
Date Analyzed:	04/28/16	04/28/16	04/28/16	04/28/16	
AA ID No:	6D28021-25	6D28021-26	6D28021-27	6D28021-28	
Client ID No:	SVM-12-22	Ambient Air	SVM-12-15	SVM-12-15 DUP	
Matrix:	Vapor	Vapor	Vapor	Vapor	
Dilution Factor:	1	1	1	1	MRL
Fixed Gases - Field (VOCs by GC/TCD)					
Methane	<0.10	<0.10	<0.10	<0.10	0.10
Oxygen	**6.0**	**19**	**14**	**14**	0.10
Carbon Dioxide	**8.4**	<0.10	**2.1**	**2.1**	0.10

Allen Aminian
QA/QC Manager

LABORATORY ANALYSIS RESULTS

Client: CH2M Hill, Inc.
Project No: 496965.A1.01
Project Name: KMEP Norwalk Biosparge Startup
Method: Fixed Gases by TCD

AA Project No: MB187308
Date Received: 04/27/16
Date Reported: 05/09/16
Units: % by Volume

Date Sampled:	04/29/16	04/29/16	04/29/16	04/29/16	
Date Prepared:	04/29/16	04/29/16	04/29/16	04/29/16	
Date Analyzed:	04/29/16	04/29/16	04/29/16	04/29/16	
AA ID No:	6D28021-29	6D28021-30	6D28021-31	6D28021-32	
Client ID No:	SVM-11-15	SVM-11-22	SVM-11-7	SVM-13-22.5	
Matrix:	Vapor	Vapor	Vapor	Vapor	
Dilution Factor:	1	1	1	1	MRL
Fixed Gases - Field (VOCs by GC/TCD)					
Methane	<0.10	<0.10	<0.10	<0.10	0.10
Oxygen	**18**	**18**	**19**	**17**	0.10
Carbon Dioxide	**0.37**	<0.10	**0.43**	**0.58**	0.10

Allen Aminian
QA/QC Manager

LABORATORY ANALYSIS RESULTS

Client:	CH2M Hill, Inc.	**AA Project No:**	MB187308
Project No:	496965.A1.01	**Date Received:**	04/27/16
Project Name:	KMEP Norwalk Biosparge Startup	**Date Reported:**	05/09/16
Method:	Fixed Gases by TCD	**Units:**	% by Volume

Date Sampled:	04/29/16	04/29/16	04/29/16	04/29/16	
Date Prepared:	04/29/16	04/29/16	04/29/16	04/29/16	
Date Analyzed:	04/29/16	04/29/16	04/29/16	04/29/16	
AA ID No:	6D28021-33	6D28021-34	6D28021-35	6D28021-36	
Client ID No:	SVM-13-7	SVM-13-15.5	SVM-14-22	SVM-14-7	
Matrix:	Vapor	Vapor	Vapor	Vapor	
Dilution Factor:	1	1	1	1	MRL
Fixed Gases - Field (VOCs by GC/TCD)					
Methane	<0.10	<0.10	<0.10	<0.10	0.10
Oxygen	**18**	**18**	**17**	**17**	0.10
Carbon Dioxide	<0.10	<0.10	**0.83**	**1.4**	0.10

Allen Aminian
QA/QC Manager

LABORATORY ANALYSIS RESULTS

Client:	CH2M Hill, Inc.	**AA Project No:**	MB187308
Project No:	496965.A1.01	**Date Received:**	04/27/16
Project Name:	KMEP Norwalk Biosparge Startup	**Date Reported:**	05/09/16
Method:	Fixed Gases by TCD	**Units:**	% by Volume

Date Sampled:	04/29/16	04/29/16	04/29/16	
Date Prepared:	04/29/16	04/29/16	04/29/16	
Date Analyzed:	04/29/16	04/29/16	04/29/16	
AA ID No:	6D28021-37	6D28021-38	6D28021-39	
Client ID No:	Ambient Air	SVM-14-15	SVM-14-15 DUP	
Matrix:	Vapor	Vapor	Vapor	
Dilution Factor:	1	1	1	MRL
Fixed Gases - Field (VOCs by GC/TCD)				
Methane	<0.10	<0.10	<0.10	0.10
Oxygen	**18**	**17**	**17**	0.10
Carbon Dioxide	<0.10	**1.3**	**1.2**	0.10

Allen Aminian
QA/QC Manager

LABORATORY ANALYSIS RESULTS

Client: CH2M Hill, Inc.
Project No: 496965.A1.01
Project Name: KMEP Norwalk Biosparge Startup

AA Project No: MB187308
Date Received: 04/27/16
Date Reported: 05/09/16

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
VOCs by EPA TO-3 - Quality Control										
*Batch B6E0227 - *** DEFAULT PREP ****										
Blank (B6E0227-BLK1)				Prepared & Analyzed: 04/27/16						
Gasoline Range Organics (GRO)	<20	20	ug/L							
Surrogate: 4-Bromofluorobenzene	*0.141*		*ug/L*	*0.14*		*98.1*	*70-130*			
LCS (B6E0227-BS1)				Prepared & Analyzed: 04/27/16						
Gasoline Range Organics (GRO)	**0.816**	20	ug/L	0.82		99.7	70-130			
Surrogate: 4-Bromofluorobenzene	*0.147*		*ug/L*	*0.14*		*103*	*70-130*			
LCS Dup (B6E0227-BSD1)				Prepared & Analyzed: 04/27/16						
Gasoline Range Organics (GRO)	**0.805**	20	ug/L	0.82		98.4	70-130	1.34	30	
Surrogate: 4-Bromofluorobenzene	*0.150*		*ug/L*	*0.14*		*105*	*70-130*			
Duplicate (B6E0227-DUP1)			**Source: 6D28021-09**	Prepared & Analyzed: 04/27/16						
Gasoline Range Organics (GRO)	**<20**	20	ug/L		<20				30	
Surrogate: 4-Bromofluorobenzene	*0.145*		*ug/L*	*0.14*		*101*	*70-130*			
*Batch B6E0228 - *** DEFAULT PREP ****										
Blank (B6E0228-BLK1)				Prepared & Analyzed: 04/28/16						
Gasoline Range Organics (GRO)	<20	20	ug/L							
Surrogate: 4-Bromofluorobenzene	*0.143*		*ug/L*	*0.14*		*99.8*	*70-130*			
LCS (B6E0228-BS1)				Prepared & Analyzed: 04/28/16						
Gasoline Range Organics (GRO)	**1.06**	20	ug/L	0.82		130	70-130			
Surrogate: 4-Bromofluorobenzene	*0.139*		*ug/L*	*0.14*		*97.0*	*70-130*			
LCS Dup (B6E0228-BSD1)				Prepared & Analyzed: 04/28/16						
Gasoline Range Organics (GRO)	**1.04**	20	ug/L	0.82		128	70-130	1.56	30	
Surrogate: 4-Bromofluorobenzene	*0.147*		*ug/L*	*0.14*		*102*	*70-130*			
Duplicate (B6E0228-DUP1)			**Source: 6D28021-27**	Prepared & Analyzed: 04/28/16						
Gasoline Range Organics (GRO)	**<20**	20	ug/L		<20				30	
Surrogate: 4-Bromofluorobenzene	*0.143*		*ug/L*	*0.14*		*99.5*	*70-130*			
*Batch B6E0229 - *** DEFAULT PREP ****										
Blank (B6E0229-BLK1)				Prepared & Analyzed: 04/29/16						
Gasoline Range Organics (GRO)	<20	20	ug/L							

Allen Aminian
QA/QC Manager

LABORATORY ANALYSIS RESULTS

Client: CH2M Hill, Inc.
Project No: 496965.A1.01
Project Name: KMEP Norwalk Biosparge Startup

AA Project No: MB187308
Date Received: 04/27/16
Date Reported: 05/09/16

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
VOCs by EPA TO-3 - Quality Control										
*Batch B6E0229 - *** DEFAULT PREP ****										
Blank (B6E0229-BLK1) Continued				Prepared & Analyzed: 04/29/16						
Surrogate: 4-Bromofluorobenzene	*0.143*		*ug/L*	*0.14*		*100*	*70-130*			
LCS (B6E0229-BS1)				Prepared & Analyzed: 04/29/16						
Gasoline Range Organics (GRO)	**0.812**	20	ug/L	0.82		99.3	70-130			
Surrogate: 4-Bromofluorobenzene	*0.144*		*ug/L*	*0.14*		*101*	*70-130*			
LCS Dup (B6E0229-BSD1)				Prepared & Analyzed: 04/29/16						
Gasoline Range Organics (GRO)	**0.788**	20	ug/L	0.82		96.3	70-130	3.08	30	
Surrogate: 4-Bromofluorobenzene	*0.149*		*ug/L*	*0.14*		*104*	*70-130*			
Duplicate (B6E0229-DUP1)		**Source: 6D28021-38**		Prepared & Analyzed: 04/29/16						
Gasoline Range Organics (GRO)	**<20**	20	ug/L		1.64			10.5	30	
Surrogate: 4-Bromofluorobenzene	*0.142*		*ug/L*	*0.14*		*99.5*	*70-130*			
VOCs by GCMS EPA TO-15 - Quality Control										
*Batch B6E0224 - *** DEFAULT PREP ****										
Blank (B6E0224-BLK1)				Prepared & Analyzed: 04/27/16						
Acetone	<0.020	0.020	ug/L							
Allyl chloride	<0.020	0.020	ug/L							
tert-Amyl Methyl Ether (TAME)	<0.020	0.020	ug/L							
Benzene	<0.020	0.020	ug/L							
Benzyl chloride	<0.020	0.020	ug/L							
Bromodichloromethane	<0.020	0.020	ug/L							
Bromoform	<0.020	0.020	ug/L							
Bromomethane	<0.020	0.020	ug/L							
1,3-Butadiene	<0.020	0.020	ug/L							
2-Butanone (MEK)	<0.020	0.020	ug/L							
tert-Butyl alcohol (TBA)	<20	20	ug/L							
Carbon Disulfide	<0.020	0.020	ug/L							
Carbon Tetrachloride	<0.020	0.020	ug/L							
Chlorobenzene	<0.020	0.020	ug/L							
Chloroethane	<0.020	0.020	ug/L							
Chloroform	<0.020	0.020	ug/L							
Chloromethane	<0.020	0.020	ug/L							

Allen Aminian
QA/QC Manager

LABORATORY ANALYSIS RESULTS

Client: CH2M Hill, Inc.
Project No: 496965.A1.01
Project Name: KMEP Norwalk Biosparge Startup

AA Project No: MB187308
Date Received: 04/27/16
Date Reported: 05/09/16

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
VOCs by GCMS EPA TO-15 - Quality Control										
*Batch B6E0224 - *** DEFAULT PREP ****										
Blank (B6E0224-BLK1) Continued				Prepared & Analyzed: 04/27/16						
Cyclohexane	<0.020	0.020	ug/L							
Dibromochloromethane	<0.020	0.020	ug/L							
1,2-Dibromoethane (EDB)	<0.020	0.020	ug/L							
1,2-Dichlorobenzene	<0.020	0.020	ug/L							
1,3-Dichlorobenzene	<0.020	0.020	ug/L							
1,4-Dichlorobenzene	<0.020	0.020	ug/L							
Dichlorodifluoromethane (R12)	<0.020	0.020	ug/L							
1,1-Dichloroethane	<0.020	0.020	ug/L							
1,2-Dichloroethane (EDC)	<0.020	0.020	ug/L							
cis-1,2-Dichloroethylene	<0.020	0.020	ug/L							
1,1-Dichloroethylene	<0.020	0.020	ug/L							
trans-1,2-Dichloroethylene	<0.020	0.020	ug/L							
1,2-Dichloropropane	<0.020	0.020	ug/L							
trans-1,3-Dichloropropylene	<0.020	0.020	ug/L							
cis-1,3-Dichloropropylene	<0.020	0.020	ug/L							
Dichlorotetrafluoroethane	<0.020	0.020	ug/L							
Diisopropyl ether (DIPE)	<0.020	0.020	ug/L							
1,4-Dioxane	<0.020	0.020	ug/L							
Ethanol	<0.020	0.020	ug/L							
Ethyl Acetate	<0.020	0.020	ug/L							
Ethylbenzene	<0.020	0.020	ug/L							
Ethyl-tert-Butyl Ether (ETBE)	<0.020	0.020	ug/L							
4-Ethyltoluene	<0.020	0.020	ug/L							
Heptane	<0.020	0.020	ug/L							
Hexachlorobutadiene	<0.020	0.020	ug/L							
n-Hexane	<0.020	0.020	ug/L							
2-Hexanone (MBK)	<0.020	0.020	ug/L							
Isopropanol (IPA)	<0.20	0.20	ug/L							
Methyl-tert-Butyl Ether (MTBE)	<0.020	0.020	ug/L							
Methylene Chloride	<0.020	0.020	ug/L							
4-Methyl-2-pentanone (MIBK)	<0.020	0.020	ug/L							
Naphthalene	<0.020	0.020	ug/L							

Allen Aminian
QA/QC Manager

LABORATORY ANALYSIS RESULTS

Client: CH2M Hill, Inc.
Project No: 496965.A1.01
Project Name: KMEP Norwalk Biosparge Startup

AA Project No: MB187308
Date Received: 04/27/16
Date Reported: 05/09/16

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
VOCs by GCMS EPA TO-15 - Quality Control										
*Batch B6E0224 - *** DEFAULT PREP ****										
Blank (B6E0224-BLK1) Continued				Prepared & Analyzed: 04/27/16						
Propylene	<0.020	0.020	ug/L							
Styrene	<0.020	0.020	ug/L							
1,1,2,2-Tetrachloroethane	<0.020	0.020	ug/L							
Tetrachloroethylene (PCE)	<0.020	0.020	ug/L							
Tetrahydrofuran (THF)	<0.020	0.020	ug/L							
Toluene	<0.020	0.020	ug/L							
1,2,4-Trichlorobenzene	<0.020	0.020	ug/L							
1,1,2-Trichloroethane	<0.020	0.020	ug/L							
1,1,1-Trichloroethane	<0.020	0.020	ug/L							
Trichloroethylene (TCE)	<0.020	0.020	ug/L							
Trichlorofluoromethane (R11)	<0.020	0.020	ug/L							
1,1,2-Trichloro-1,2,2-trifluoroethane (R113)	<0.020	0.020	ug/L							
1,3,5-Trimethylbenzene	<0.020	0.020	ug/L							
1,2,4-Trimethylbenzene	<0.020	0.020	ug/L							
2,2,4-Trimethylpentane	<0.020	0.020	ug/L							
Vinyl acetate	<0.020	0.020	ug/L							
Vinyl bromide	<0.020	0.020	ug/L							
Vinyl chloride	<0.020	0.020	ug/L							
o-Xylene	<0.020	0.020	ug/L							
m,p-Xylenes	<0.020	0.020	ug/L							
1,1,1,2-Tetrachloroethane	<0.020	0.020	ug/L							
1,2,3-Trichloropropane	<0.020	0.020	ug/L							
sec-Butylbenzene	<0.020	0.020	ug/L							
Isopropylbenzene	<0.020	0.020	ug/L							
n-Propylbenzene	<0.020	0.020	ug/L							
4-Isopropyltoluene	<0.020	0.020	ug/L							
n-Butylbenzene	<0.020	0.020	ug/L							
Surrogate: 4-Bromofluorobenzene	*0.141*		*ug/L*	*0.14*		*98.1*	*70-130*			
LCS (B6E0224-BS1)				Prepared & Analyzed: 04/27/16						
Acetone	**0.0304**	0.020	ug/L	0.024		128	70-130		30	

Allen Aminian
QA/QC Manager

LABORATORY ANALYSIS RESULTS

Client: CH2M Hill, Inc.
Project No: 496965.A1.01
Project Name: KMEP Norwalk Biosparge Startup

AA Project No: MB187308
Date Received: 04/27/16
Date Reported: 05/09/16

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
VOCs by GCMS EPA TO-15 - Quality Control										
*Batch B6E0224 - *** DEFAULT PREP ****										
LCS (B6E0224-BS1) Continued				Prepared & Analyzed: 04/27/16						
Benzene	**0.0313**	0.020	ug/L	0.032		98.1	70-130		30	
Benzyl chloride	**0.0601**	0.020	ug/L	0.052		116	70-130		30	
Bromodichloromethane	**0.0734**	0.020	ug/L	0.067		110	70-130		30	
Bromoform	**0.113**	0.020	ug/L	0.10		109	70-130		30	
Bromomethane	**0.0379**	0.020	ug/L	0.039		97.7	70-130		30	
2-Butanone (MEK)	**0.0255**	0.020	ug/L	0.029		86.5	70-130		30	
Carbon Disulfide	**0.0732**	0.020	ug/L	0.031		235	70-130		30	**
Carbon Tetrachloride	**0.0686**	0.020	ug/L	0.063		109	70-130		30	
Chlorobenzene	**0.0456**	0.020	ug/L	0.046		99.0	70-130		30	
Chloroethane	**0.0254**	0.020	ug/L	0.026		96.1	70-130		30	
Chloroform	**0.0484**	0.020	ug/L	0.049		99.2	70-130		30	
Chloromethane	**0.0211**	0.020	ug/L	0.021		102	70-130		30	
Dibromochloromethane	**0.0916**	0.020	ug/L	0.085		108	70-130		30	
1,2-Dibromoethane (EDB)	**0.0822**	0.020	ug/L	0.077		107	70-130		30	
1,2-Dichlorobenzene	**0.0675**	0.020	ug/L	0.060		112	70-130		30	
1,3-Dichlorobenzene	**0.0648**	0.020	ug/L	0.060		108	70-130		30	
1,4-Dichlorobenzene	**0.0654**	0.020	ug/L	0.060		109	70-130		30	
Dichlorodifluoromethane (R12)	**0.0488**	0.020	ug/L	0.049		98.6	70-130		30	
1,1-Dichloroethane	**0.0331**	0.020	ug/L	0.040		81.7	70-130		30	
1,2-Dichloroethane (EDC)	**0.0399**	0.020	ug/L	0.040		98.5	70-130		30	
cis-1,2-Dichloroethylene	**0.0349**	0.020	ug/L	0.040		88.1	70-130		30	
1,1-Dichloroethylene	**0.0366**	0.020	ug/L	0.040		92.3	70-130		30	
trans-1,2-Dichloroethylene	**0.0319**	0.020	ug/L	0.040		80.5	70-130		30	
1,2-Dichloropropane	**0.0496**	0.020	ug/L	0.046		107	70-130		30	
trans-1,3-Dichloropropylene	**0.0497**	0.020	ug/L	0.045		109	70-130		30	
cis-1,3-Dichloropropylene	**0.0493**	0.020	ug/L	0.045		109	70-130		30	
Dichlorotetrafluoroethane	**0.0707**	0.020	ug/L	0.070		101	70-130		30	
Ethylbenzene	**0.0470**	0.020	ug/L	0.043		108	70-130		30	
4-Ethyltoluene	**0.0545**	0.020	ug/L	0.049		111	70-130		30	
Hexachlorobutadiene	**0.125**	0.020	ug/L	0.11		118	70-130		30	
2-Hexanone (MBK)	**0.0559**	0.020	ug/L	0.041		136	70-130		30	**
Isopropanol (IPA)	**0.0270**	0.20	ug/L	0.025		110	70-130		30	

Allen Aminian
QA/QC Manager

LABORATORY ANALYSIS RESULTS

Client: CH2M Hill, Inc.
Project No: 496965.A1.01
Project Name: KMEP Norwalk Biosparge Startup

AA Project No: MB187308
Date Received: 04/27/16
Date Reported: 05/09/16

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
VOCs by GCMS EPA TO-15 - Quality Control										
*Batch B6E0224 - *** DEFAULT PREP ****										
LCS (B6E0224-BS1) Continued				Prepared & Analyzed: 04/27/16						
Methylene Chloride	**0.0320**	0.020	ug/L	0.035		92.0	70-130		30	
4-Methyl-2-pentanone (MIBK)	**0.0496**	0.020	ug/L	0.041		121	70-130		30	
Styrene	**0.0448**	0.020	ug/L	0.043		105	70-130		30	
1,1,2,2-Tetrachloroethane	**0.0770**	0.020	ug/L	0.069		112	70-130		30	
Tetrachloroethylene (PCE)	**0.0698**	0.020	ug/L	0.068		103	70-130		30	
Toluene	**0.0422**	0.020	ug/L	0.038		112	70-130		30	
1,2,4-Trichlorobenzene	**0.0892**	0.020	ug/L	0.074		120	70-130		30	
1,1,2-Trichloroethane	**0.0577**	0.020	ug/L	0.055		106	70-130		30	
1,1,1-Trichloroethane	**0.0529**	0.020	ug/L	0.055		96.9	70-130		30	
Trichloroethylene (TCE)	**0.0547**	0.020	ug/L	0.054		102	70-130		30	
Trichlorofluoromethane (R11)	**0.0556**	0.020	ug/L	0.056		99.0	70-130		30	
1,1,2-Trichloro-1,2,2-trifluoroethane (R113)	**0.0711**	0.020	ug/L	0.077		92.8	70-130		30	
1,3,5-Trimethylbenzene	**0.0529**	0.020	ug/L	0.049		108	70-130		30	
1,2,4-Trimethylbenzene	**0.0531**	0.020	ug/L	0.049		108	70-130		30	
Vinyl acetate	**0.0300**	0.020	ug/L	0.035		85.2	70-130		30	
Vinyl chloride	**0.0261**	0.020	ug/L	0.026		102	70-130		30	
o-Xylene	**0.0472**	0.020	ug/L	0.043		109	70-130		30	
m,p-Xylenes	**0.0930**	0.020	ug/L	0.087		107	70-130		30	
1,2,3-Trichloropropane	**0.0684**	0.020	ug/L	0.060		114	70-130		30	
sec-Butylbenzene	**0.0596**	0.020	ug/L	0.055		109	70-130		30	
Isopropylbenzene	**0.0523**	0.020	ug/L	0.049		106	70-130		30	
n-Propylbenzene	**0.0542**	0.020	ug/L	0.049		110	70-130		30	
4-Isopropyltoluene	**0.0594**	0.020	ug/L	0.055		108	70-130		30	
Surrogate: 4-Bromofluorobenzene	*0.145*		*ug/L*	*0.14*		*101*	*70-130*			
LCS Dup (B6E0224-BSD1)				Prepared & Analyzed: 04/27/16						
Acetone	**0.0237**	0.020	ug/L	0.024		99.7	70-130	24.8	30	
Benzene	**0.0312**	0.020	ug/L	0.032		97.8	70-130	0.306	30	
Benzyl chloride	**0.0581**	0.020	ug/L	0.052		112	70-130	3.24	30	
Bromodichloromethane	**0.0752**	0.020	ug/L	0.067		112	70-130	2.34	30	
Bromoform	**0.112**	0.020	ug/L	0.10		109	70-130	0.275	30	

Allen Aminian
QA/QC Manager

LABORATORY ANALYSIS RESULTS

Client: CH2M Hill, Inc.
Project No: 496965.A1.01
Project Name: KMEP Norwalk Biosparge Startup

AA Project No: MB187308
Date Received: 04/27/16
Date Reported: 05/09/16

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
VOCs by GCMS EPA TO-15 - Quality Control										
*Batch B6E0224 - *** DEFAULT PREP ****										
LCS Dup (B6E0224-BSD1) Continued				Prepared & Analyzed: 04/27/16						
Bromomethane	**0.0419**	0.020	ug/L	0.039		108	70-130	9.83	30	
2-Butanone (MEK)	**0.0250**	0.020	ug/L	0.029		84.7	70-130	2.10	30	
Carbon Disulfide	**0.0330**	0.020	ug/L	0.031		106	70-130	75.6	30	
Carbon Tetrachloride	**0.0739**	0.020	ug/L	0.063		117	70-130	7.33	30	
Chlorobenzene	**0.0471**	0.020	ug/L	0.046		102	70-130	3.28	30	
Chloroethane	**0.0271**	0.020	ug/L	0.026		103	70-130	6.64	30	
Chloroform	**0.0515**	0.020	ug/L	0.049		105	70-130	6.06	30	
Chloromethane	**0.0231**	0.020	ug/L	0.021		112	70-130	8.88	30	
Dibromochloromethane	**0.0925**	0.020	ug/L	0.085		109	70-130	1.02	30	
1,2-Dibromoethane (EDB)	**0.0812**	0.020	ug/L	0.077		106	70-130	1.22	30	
1,2-Dichlorobenzene	**0.0651**	0.020	ug/L	0.060		108	70-130	3.63	30	
1,3-Dichlorobenzene	**0.0649**	0.020	ug/L	0.060		108	70-130	0.185	30	
1,4-Dichlorobenzene	**0.0657**	0.020	ug/L	0.060		109	70-130	0.550	30	
Dichlorodifluoromethane (R12)	**0.0551**	0.020	ug/L	0.049		111	70-130	12.2	30	
1,1-Dichloroethane	**0.0408**	0.020	ug/L	0.040		101	70-130	21.0	30	
1,2-Dichloroethane (EDC)	**0.0423**	0.020	ug/L	0.040		105	70-130	6.01	30	
cis-1,2-Dichloroethylene	**0.0416**	0.020	ug/L	0.040		105	70-130	17.3	30	
1,1-Dichloroethylene	**0.0429**	0.020	ug/L	0.040		108	70-130	15.8	30	
trans-1,2-Dichloroethylene	**0.0402**	0.020	ug/L	0.040		101	70-130	23.0	30	
1,2-Dichloropropane	**0.0502**	0.020	ug/L	0.046		109	70-130	1.11	30	
trans-1,3-Dichloropropylene	**0.0492**	0.020	ug/L	0.045		108	70-130	1.01	30	
cis-1,3-Dichloropropylene	**0.0494**	0.020	ug/L	0.045		109	70-130	0.184	30	
Dichlorotetrafluoroethane	**0.0777**	0.020	ug/L	0.070		111	70-130	9.33	30	
Ethylbenzene	**0.0476**	0.020	ug/L	0.043		110	70-130	1.29	30	
4-Ethyltoluene	**0.0537**	0.020	ug/L	0.049		109	70-130	1.36	30	
Hexachlorobutadiene	**0.122**	0.020	ug/L	0.11		114	70-130	2.76	30	
2-Hexanone (MBK)	**0.0664**	0.020	ug/L	0.041		162	70-130	17.3	30	**
Isopropanol (IPA)	**0.0244**	0.20	ug/L	0.025		99.4	70-130	10.0	30	
Methylene Chloride	**0.0366**	0.020	ug/L	0.035		105	70-130	13.6	30	
4-Methyl-2-pentanone (MIBK)	**0.0514**	0.020	ug/L	0.041		126	70-130	3.65	30	
Styrene	**0.0440**	0.020	ug/L	0.043		103	70-130	1.92	30	
1,1,2,2-Tetrachloroethane	**0.0772**	0.020	ug/L	0.069		112	70-130	0.356	30	

Allen Aminian
QA/QC Manager

LABORATORY ANALYSIS RESULTS

Client: CH2M Hill, Inc.
Project No: 496965.A1.01
Project Name: KMEP Norwalk Biosparge Startup

AA Project No: MB187308
Date Received: 04/27/16
Date Reported: 05/09/16

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
VOCs by GCMS EPA TO-15 - Quality Control										
*Batch B6E0224 - *** DEFAULT PREP ****										
LCS Dup (B6E0224-BSD1) Continued				Prepared & Analyzed: 04/27/16						
Tetrachloroethylene (PCE)	**0.0681**	0.020	ug/L	0.068		100	70-130	2.56	30	
Toluene	**0.0389**	0.020	ug/L	0.038		103	70-130	8.08	30	
1,2,4-Trichlorobenzene	**0.0844**	0.020	ug/L	0.074		114	70-130	5.56	30	
1,1,2-Trichloroethane	**0.0575**	0.020	ug/L	0.055		105	70-130	0.284	30	
1,1,1-Trichloroethane	**0.0571**	0.020	ug/L	0.055		105	70-130	7.64	30	
Trichloroethylene (TCE)	**0.0583**	0.020	ug/L	0.054		108	70-130	6.37	30	
Trichlorofluoromethane (R11)	**0.0625**	0.020	ug/L	0.056		111	70-130	11.7	30	
1,1,2-Trichloro-1,2,2-trifluoroethane (R113)	**0.0828**	0.020	ug/L	0.077		108	70-130	15.2	30	
1,3,5-Trimethylbenzene	**0.0526**	0.020	ug/L	0.049		107	70-130	0.652	30	
1,2,4-Trimethylbenzene	**0.0525**	0.020	ug/L	0.049		107	70-130	1.21	30	
Vinyl acetate	**0.0336**	0.020	ug/L	0.035		95.4	70-130	11.3	30	
Vinyl chloride	**0.0287**	0.020	ug/L	0.026		112	70-130	9.60	30	
o-Xylene	**0.0475**	0.020	ug/L	0.043		110	70-130	0.825	30	
m,p-Xylenes	**0.0925**	0.020	ug/L	0.087		106	70-130	0.562	30	
1,2,3-Trichloropropane	**0.0679**	0.020	ug/L	0.060		113	70-130	0.796	30	
sec-Butylbenzene	**0.0588**	0.020	ug/L	0.055		107	70-130	1.30	30	
Isopropylbenzene	**0.0523**	0.020	ug/L	0.049		106	70-130	0.0940	30	
n-Propylbenzene	**0.0533**	0.020	ug/L	0.049		108	70-130	1.65	30	
4-Isopropyltoluene	**0.0587**	0.020	ug/L	0.055		107	70-130	1.12	30	
Surrogate: 4-Bromofluorobenzene	*0.149*		*ug/L*	*0.14*		*104*	*70-130*			
Duplicate (B6E0224-DUP1)				**Source: 6D28021-09** Prepared & Analyzed: 04/27/16						
Acetone	**<0.020**	0.020	ug/L		<0.020				30	
Allyl chloride	**<0.020**	0.020	ug/L		<0.020				30	
tert-Amyl Methyl Ether (TAME)	**<0.020**	0.020	ug/L		<0.020				30	
Benzene	**<0.020**	0.020	ug/L		<0.020				30	
Benzyl chloride	**<0.020**	0.020	ug/L		<0.020				30	
Bromodichloromethane	**<0.020**	0.020	ug/L		<0.020				30	
Bromoform	**<0.020**	0.020	ug/L		<0.020				30	
Bromomethane	**<0.020**	0.020	ug/L		<0.020				30	
1,3-Butadiene	**<0.020**	0.020	ug/L		<0.020				30	

Allen Aminian
QA/QC Manager

LABORATORY ANALYSIS RESULTS

Client: CH2M Hill, Inc.
Project No: 496965.A1.01
Project Name: KMEP Norwalk Biosparge Startup

AA Project No: MB187308
Date Received: 04/27/16
Date Reported: 05/09/16

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
VOCs by GCMS EPA TO-15 - Quality Control										
*Batch B6E0224 - *** DEFAULT PREP ****										
Duplicate (B6E0224-DUP1) Continued	**Source: 6D28021-09** Prepared & Analyzed: 04/27/16									
2-Butanone (MEK)	**<0.020**	0.020	ug/L		<0.020				30	
tert-Butyl alcohol (TBA)	**<20**	20	ug/L		<20				30	
Carbon Disulfide	**<0.020**	0.020	ug/L		<0.020				30	
Carbon Tetrachloride	**<0.020**	0.020	ug/L		<0.020				30	
Chlorobenzene	**<0.020**	0.020	ug/L		<0.020				30	
Chloroethane	**<0.020**	0.020	ug/L		<0.020				30	
Chloroform	**<0.020**	0.020	ug/L		<0.020				30	
Chloromethane	**<0.020**	0.020	ug/L		<0.020				30	
Cyclohexane	**<0.020**	0.020	ug/L		<0.020				30	
Dibromochloromethane	**<0.020**	0.020	ug/L		<0.020				30	
1,2-Dibromoethane (EDB)	**<0.020**	0.020	ug/L		<0.020				30	
1,2-Dichlorobenzene	**<0.020**	0.020	ug/L		<0.020				30	
1,3-Dichlorobenzene	**<0.020**	0.020	ug/L		<0.020				30	
1,4-Dichlorobenzene	**<0.020**	0.020	ug/L		<0.020				30	
Dichlorodifluoromethane (R12)	**<0.020**	0.020	ug/L		<0.020				30	
1,1-Dichloroethane	**<0.020**	0.020	ug/L		<0.020				30	
1,2-Dichloroethane (EDC)	**<0.020**	0.020	ug/L		<0.020				30	
cis-1,2-Dichloroethylene	**<0.020**	0.020	ug/L		<0.020				30	
1,1-Dichloroethylene	**<0.020**	0.020	ug/L		<0.020				30	
trans-1,2-Dichloroethylene	**<0.020**	0.020	ug/L		<0.020				30	
1,2-Dichloropropane	**<0.020**	0.020	ug/L		<0.020				30	
trans-1,3-Dichloropropylene	**<0.020**	0.020	ug/L		<0.020				30	
cis-1,3-Dichloropropylene	**<0.020**	0.020	ug/L		<0.020				30	
Dichlorotetrafluoroethane	**<0.020**	0.020	ug/L		<0.020				30	
Diisopropyl ether (DIPE)	**<0.020**	0.020	ug/L		<0.020				30	
1,4-Dioxane	**<0.020**	0.020	ug/L		<0.020				30	
Ethanol	**<0.020**	0.020	ug/L		<0.020				30	
Ethyl Acetate	**<0.020**	0.020	ug/L		<0.020				30	
Ethylbenzene	**<0.020**	0.020	ug/L		<0.020				30	
Ethyl-tert-Butyl Ether (ETBE)	**<0.020**	0.020	ug/L		<0.020				30	
4-Ethyltoluene	**<0.020**	0.020	ug/L		<0.020				30	
Heptane	**<0.020**	0.020	ug/L		<0.020				30	

Allen Aminian
QA/QC Manager

LABORATORY ANALYSIS RESULTS

Client: CH2M Hill, Inc.
Project No: 496965.A1.01
Project Name: KMEP Norwalk Biosparge Startup

AA Project No: MB187308
Date Received: 04/27/16
Date Reported: 05/09/16

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
VOCs by GCMS EPA TO-15 - Quality Control										
*Batch B6E0224 - *** DEFAULT PREP ****										
Duplicate (B6E0224-DUP1) Continued	**Source: 6D28021-09** Prepared & Analyzed: 04/27/16									
Hexachlorobutadiene	**<0.020**	0.020	ug/L		<0.020				30	
n-Hexane	**<0.020**	0.020	ug/L		<0.020				30	
2-Hexanone (MBK)	**<0.020**	0.020	ug/L		<0.020				30	
Isopropanol (IPA)	**<0.20**	0.20	ug/L		<0.20				30	
Methyl-tert-Butyl Ether (MTBE)	**<0.020**	0.020	ug/L		<0.020				30	
Methylene Chloride	**<0.020**	0.020	ug/L		<0.020				30	
4-Methyl-2-pentanone (MIBK)	**<0.020**	0.020	ug/L		<0.020				30	
Naphthalene	**<0.020**	0.020	ug/L		<0.020				30	
Propylene	**<0.020**	0.020	ug/L		<0.020				30	
Styrene	**<0.020**	0.020	ug/L		<0.020				30	
1,1,2,2-Tetrachloroethane	**<0.020**	0.020	ug/L		<0.020				30	
Tetrachloroethylene (PCE)	**<0.020**	0.020	ug/L		<0.020				30	
Tetrahydrofuran (THF)	**<0.020**	0.020	ug/L		<0.020				30	
Toluene	**<0.020**	0.020	ug/L		<0.020				30	
1,2,4-Trichlorobenzene	**<0.020**	0.020	ug/L		<0.020				30	
1,1,2-Trichloroethane	**<0.020**	0.020	ug/L		<0.020				30	
1,1,1-Trichloroethane	**<0.020**	0.020	ug/L		<0.020				30	
Trichloroethylene (TCE)	**<0.020**	0.020	ug/L		<0.020				30	
Trichlorofluoromethane (R11)	**<0.020**	0.020	ug/L		<0.020				30	
1,1,2-Trichloro-1,2,2-trifluoroethane (R113)	**<0.020**	0.020	ug/L		<0.020				30	
1,3,5-Trimethylbenzene	**<0.020**	0.020	ug/L		<0.020				30	
1,2,4-Trimethylbenzene	**<0.020**	0.020	ug/L		<0.020				30	
2,2,4-Trimethylpentane	**<0.020**	0.020	ug/L		<0.020				30	
Vinyl acetate	**<0.020**	0.020	ug/L		<0.020				30	
Vinyl bromide	**<0.020**	0.020	ug/L		<0.020				30	
Vinyl chloride	**<0.020**	0.020	ug/L		<0.020				30	
o-Xylene	**<0.020**	0.020	ug/L		<0.020				30	
m,p-Xylenes	**<0.020**	0.020	ug/L		<0.020				30	
1,1,1,2-Tetrachloroethane	**<0.020**	0.020	ug/L		<0.020				30	
1,2,3-Trichloropropane	**<0.020**	0.020	ug/L		<0.020				30	
sec-Butylbenzene	**<0.020**	0.020	ug/L		<0.020				30	

Allen Aminian
QA/QC Manager

LABORATORY ANALYSIS RESULTS

Client: CH2M Hill, Inc.
Project No: 496965.A1.01
Project Name: KMEP Norwalk Biosparge Startup

AA Project No: MB187308
Date Received: 04/27/16
Date Reported: 05/09/16

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
VOCs by GCMS EPA TO-15 - Quality Control										
*Batch B6E0224 - *** DEFAULT PREP ****										
Duplicate (B6E0224-DUP1) Continued	**Source: 6D28021-09**			Prepared & Analyzed: 04/27/16						
Isopropylbenzene	**<0.020**	0.020	ug/L		<0.020				30	
n-Propylbenzene	**<0.020**	0.020	ug/L		<0.020				30	
4-Isopropyltoluene	**<0.020**	0.020	ug/L		<0.020				30	
n-Butylbenzene	**<0.020**	0.020	ug/L		<0.020				30	
Surrogate: 4-Bromofluorobenzene	*0.144*		*ug/L*	*0.14*		*100*	*70-130*			
*Batch B6E0225 - *** DEFAULT PREP ****										
Blank (B6E0225-BLK1)				Prepared & Analyzed: 04/28/16						
Acetone	<0.020	0.020	ug/L							
Allyl chloride	<0.020	0.020	ug/L							
tert-Amyl Methyl Ether (TAME)	<0.020	0.020	ug/L							
Benzene	<0.020	0.020	ug/L							
Benzyl chloride	<0.020	0.020	ug/L							
Bromodichloromethane	<0.020	0.020	ug/L							
Bromoform	<0.020	0.020	ug/L							
Bromomethane	<0.020	0.020	ug/L							
1,3-Butadiene	<0.020	0.020	ug/L							
2-Butanone (MEK)	<0.020	0.020	ug/L							
tert-Butyl alcohol (TBA)	<20	20	ug/L							
Carbon Disulfide	<0.020	0.020	ug/L							
Carbon Tetrachloride	<0.020	0.020	ug/L							
Chlorobenzene	<0.020	0.020	ug/L							
Chloroethane	<0.020	0.020	ug/L							
Chloroform	<0.020	0.020	ug/L							
Chloromethane	<0.020	0.020	ug/L							
Cyclohexane	<0.020	0.020	ug/L							
Dibromochloromethane	<0.020	0.020	ug/L							
1,2-Dibromoethane (EDB)	<0.020	0.020	ug/L							
1,2-Dichlorobenzene	<0.020	0.020	ug/L							
1,3-Dichlorobenzene	<0.020	0.020	ug/L							
1,4-Dichlorobenzene	<0.020	0.020	ug/L							
Dichlorodifluoromethane (R12)	<0.020	0.020	ug/L							

Allen Aminian
QA/QC Manager

LABORATORY ANALYSIS RESULTS

Client: CH2M Hill, Inc.
Project No: 496965.A1.01
Project Name: KMEP Norwalk Biosparge Startup

AA Project No: MB187308
Date Received: 04/27/16
Date Reported: 05/09/16

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
VOCs by GCMS EPA TO-15 - Quality Control										
*Batch B6E0225 - *** DEFAULT PREP ****										
Blank (B6E0225-BLK1) Continued				Prepared & Analyzed: 04/28/16						
1,1-Dichloroethane	<0.020	0.020	ug/L							
1,2-Dichloroethane (EDC)	<0.020	0.020	ug/L							
cis-1,2-Dichloroethylene	<0.020	0.020	ug/L							
1,1-Dichloroethylene	<0.020	0.020	ug/L							
trans-1,2-Dichloroethylene	<0.020	0.020	ug/L							
1,2-Dichloropropane	<0.020	0.020	ug/L							
trans-1,3-Dichloropropylene	<0.020	0.020	ug/L							
cis-1,3-Dichloropropylene	<0.020	0.020	ug/L							
Dichlorotetrafluoroethane	<0.020	0.020	ug/L							
Diisopropyl ether (DIPE)	<0.020	0.020	ug/L							
1,4-Dioxane	<0.020	0.020	ug/L							
Ethanol	<0.020	0.020	ug/L							
Ethyl Acetate	<0.020	0.020	ug/L							
Ethylbenzene	<0.020	0.020	ug/L							
Ethyl-tert-Butyl Ether (ETBE)	<0.020	0.020	ug/L							
4-Ethyltoluene	<0.020	0.020	ug/L							
Heptane	<0.020	0.020	ug/L							
Hexachlorobutadiene	<0.020	0.020	ug/L							
n-Hexane	<0.020	0.020	ug/L							
2-Hexanone (MBK)	<0.020	0.020	ug/L							
Isopropanol (IPA)	<0.20	0.20	ug/L							
Methyl-tert-Butyl Ether (MTBE)	<0.020	0.020	ug/L							
Methylene Chloride	<0.020	0.020	ug/L							
4-Methyl-2-pentanone (MIBK)	<0.020	0.020	ug/L							
Naphthalene	<0.020	0.020	ug/L							
Propylene	<0.020	0.020	ug/L							
Styrene	<0.020	0.020	ug/L							
1,1,2,2-Tetrachloroethane	<0.020	0.020	ug/L							
Tetrachloroethylene (PCE)	<0.020	0.020	ug/L							
Tetrahydrofuran (THF)	<0.020	0.020	ug/L							
Toluene	<0.020	0.020	ug/L							
1,2,4-Trichlorobenzene	<0.020	0.020	ug/L							

Allen Aminian
QA/QC Manager

LABORATORY ANALYSIS RESULTS

Client: CH2M Hill, Inc.
Project No: 496965.A1.01
Project Name: KMEP Norwalk Biosparge Startup

AA Project No: MB187308
Date Received: 04/27/16
Date Reported: 05/09/16

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
VOCs by GCMS EPA TO-15 - Quality Control										
*Batch B6E0225 - *** DEFAULT PREP ****										
Blank (B6E0225-BLK1) Continued				Prepared & Analyzed: 04/28/16						
1,1,2-Trichloroethane	<0.020	0.020	ug/L							
1,1,1-Trichloroethane	<0.020	0.020	ug/L							
Trichloroethylene (TCE)	<0.020	0.020	ug/L							
Trichlorofluoromethane (R11)	<0.020	0.020	ug/L							
1,1,2-Trichloro-1,2,2-trifluoroethane (R113)	<0.020	0.020	ug/L							
1,3,5-Trimethylbenzene	<0.020	0.020	ug/L							
1,2,4-Trimethylbenzene	<0.020	0.020	ug/L							
2,2,4-Trimethylpentane	<0.020	0.020	ug/L							
Vinyl acetate	<0.020	0.020	ug/L							
Vinyl bromide	<0.020	0.020	ug/L							
Vinyl chloride	<0.020	0.020	ug/L							
o-Xylene	<0.020	0.020	ug/L							
m,p-Xylenes	<0.020	0.020	ug/L							
1,1,1,2-Tetrachloroethane	<0.020	0.020	ug/L							
1,2,3-Trichloropropane	<0.020	0.020	ug/L							
sec-Butylbenzene	<0.020	0.020	ug/L							
Isopropylbenzene	<0.020	0.020	ug/L							
n-Propylbenzene	<0.020	0.020	ug/L							
4-Isopropyltoluene	<0.020	0.020	ug/L							
n-Butylbenzene	<0.020	0.020	ug/L							
Surrogate: 4-Bromofluorobenzene	*0.142*		*ug/L*	*0.14*		*99.1*	*70-130*			
LCS (B6E0225-BS1)				Prepared & Analyzed: 04/28/16						
Acetone	**0.0264**	0.020	ug/L	0.024		111	70-130		30	
Benzene	**0.0302**	0.020	ug/L	0.032		94.5	70-130		30	
Benzyl chloride	**0.0532**	0.020	ug/L	0.052		103	70-130		30	
Bromodichloromethane	**0.0774**	0.020	ug/L	0.067		116	70-130		30	
Bromoform	**0.115**	0.020	ug/L	0.10		111	70-130		30	
Bromomethane	**0.0447**	0.020	ug/L	0.039		115	70-130		30	
2-Butanone (MEK)	**0.0316**	0.020	ug/L	0.029		107	70-130		30	
Carbon Disulfide	**0.0352**	0.020	ug/L	0.031		113	70-130		30	

Allen Aminian
QA/QC Manager

LABORATORY ANALYSIS RESULTS

Client: CH2M Hill, Inc.
Project No: 496965.A1.01
Project Name: KMEP Norwalk Biosparge Startup

AA Project No: MB187308
Date Received: 04/27/16
Date Reported: 05/09/16

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
VOCs by GCMS EPA TO-15 - Quality Control										
*Batch B6E0225 - *** DEFAULT PREP ****										
LCS (B6E0225-BS1) Continued				Prepared & Analyzed: 04/28/16						
Carbon Tetrachloride	**0.0745**	0.020	ug/L	0.063		118	70-130		30	
Chlorobenzene	**0.0491**	0.020	ug/L	0.046		107	70-130		30	
Chloroethane	**0.0317**	0.020	ug/L	0.026		120	70-130		30	
Chloroform	**0.0536**	0.020	ug/L	0.049		110	70-130		30	
Chloromethane	**0.0260**	0.020	ug/L	0.021		126	70-130		30	
Dibromochloromethane	**0.0908**	0.020	ug/L	0.085		107	70-130		30	
1,2-Dibromoethane (EDB)	**0.0744**	0.020	ug/L	0.077		96.8	70-130		30	
1,2-Dichlorobenzene	**0.0595**	0.020	ug/L	0.060		98.9	70-130		30	
1,3-Dichlorobenzene	**0.0638**	0.020	ug/L	0.060		106	70-130		30	
1,4-Dichlorobenzene	**0.0613**	0.020	ug/L	0.060		102	70-130		30	
Dichlorodifluoromethane (R12)	**0.0586**	0.020	ug/L	0.049		119	70-130		30	
1,1-Dichloroethane	**0.0521**	0.020	ug/L	0.040		129	70-130		30	
1,2-Dichloroethane (EDC)	**0.0437**	0.020	ug/L	0.040		108	70-130		30	
cis-1,2-Dichloroethylene	**0.0357**	0.020	ug/L	0.040		90.0	70-130		30	
1,1-Dichloroethylene	**0.0486**	0.020	ug/L	0.040		123	70-130		30	
trans-1,2-Dichloroethylene	**0.0450**	0.020	ug/L	0.040		113	70-130		30	
1,2-Dichloropropane	**0.0464**	0.020	ug/L	0.046		100	70-130		30	
trans-1,3-Dichloropropylene	**0.0421**	0.020	ug/L	0.045		92.8	70-130		30	
cis-1,3-Dichloropropylene	**0.0439**	0.020	ug/L	0.045		96.7	70-130		30	
Dichlorotetrafluoroethane	**0.0870**	0.020	ug/L	0.070		124	70-130		30	
Ethylbenzene	**0.0459**	0.020	ug/L	0.043		106	70-130		30	
4-Ethyltoluene	**0.0519**	0.020	ug/L	0.049		106	70-130		30	
Hexachlorobutadiene	**0.0995**	0.020	ug/L	0.11		93.3	70-130		30	
2-Hexanone (MBK)	**0.0393**	0.020	ug/L	0.041		95.9	70-130		30	
Isopropanol (IPA)	**0.0263**	0.20	ug/L	0.025		107	70-130		30	
Methylene Chloride	**0.0406**	0.020	ug/L	0.035		117	70-130		30	
4-Methyl-2-pentanone (MIBK)	**0.0398**	0.020	ug/L	0.041		97.1	70-130		30	
Styrene	**0.0410**	0.020	ug/L	0.043		96.2	70-130		30	
1,1,2,2-Tetrachloroethane	**0.0831**	0.020	ug/L	0.069		121	70-130		30	
Tetrachloroethylene (PCE)	**0.0647**	0.020	ug/L	0.068		95.4	70-130		30	
Toluene	**0.0350**	0.020	ug/L	0.038		93.0	70-130		30	
1,2,4-Trichlorobenzene	**0.0626**	0.020	ug/L	0.074		84.3	70-130		30	

Allen Aminian
QA/QC Manager

LABORATORY ANALYSIS RESULTS

Client: CH2M Hill, Inc.
Project No: 496965.A1.01
Project Name: KMEP Norwalk Biosparge Startup

AA Project No: MB187308
Date Received: 04/27/16
Date Reported: 05/09/16

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
VOCs by GCMS EPA TO-15 - Quality Control										
*Batch B6E0225 - *** DEFAULT PREP ****										
LCS (B6E0225-BS1) Continued				Prepared & Analyzed: 04/28/16						
1,1,2-Trichloroethane	**0.0527**	0.020	ug/L	0.055		96.5	70-130		30	
1,1,1-Trichloroethane	**0.0581**	0.020	ug/L	0.055		106	70-130		30	
Trichloroethylene (TCE)	**0.0595**	0.020	ug/L	0.054		111	70-130		30	
Trichlorofluoromethane (R11)	**0.0679**	0.020	ug/L	0.056		121	70-130		30	
1,1,2-Trichloro-1,2,2-trifluoroethane (R113)	**0.0938**	0.020	ug/L	0.077		122	70-130		30	
1,3,5-Trimethylbenzene	**0.0532**	0.020	ug/L	0.049		108	70-130		30	
1,2,4-Trimethylbenzene	**0.0511**	0.020	ug/L	0.049		104	70-130		30	
Vinyl acetate	**0.0397**	0.020	ug/L	0.035		113	70-130		30	
Vinyl chloride	**0.0319**	0.020	ug/L	0.026		125	70-130		30	
o-Xylene	**0.0487**	0.020	ug/L	0.043		112	70-130		30	
m,p-Xylenes	**0.0932**	0.020	ug/L	0.087		107	70-130		30	
1,2,3-Trichloropropane	**0.0707**	0.020	ug/L	0.060		117	70-130		30	
sec-Butylbenzene	**0.0579**	0.020	ug/L	0.055		106	70-130		30	
Isopropylbenzene	**0.0517**	0.020	ug/L	0.049		105	70-130		30	
n-Propylbenzene	**0.0530**	0.020	ug/L	0.049		108	70-130		30	
4-Isopropyltoluene	**0.0553**	0.020	ug/L	0.055		101	70-130		30	
Surrogate: 4-Bromofluorobenzene	*0.143*		*ug/L*	*0.14*		*100*	*70-130*			
LCS Dup (B6E0225-BSD1)				Prepared & Analyzed: 04/28/16						
Acetone	**0.0284**	0.020	ug/L	0.024		120	70-130	7.46	30	
Benzene	**0.0335**	0.020	ug/L	0.032		105	70-130	10.5	30	
Benzyl chloride	**0.0584**	0.020	ug/L	0.052		113	70-130	9.19	30	
Bromodichloromethane	**0.0784**	0.020	ug/L	0.067		117	70-130	1.29	30	
Bromoform	**0.115**	0.020	ug/L	0.10		111	70-130	0.540	30	
Bromomethane	**0.0435**	0.020	ug/L	0.039		112	70-130	2.73	30	
2-Butanone (MEK)	**0.0356**	0.020	ug/L	0.029		121	70-130	11.8	30	
Carbon Disulfide	**0.0348**	0.020	ug/L	0.031		112	70-130	1.07	30	
Carbon Tetrachloride	**0.0740**	0.020	ug/L	0.063		118	70-130	0.593	30	
Chlorobenzene	**0.0488**	0.020	ug/L	0.046		106	70-130	0.658	30	
Chloroethane	**0.0306**	0.020	ug/L	0.026		116	70-130	3.64	30	
Chloroform	**0.0551**	0.020	ug/L	0.049		113	70-130	2.78	30	

Allen Aminian
QA/QC Manager

LABORATORY ANALYSIS RESULTS

Client: CH2M Hill, Inc.
Project No: 496965.A1.01
Project Name: KMEP Norwalk Biosparge Startup

AA Project No: MB187308
Date Received: 04/27/16
Date Reported: 05/09/16

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
VOCs by GCMS EPA TO-15 - Quality Control										
*Batch B6E0225 - *** DEFAULT PREP ****										
LCS Dup (B6E0225-BSD1) Continued				Prepared & Analyzed: 04/28/16						
Chloromethane	**0.0241**	0.020	ug/L	0.021		116	70-130	7.76	30	
Dibromochloromethane	**0.0901**	0.020	ug/L	0.085		106	70-130	0.753	30	
1,2-Dibromoethane (EDB)	**0.0778**	0.020	ug/L	0.077		101	70-130	4.54	30	
1,2-Dichlorobenzene	**0.0651**	0.020	ug/L	0.060		108	70-130	9.07	30	
1,3-Dichlorobenzene	**0.0654**	0.020	ug/L	0.060		109	70-130	2.51	30	
1,4-Dichlorobenzene	**0.0640**	0.020	ug/L	0.060		106	70-130	4.32	30	
Dichlorodifluoromethane (R12)	**0.0566**	0.020	ug/L	0.049		114	70-130	3.61	30	
1,1-Dichloroethane	**0.0523**	0.020	ug/L	0.040		129	70-130	0.388	30	
1,2-Dichloroethane (EDC)	**0.0469**	0.020	ug/L	0.040		116	70-130	7.06	30	
cis-1,2-Dichloroethylene	**0.0415**	0.020	ug/L	0.040		105	70-130	15.0	30	
1,1-Dichloroethylene	**0.0498**	0.020	ug/L	0.040		126	70-130	2.50	30	
trans-1,2-Dichloroethylene	**0.0483**	0.020	ug/L	0.040		122	70-130	7.06	30	
1,2-Dichloropropane	**0.0483**	0.020	ug/L	0.046		104	70-130	4.10	30	
trans-1,3-Dichloropropylene	**0.0479**	0.020	ug/L	0.045		106	70-130	12.8	30	
cis-1,3-Dichloropropylene	**0.0480**	0.020	ug/L	0.045		106	70-130	8.99	30	
Dichlorotetrafluoroethane	**0.0838**	0.020	ug/L	0.070		120	70-130	3.76	30	
Ethylbenzene	**0.0490**	0.020	ug/L	0.043		113	70-130	6.68	30	
4-Ethyltoluene	**0.0552**	0.020	ug/L	0.049		112	70-130	6.16	30	
Hexachlorobutadiene	**0.117**	0.020	ug/L	0.11		110	70-130	16.5	30	
2-Hexanone (MBK)	**0.0488**	0.020	ug/L	0.041		119	70-130	21.7	30	
Isopropanol (IPA)	**0.0298**	0.20	ug/L	0.025		121	70-130	12.4	30	
Methylene Chloride	**0.0403**	0.020	ug/L	0.035		116	70-130	0.858	30	
4-Methyl-2-pentanone (MIBK)	**0.0470**	0.020	ug/L	0.041		115	70-130	16.7	30	
Styrene	**0.0440**	0.020	ug/L	0.043		103	70-130	7.12	30	
1,1,2,2-Tetrachloroethane	**0.0820**	0.020	ug/L	0.069		120	70-130	1.25	30	
Tetrachloroethylene (PCE)	**0.0687**	0.020	ug/L	0.068		101	70-130	6.00	30	
Toluene	**0.0376**	0.020	ug/L	0.038		99.7	70-130	6.95	30	
1,2,4-Trichlorobenzene	**0.0766**	0.020	ug/L	0.074		103	70-130	20.2	30	
1,1,2-Trichloroethane	**0.0552**	0.020	ug/L	0.055		101	70-130	4.75	30	
1,1,1-Trichloroethane	**0.0613**	0.020	ug/L	0.055		112	70-130	5.40	30	
Trichloroethylene (TCE)	**0.0592**	0.020	ug/L	0.054		110	70-130	0.543	30	
Trichlorofluoromethane (R11)	**0.0675**	0.020	ug/L	0.056		120	70-130	0.581	30	

Allen Aminian
QA/QC Manager

LABORATORY ANALYSIS RESULTS

Client: CH2M Hill, Inc.
Project No: 496965.A1.01
Project Name: KMEP Norwalk Biosparge Startup

AA Project No: MB187308
Date Received: 04/27/16
Date Reported: 05/09/16

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
VOCs by GCMS EPA TO-15 - Quality Control										
*Batch B6E0225 - *** DEFAULT PREP ****										
LCS Dup (B6E0225-BSD1) Continued				Prepared & Analyzed: 04/28/16						
1,1,2-Trichloro-1,2,2-trifluoroethane (R113)	**0.0940**	0.020	ug/L	0.077		123	70-130	0.163	30	
1,3,5-Trimethylbenzene	**0.0563**	0.020	ug/L	0.049		115	70-130	5.75	30	
1,2,4-Trimethylbenzene	**0.0547**	0.020	ug/L	0.049		111	70-130	6.69	30	
Vinyl acetate	**0.0451**	0.020	ug/L	0.035		128	70-130	12.8	30	
Vinyl chloride	**0.0303**	0.020	ug/L	0.026		119	70-130	4.93	30	
o-Xylene	**0.0502**	0.020	ug/L	0.043		116	70-130	3.07	30	
m,p-Xylenes	**0.0941**	0.020	ug/L	0.087		108	70-130	0.973	30	
1,2,3-Trichloropropane	**0.0709**	0.020	ug/L	0.060		118	70-130	0.170	30	
sec-Butylbenzene	**0.0609**	0.020	ug/L	0.055		111	70-130	5.08	30	
Isopropylbenzene	**0.0546**	0.020	ug/L	0.049		111	70-130	5.37	30	
n-Propylbenzene	**0.0567**	0.020	ug/L	0.049		115	70-130	6.63	30	
4-Isopropyltoluene	**0.0608**	0.020	ug/L	0.055		111	70-130	9.55	30	
Surrogate: 4-Bromofluorobenzene	*0.144*		*ug/L*	*0.14*		*100*	*70-130*			
Duplicate (B6E0225-DUP1)			**Source: 6D28021-27**	Prepared & Analyzed: 04/28/16						
Acetone	**<0.020**	0.020	ug/L		<0.020				30	
Allyl chloride	**<0.020**	0.020	ug/L		<0.020				30	
tert-Amyl Methyl Ether (TAME)	**<0.020**	0.020	ug/L		<0.020				30	
Benzene	**<0.020**	0.020	ug/L		<0.020				30	
Benzyl chloride	**<0.020**	0.020	ug/L		<0.020				30	
Bromodichloromethane	**<0.020**	0.020	ug/L		<0.020				30	
Bromoform	**<0.020**	0.020	ug/L		<0.020				30	
Bromomethane	**<0.020**	0.020	ug/L		<0.020				30	
1,3-Butadiene	**<0.020**	0.020	ug/L		<0.020				30	
2-Butanone (MEK)	**<0.020**	0.020	ug/L		<0.020				30	
tert-Butyl alcohol (TBA)	**<20**	20	ug/L		<20				30	
Carbon Disulfide	**<0.020**	0.020	ug/L		<0.020				30	
Carbon Tetrachloride	**<0.020**	0.020	ug/L		<0.020				30	
Chlorobenzene	**<0.020**	0.020	ug/L		<0.020				30	
Chloroethane	**<0.020**	0.020	ug/L		<0.020				30	
Chloroform	**<0.020**	0.020	ug/L		<0.020				30	

Allen Aminian
QA/QC Manager

LABORATORY ANALYSIS RESULTS

Client: CH2M Hill, Inc.
Project No: 496965.A1.01
Project Name: KMEP Norwalk Biosparge Startup

AA Project No: MB187308
Date Received: 04/27/16
Date Reported: 05/09/16

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
VOCs by GCMS EPA TO-15 - Quality Control										
*Batch B6E0225 - *** DEFAULT PREP ****										
Duplicate (B6E0225-DUP1) Continued	**Source: 6D28021-27**	Prepared & Analyzed: 04/28/16								
Chloromethane	**<0.020**	0.020	ug/L		<0.020				30	
Cyclohexane	**<0.020**	0.020	ug/L		<0.020				30	
Dibromochloromethane	**<0.020**	0.020	ug/L		<0.020				30	
1,2-Dibromoethane (EDB)	**<0.020**	0.020	ug/L		<0.020				30	
1,2-Dichlorobenzene	**<0.020**	0.020	ug/L		<0.020				30	
1,3-Dichlorobenzene	**<0.020**	0.020	ug/L		<0.020				30	
1,4-Dichlorobenzene	**<0.020**	0.020	ug/L		<0.020				30	
Dichlorodifluoromethane (R12)	**<0.020**	0.020	ug/L		<0.020				30	
1,1-Dichloroethane	**<0.020**	0.020	ug/L		<0.020				30	
1,2-Dichloroethane (EDC)	**<0.020**	0.020	ug/L		<0.020				30	
cis-1,2-Dichloroethylene	**<0.020**	0.020	ug/L		<0.020				30	
1,1-Dichloroethylene	**<0.020**	0.020	ug/L		<0.020				30	
trans-1,2-Dichloroethylene	**<0.020**	0.020	ug/L		<0.020				30	
1,2-Dichloropropane	**<0.020**	0.020	ug/L		<0.020				30	
trans-1,3-Dichloropropylene	**<0.020**	0.020	ug/L		<0.020				30	
cis-1,3-Dichloropropylene	**<0.020**	0.020	ug/L		<0.020				30	
Dichlorotetrafluoroethane	**<0.020**	0.020	ug/L		<0.020				30	
Diisopropyl ether (DIPE)	**<0.020**	0.020	ug/L		<0.020				30	
1,4-Dioxane	**<0.020**	0.020	ug/L		<0.020				30	
Ethanol	**<0.020**	0.020	ug/L		<0.020				30	
Ethyl Acetate	**<0.020**	0.020	ug/L		<0.020				30	
Ethylbenzene	**<0.020**	0.020	ug/L		<0.020				30	
Ethyl-tert-Butyl Ether (ETBE)	**<0.020**	0.020	ug/L		<0.020				30	
4-Ethyltoluene	**<0.020**	0.020	ug/L		<0.020				30	
Heptane	**<0.020**	0.020	ug/L		<0.020				30	
Hexachlorobutadiene	**<0.020**	0.020	ug/L		<0.020				30	
n-Hexane	**<0.020**	0.020	ug/L		<0.020				30	
2-Hexanone (MBK)	**<0.020**	0.020	ug/L		<0.020				30	
Isopropanol (IPA)	**<0.20**	0.20	ug/L		<0.20				30	
Methyl-tert-Butyl Ether (MTBE)	**<0.020**	0.020	ug/L		<0.020				30	
Methylene Chloride	**<0.020**	0.020	ug/L		<0.020				30	
4-Methyl-2-pentanone (MIBK)	**<0.020**	0.020	ug/L		<0.020				30	

Allen Aminian
QA/QC Manager

LABORATORY ANALYSIS RESULTS

Client: CH2M Hill, Inc.
Project No: 496965.A1.01
Project Name: KMEP Norwalk Biosparge Startup

AA Project No: MB187308
Date Received: 04/27/16
Date Reported: 05/09/16

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
VOCs by GCMS EPA TO-15 - Quality Control										
*Batch B6E0225 - *** DEFAULT PREP ****										
Duplicate (B6E0225-DUP1) Continued	**Source: 6D28021-27**		Prepared & Analyzed: 04/28/16							
Naphthalene	**<0.020**	0.020	ug/L		<0.020				30	
Propylene	**<0.020**	0.020	ug/L		<0.020				30	
Styrene	**<0.020**	0.020	ug/L		<0.020				30	
1,1,2,2-Tetrachloroethane	**<0.020**	0.020	ug/L		<0.020				30	
Tetrachloroethylene (PCE)	**<0.020**	0.020	ug/L		<0.020				30	
Tetrahydrofuran (THF)	**<0.020**	0.020	ug/L		<0.020				30	
Toluene	**<0.020**	0.020	ug/L		<0.020				30	
1,2,4-Trichlorobenzene	**<0.020**	0.020	ug/L		<0.020				30	
1,1,2-Trichloroethane	**<0.020**	0.020	ug/L		<0.020				30	
1,1,1-Trichloroethane	**<0.020**	0.020	ug/L		<0.020				30	
Trichloroethylene (TCE)	**<0.020**	0.020	ug/L		<0.020				30	
Trichlorofluoromethane (R11)	**<0.020**	0.020	ug/L		<0.020				30	
1,1,2-Trichloro-1,2,2-trifluoroethane (R113)	**<0.020**	0.020	ug/L		<0.020				30	
1,3,5-Trimethylbenzene	**<0.020**	0.020	ug/L		<0.020				30	
1,2,4-Trimethylbenzene	**<0.020**	0.020	ug/L		<0.020				30	
2,2,4-Trimethylpentane	**<0.020**	0.020	ug/L		<0.020				30	
Vinyl acetate	**<0.020**	0.020	ug/L		<0.020				30	
Vinyl bromide	**<0.020**	0.020	ug/L		<0.020				30	
Vinyl chloride	**<0.020**	0.020	ug/L		<0.020				30	
o-Xylene	**<0.020**	0.020	ug/L		<0.020				30	
m,p-Xylenes	**<0.020**	0.020	ug/L		<0.020				30	
1,1,1,2-Tetrachloroethane	**<0.020**	0.020	ug/L		<0.020				30	
1,2,3-Trichloropropane	**<0.020**	0.020	ug/L		<0.020				30	
sec-Butylbenzene	**<0.020**	0.020	ug/L		<0.020				30	
Isopropylbenzene	**<0.020**	0.020	ug/L		<0.020				30	
n-Propylbenzene	**<0.020**	0.020	ug/L		<0.020				30	
4-Isopropyltoluene	**<0.020**	0.020	ug/L		<0.020				30	
n-Butylbenzene	**<0.020**	0.020	ug/L		<0.020				30	
Surrogate: 4-Bromofluorobenzene	*0.142*		*ug/L*	*0.14*		*98.9*	*70-130*			
*Batch B6E0226 - *** DEFAULT PREP ****										

Allen Aminian
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LABORATORY ANALYSIS RESULTS

Client: CH2M Hill, Inc.
Project No: 496965.A1.01
Project Name: KMEP Norwalk Biosparge Startup

AA Project No: MB187308
Date Received: 04/27/16
Date Reported: 05/09/16

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
VOCs by GCMS EPA TO-15 - Quality Control										
*Batch B6E0226 - *** DEFAULT PREP ****										
Blank (B6E0226-BLK1)				Prepared & Analyzed: 04/29/16						
Acetone	<0.020	0.020	ug/L							
Allyl chloride	<0.020	0.020	ug/L							
tert-Amyl Methyl Ether (TAME)	<0.020	0.020	ug/L							
Benzene	<0.020	0.020	ug/L							
Benzyl chloride	<0.020	0.020	ug/L							
Bromodichloromethane	<0.020	0.020	ug/L							
Bromoform	<0.020	0.020	ug/L							
Bromomethane	<0.020	0.020	ug/L							
1,3-Butadiene	<0.020	0.020	ug/L							
2-Butanone (MEK)	<0.020	0.020	ug/L							
tert-Butyl alcohol (TBA)	<20	20	ug/L							
Carbon Disulfide	<0.020	0.020	ug/L							
Carbon Tetrachloride	<0.020	0.020	ug/L							
Chlorobenzene	<0.020	0.020	ug/L							
Chloroethane	<0.020	0.020	ug/L							
Chloroform	<0.020	0.020	ug/L							
Chloromethane	<0.020	0.020	ug/L							
Cyclohexane	<0.020	0.020	ug/L							
Dibromochloromethane	<0.020	0.020	ug/L							
1,2-Dibromoethane (EDB)	<0.020	0.020	ug/L							
1,2-Dichlorobenzene	<0.020	0.020	ug/L							
1,3-Dichlorobenzene	<0.020	0.020	ug/L							
1,4-Dichlorobenzene	<0.020	0.020	ug/L							
Dichlorodifluoromethane (R12)	<0.020	0.020	ug/L							
1,1-Dichloroethane	<0.020	0.020	ug/L							
1,2-Dichloroethane (EDC)	<0.020	0.020	ug/L							
cis-1,2-Dichloroethylene	<0.020	0.020	ug/L							
1,1-Dichloroethylene	<0.020	0.020	ug/L							
trans-1,2-Dichloroethylene	<0.020	0.020	ug/L							
1,2-Dichloropropane	<0.020	0.020	ug/L							
trans-1,3-Dichloropropylene	<0.020	0.020	ug/L							
cis-1,3-Dichloropropylene	<0.020	0.020	ug/L							

Allen Aminian
QA/QC Manager

LABORATORY ANALYSIS RESULTS

Client: CH2M Hill, Inc.
Project No: 496965.A1.01
Project Name: KMEP Norwalk Biosparge Startup

AA Project No: MB187308
Date Received: 04/27/16
Date Reported: 05/09/16

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
VOCs by GCMS EPA TO-15 - Quality Control										
*Batch B6E0226 - *** DEFAULT PREP ****										
Blank (B6E0226-BLK1) Continued				Prepared & Analyzed: 04/29/16						
Dichlorotetrafluoroethane	<0.020	0.020	ug/L							
Diisopropyl ether (DIPE)	<0.020	0.020	ug/L							
1,4-Dioxane	<0.020	0.020	ug/L							
Ethanol	<0.020	0.020	ug/L							
Ethyl Acetate	<0.020	0.020	ug/L							
Ethylbenzene	<0.020	0.020	ug/L							
Ethyl-tert-Butyl Ether (ETBE)	<0.020	0.020	ug/L							
4-Ethyltoluene	<0.020	0.020	ug/L							
Heptane	<0.020	0.020	ug/L							
Hexachlorobutadiene	<0.020	0.020	ug/L							
n-Hexane	<0.020	0.020	ug/L							
2-Hexanone (MBK)	<0.020	0.020	ug/L							
Isopropanol (IPA)	<0.20	0.20	ug/L							
Methyl-tert-Butyl Ether (MTBE)	<0.020	0.020	ug/L							
Methylene Chloride	<0.020	0.020	ug/L							
4-Methyl-2-pentanone (MIBK)	<0.020	0.020	ug/L							
Naphthalene	<0.020	0.020	ug/L							
Propylene	<0.020	0.020	ug/L							
Styrene	<0.020	0.020	ug/L							
1,1,2,2-Tetrachloroethane	<0.020	0.020	ug/L							
Tetrachloroethylene (PCE)	<0.020	0.020	ug/L							
Tetrahydrofuran (THF)	<0.020	0.020	ug/L							
Toluene	<0.020	0.020	ug/L							
1,2,4-Trichlorobenzene	<0.020	0.020	ug/L							
1,1,2-Trichloroethane	<0.020	0.020	ug/L							
1,1,1-Trichloroethane	<0.020	0.020	ug/L							
Trichloroethylene (TCE)	<0.020	0.020	ug/L							
Trichlorofluoromethane (R11)	<0.020	0.020	ug/L							
1,1,2-Trichloro-1,2,2-trifluoroethane (R113)	<0.020	0.020	ug/L							
1,3,5-Trimethylbenzene	<0.020	0.020	ug/L							
1,2,4-Trimethylbenzene	<0.020	0.020	ug/L							

Allen Aminian
QA/QC Manager

LABORATORY ANALYSIS RESULTS

Client: CH2M Hill, Inc.
Project No: 496965.A1.01
Project Name: KMEP Norwalk Biosparge Startup

AA Project No: MB187308
Date Received: 04/27/16
Date Reported: 05/09/16

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
VOCs by GCMS EPA TO-15 - Quality Control										
*Batch B6E0226 - *** DEFAULT PREP ****										
Blank (B6E0226-BLK1) Continued				Prepared & Analyzed: 04/29/16						
2,2,4-Trimethylpentane	<0.020	0.020	ug/L							
Vinyl acetate	<0.020	0.020	ug/L							
Vinyl bromide	<0.020	0.020	ug/L							
Vinyl chloride	<0.020	0.020	ug/L							
o-Xylene	<0.020	0.020	ug/L							
m,p-Xylenes	<0.020	0.020	ug/L							
1,1,1,2-Tetrachloroethane	<0.020	0.020	ug/L							
1,2,3-Trichloropropane	<0.020	0.020	ug/L							
sec-Butylbenzene	<0.020	0.020	ug/L							
Isopropylbenzene	<0.020	0.020	ug/L							
n-Propylbenzene	<0.020	0.020	ug/L							
4-Isopropyltoluene	<0.020	0.020	ug/L							
n-Butylbenzene	<0.020	0.020	ug/L							
Surrogate: 4-Bromofluorobenzene	*0.142*		*ug/L*	*0.14*		*99.3*	*70-130*			
LCS (B6E0226-BS1)				Prepared & Analyzed: 04/29/16						
Acetone	**0.0257**	0.020	ug/L	0.024		108	70-130		30	
Benzene	**0.0293**	0.020	ug/L	0.032		91.6	70-130		30	
Benzyl chloride	**0.0546**	0.020	ug/L	0.052		105	70-130		30	
Bromodichloromethane	**0.0763**	0.020	ug/L	0.067		114	70-130		30	
Bromoform	**0.108**	0.020	ug/L	0.10		104	70-130		30	
Bromomethane	**0.0466**	0.020	ug/L	0.039		120	70-130		30	
2-Butanone (MEK)	**0.0296**	0.020	ug/L	0.029		100	70-130		30	
Carbon Disulfide	**0.0317**	0.020	ug/L	0.031		102	70-130		30	
Carbon Tetrachloride	**0.0729**	0.020	ug/L	0.063		116	70-130		30	
Chlorobenzene	**0.0470**	0.020	ug/L	0.046		102	70-130		30	
Chloroethane	**0.0302**	0.020	ug/L	0.026		114	70-130		30	
Chloroform	**0.0513**	0.020	ug/L	0.049		105	70-130		30	
Chloromethane	**0.0252**	0.020	ug/L	0.021		122	70-130		30	
Dibromochloromethane	**0.0899**	0.020	ug/L	0.085		106	70-130		30	
1,2-Dibromoethane (EDB)	**0.0740**	0.020	ug/L	0.077		96.3	70-130		30	
1,2-Dichlorobenzene	**0.0590**	0.020	ug/L	0.060		98.1	70-130		30	

Allen Aminian
QA/QC Manager

LABORATORY ANALYSIS RESULTS

Client: CH2M Hill, Inc.
Project No: 496965.A1.01
Project Name: KMEP Norwalk Biosparge Startup

AA Project No: MB187308
Date Received: 04/27/16
Date Reported: 05/09/16

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
VOCs by GCMS EPA TO-15 - Quality Control										
*Batch B6E0226 - *** DEFAULT PREP ****										
LCS (B6E0226-BS1) Continued				Prepared & Analyzed: 04/29/16						
1,3-Dichlorobenzene	**0.0617**	0.020	ug/L	0.060		103	70-130		30	
1,4-Dichlorobenzene	**0.0597**	0.020	ug/L	0.060		99.3	70-130		30	
Dichlorodifluoromethane (R12)	**0.0592**	0.020	ug/L	0.049		120	70-130		30	
1,1-Dichloroethane	**0.0444**	0.020	ug/L	0.040		110	70-130		30	
1,2-Dichloroethane (EDC)	**0.0425**	0.020	ug/L	0.040		105	70-130		30	
cis-1,2-Dichloroethylene	**0.0360**	0.020	ug/L	0.040		90.7	70-130		30	
1,1-Dichloroethylene	**0.0459**	0.020	ug/L	0.040		116	70-130		30	
trans-1,2-Dichloroethylene	**0.0375**	0.020	ug/L	0.040		94.5	70-130		30	
1,2-Dichloropropane	**0.0476**	0.020	ug/L	0.046		103	70-130		30	
trans-1,3-Dichloropropylene	**0.0433**	0.020	ug/L	0.045		95.3	70-130		30	
cis-1,3-Dichloropropylene	**0.0438**	0.020	ug/L	0.045		96.6	70-130		30	
Dichlorotetrafluoroethane	**0.0870**	0.020	ug/L	0.070		124	70-130		30	
Ethylbenzene	**0.0454**	0.020	ug/L	0.043		105	70-130		30	
4-Ethyltoluene	**0.0513**	0.020	ug/L	0.049		104	70-130		30	
Hexachlorobutadiene	**0.103**	0.020	ug/L	0.11		96.4	70-130		30	
2-Hexanone (MBK)	**0.0456**	0.020	ug/L	0.041		111	70-130		30	
Isopropanol (IPA)	**0.0261**	0.20	ug/L	0.025		106	70-130		30	
Methylene Chloride	**0.0390**	0.020	ug/L	0.035		112	70-130		30	
4-Methyl-2-pentanone (MIBK)	**0.0435**	0.020	ug/L	0.041		106	70-130		30	
Styrene	**0.0409**	0.020	ug/L	0.043		96.1	70-130		30	
1,1,2,2-Tetrachloroethane	**0.0814**	0.020	ug/L	0.069		118	70-130		30	
Tetrachloroethylene (PCE)	**0.0629**	0.020	ug/L	0.068		92.7	70-130		30	
Toluene	**0.0350**	0.020	ug/L	0.038		92.8	70-130		30	
1,2,4-Trichlorobenzene	**0.0662**	0.020	ug/L	0.074		89.2	70-130		30	
1,1,2-Trichloroethane	**0.0522**	0.020	ug/L	0.055		95.6	70-130		30	
1,1,1-Trichloroethane	**0.0564**	0.020	ug/L	0.055		103	70-130		30	
Trichloroethylene (TCE)	**0.0582**	0.020	ug/L	0.054		108	70-130		30	
Trichlorofluoromethane (R11)	**0.0694**	0.020	ug/L	0.056		124	70-130		30	
1,1,2-Trichloro-1,2,2-trifluoroethane (R113)	**0.0844**	0.020	ug/L	0.077		110	70-130		30	
1,3,5-Trimethylbenzene	**0.0518**	0.020	ug/L	0.049		105	70-130		30	
1,2,4-Trimethylbenzene	**0.0508**	0.020	ug/L	0.049		103	70-130		30	

Allen Aminian
QA/QC Manager

LABORATORY ANALYSIS RESULTS

Client: CH2M Hill, Inc.
Project No: 496965.A1.01
Project Name: KMEP Norwalk Biosparge Startup

AA Project No: MB187308
Date Received: 04/27/16
Date Reported: 05/09/16

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
VOCs by GCMS EPA TO-15 - Quality Control										
*Batch B6E0226 - *** DEFAULT PREP ****										
LCS (B6E0226-BS1) Continued				Prepared & Analyzed: 04/29/16						
Vinyl acetate	**0.0365**	0.020	ug/L	0.035		104	70-130		30	
Vinyl chloride	**0.0305**	0.020	ug/L	0.026		120	70-130		30	
o-Xylene	**0.0473**	0.020	ug/L	0.043		109	70-130		30	
m,p-Xylenes	**0.0884**	0.020	ug/L	0.087		102	70-130		30	
1,2,3-Trichloropropane	**0.0692**	0.020	ug/L	0.060		115	70-130		30	
sec-Butylbenzene	**0.0562**	0.020	ug/L	0.055		102	70-130		30	
Isopropylbenzene	**0.0503**	0.020	ug/L	0.049		102	70-130		30	
n-Propylbenzene	**0.0514**	0.020	ug/L	0.049		105	70-130		30	
4-Isopropyltoluene	**0.0548**	0.020	ug/L	0.055		99.8	70-130		30	
Surrogate: 4-Bromofluorobenzene	*0.146*		*ug/L*	*0.14*		*102*	*70-130*			
LCS Dup (B6E0226-BSD1)				Prepared & Analyzed: 04/29/16						
Acetone	**0.0269**	0.020	ug/L	0.024		113	70-130	4.61	30	
Benzene	**0.0320**	0.020	ug/L	0.032		100	70-130	8.97	30	
Benzyl chloride	**0.0565**	0.020	ug/L	0.052		109	70-130	3.54	30	
Bromodichloromethane	**0.0761**	0.020	ug/L	0.067		114	70-130	0.264	30	
Bromoform	**0.106**	0.020	ug/L	0.10		103	70-130	1.06	30	
Bromomethane	**0.0453**	0.020	ug/L	0.039		117	70-130	2.87	30	
2-Butanone (MEK)	**0.0329**	0.020	ug/L	0.029		112	70-130	10.6	30	
Carbon Disulfide	**0.0313**	0.020	ug/L	0.031		100	70-130	1.38	30	
Carbon Tetrachloride	**0.0733**	0.020	ug/L	0.063		116	70-130	0.516	30	
Chlorobenzene	**0.0463**	0.020	ug/L	0.046		101	70-130	1.58	30	
Chloroethane	**0.0299**	0.020	ug/L	0.026		113	70-130	1.05	30	
Chloroform	**0.0526**	0.020	ug/L	0.049		108	70-130	2.54	30	
Chloromethane	**0.0308**	0.020	ug/L	0.021		149	70-130	19.9	30	**
Dibromochloromethane	**0.0919**	0.020	ug/L	0.085		108	70-130	2.25	30	
1,2-Dibromoethane (EDB)	**0.0768**	0.020	ug/L	0.077		100	70-130	3.77	30	
1,2-Dichlorobenzene	**0.0611**	0.020	ug/L	0.060		102	70-130	3.51	30	
1,3-Dichlorobenzene	**0.0612**	0.020	ug/L	0.060		102	70-130	0.783	30	
1,4-Dichlorobenzene	**0.0616**	0.020	ug/L	0.060		102	70-130	3.07	30	
Dichlorodifluoromethane (R12)	**0.0588**	0.020	ug/L	0.049		119	70-130	0.587	30	
1,1-Dichloroethane	**0.0449**	0.020	ug/L	0.040		111	70-130	1.18	30	

Allen Aminian
QA/QC Manager

LABORATORY ANALYSIS RESULTS

Client: CH2M Hill, Inc.
Project No: 496965.A1.01
Project Name: KMEP Norwalk Biosparge Startup

AA Project No: MB187308
Date Received: 04/27/16
Date Reported: 05/09/16

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
VOCs by GCMS EPA TO-15 - Quality Control										
*Batch B6E0226 - *** DEFAULT PREP ****										
LCS Dup (B6E0226-BSD1) Continued				Prepared & Analyzed: 04/29/16						
1,2-Dichloroethane (EDC)	**0.0426**	0.020	ug/L	0.040		105	70-130	0.381	30	
cis-1,2-Dichloroethylene	**0.0395**	0.020	ug/L	0.040		99.7	70-130	9.45	30	
1,1-Dichloroethylene	**0.0505**	0.020	ug/L	0.040		127	70-130	9.55	30	
trans-1,2-Dichloroethylene	**0.0403**	0.020	ug/L	0.040		102	70-130	7.24	30	
1,2-Dichloropropane	**0.0488**	0.020	ug/L	0.046		106	70-130	2.49	30	
trans-1,3-Dichloropropylene	**0.0476**	0.020	ug/L	0.045		105	70-130	9.50	30	
cis-1,3-Dichloropropylene	**0.0482**	0.020	ug/L	0.045		106	70-130	9.56	30	
Dichlorotetrafluoroethane	**0.0849**	0.020	ug/L	0.070		122	70-130	2.44	30	
Ethylbenzene	**0.0463**	0.020	ug/L	0.043		107	70-130	1.89	30	
4-Ethyltoluene	**0.0525**	0.020	ug/L	0.049		107	70-130	2.27	30	
Hexachlorobutadiene	**0.116**	0.020	ug/L	0.11		109	70-130	12.5	30	
2-Hexanone (MBK)	**0.0456**	0.020	ug/L	0.041		111	70-130	0.0899	30	
Isopropanol (IPA)	**0.0286**	0.20	ug/L	0.025		116	70-130	9.16	30	
Methylene Chloride	**0.0423**	0.020	ug/L	0.035		122	70-130	8.29	30	
4-Methyl-2-pentanone (MIBK)	**0.0458**	0.020	ug/L	0.041		112	70-130	5.14	30	
Styrene	**0.0426**	0.020	ug/L	0.043		99.9	70-130	3.88	30	
1,1,2,2-Tetrachloroethane	**0.0778**	0.020	ug/L	0.069		113	70-130	4.40	30	
Tetrachloroethylene (PCE)	**0.0676**	0.020	ug/L	0.068		99.6	70-130	7.18	30	
Toluene	**0.0373**	0.020	ug/L	0.038		99.1	70-130	6.57	30	
1,2,4-Trichlorobenzene	**0.0761**	0.020	ug/L	0.074		102	70-130	13.9	30	
1,1,2-Trichloroethane	**0.0549**	0.020	ug/L	0.055		101	70-130	5.10	30	
1,1,1-Trichloroethane	**0.0599**	0.020	ug/L	0.055		110	70-130	5.91	30	
Trichloroethylene (TCE)	**0.0589**	0.020	ug/L	0.054		110	70-130	1.19	30	
Trichlorofluoromethane (R11)	**0.0712**	0.020	ug/L	0.056		127	70-130	2.56	30	
1,1,2-Trichloro-1,2,2-trifluoroethane (R113)	**0.0851**	0.020	ug/L	0.077		111	70-130	0.904	30	
1,3,5-Trimethylbenzene	**0.0529**	0.020	ug/L	0.049		108	70-130	2.16	30	
1,2,4-Trimethylbenzene	**0.0525**	0.020	ug/L	0.049		107	70-130	3.14	30	
Vinyl acetate	**0.0389**	0.020	ug/L	0.035		110	70-130	6.35	30	
Vinyl chloride	**0.0309**	0.020	ug/L	0.026		121	70-130	1.08	30	
o-Xylene	**0.0474**	0.020	ug/L	0.043		109	70-130	0.275	30	
m,p-Xylenes	**0.0903**	0.020	ug/L	0.087		104	70-130	2.19	30	

Allen Aminian
QA/QC Manager

LABORATORY ANALYSIS RESULTS

Client: CH2M Hill, Inc.
Project No: 496965.A1.01
Project Name: KMEP Norwalk Biosparge Startup

AA Project No: MB187308
Date Received: 04/27/16
Date Reported: 05/09/16

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
VOCs by GCMS EPA TO-15 - Quality Control										
*Batch B6E0226 - *** DEFAULT PREP ****										
LCS Dup (B6E0226-BSD1) Continued				Prepared & Analyzed: 04/29/16						
1,2,3-Trichloropropane	**0.0683**	0.020	ug/L	0.060		113	70-130	1.32	30	
sec-Butylbenzene	**0.0581**	0.020	ug/L	0.055		106	70-130	3.36	30	
Isopropylbenzene	**0.0520**	0.020	ug/L	0.049		106	70-130	3.17	30	
n-Propylbenzene	**0.0533**	0.020	ug/L	0.049		108	70-130	3.57	30	
4-Isopropyltoluene	**0.0584**	0.020	ug/L	0.055		106	70-130	6.31	30	
Surrogate: 4-Bromofluorobenzene	*0.147*		*ug/L*	*0.14*		*103*	*70-130*			
Duplicate (B6E0226-DUP1)			**Source: 6D28021-38**	Prepared & Analyzed: 04/29/16						
Acetone	**<0.020**	0.020	ug/L		<0.020				30	
Allyl chloride	**<0.020**	0.020	ug/L		<0.020				30	
tert-Amyl Methyl Ether (TAME)	**<0.020**	0.020	ug/L		<0.020				30	
Benzene	**<0.020**	0.020	ug/L		<0.020				30	
Benzyl chloride	**<0.020**	0.020	ug/L		<0.020				30	
Bromodichloromethane	**<0.020**	0.020	ug/L		<0.020				30	
Bromoform	**<0.020**	0.020	ug/L		<0.020				30	
Bromomethane	**<0.020**	0.020	ug/L		<0.020				30	
1,3-Butadiene	**<0.020**	0.020	ug/L		<0.020				30	
2-Butanone (MEK)	**<0.020**	0.020	ug/L		<0.020				30	
tert-Butyl alcohol (TBA)	**<20**	20	ug/L		<20				30	
Carbon Disulfide	**<0.020**	0.020	ug/L		<0.020				30	
Carbon Tetrachloride	**<0.020**	0.020	ug/L		<0.020				30	
Chlorobenzene	**<0.020**	0.020	ug/L		<0.020				30	
Chloroethane	**<0.020**	0.020	ug/L		<0.020				30	
Chloroform	**<0.020**	0.020	ug/L		<0.020				30	
Chloromethane	**<0.020**	0.020	ug/L		<0.020				30	
Cyclohexane	**<0.020**	0.020	ug/L		<0.020				30	
Dibromochloromethane	**<0.020**	0.020	ug/L		<0.020				30	
1,2-Dibromoethane (EDB)	**<0.020**	0.020	ug/L		<0.020				30	
1,2-Dichlorobenzene	**<0.020**	0.020	ug/L		<0.020				30	
1,3-Dichlorobenzene	**<0.020**	0.020	ug/L		<0.020				30	
1,4-Dichlorobenzene	**<0.020**	0.020	ug/L		<0.020				30	
Dichlorodifluoromethane (R12)	**<0.020**	0.020	ug/L		<0.020				30	

Allen Aminian
QA/QC Manager

LABORATORY ANALYSIS RESULTS

Client: CH2M Hill, Inc.
Project No: 496965.A1.01
Project Name: KMEP Norwalk Biosparge Startup

AA Project No: MB187308
Date Received: 04/27/16
Date Reported: 05/09/16

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
VOCs by GCMS EPA TO-15 - Quality Control										
*Batch B6E0226 - *** DEFAULT PREP ****										
Duplicate (B6E0226-DUP1) Continued	**Source: 6D28021-38**	Prepared & Analyzed: 04/29/16								
1,1-Dichloroethane	**<0.020**	0.020	ug/L		<0.020				30	
1,2-Dichloroethane (EDC)	**<0.020**	0.020	ug/L		<0.020				30	
cis-1,2-Dichloroethylene	**<0.020**	0.020	ug/L		<0.020				30	
1,1-Dichloroethylene	**<0.020**	0.020	ug/L		<0.020				30	
trans-1,2-Dichloroethylene	**<0.020**	0.020	ug/L		<0.020				30	
1,2-Dichloropropane	**<0.020**	0.020	ug/L		<0.020				30	
trans-1,3-Dichloropropylene	**<0.020**	0.020	ug/L		<0.020				30	
cis-1,3-Dichloropropylene	**<0.020**	0.020	ug/L		<0.020				30	
Dichlorotetrafluoroethane	**<0.020**	0.020	ug/L		<0.020				30	
Diisopropyl ether (DIPE)	**<0.020**	0.020	ug/L		<0.020				30	
1,4-Dioxane	**<0.020**	0.020	ug/L		<0.020				30	
Ethanol	**<0.020**	0.020	ug/L		<0.020				30	
Ethyl Acetate	**<0.020**	0.020	ug/L		<0.020				30	
Ethylbenzene	**<0.020**	0.020	ug/L		<0.020				30	
Ethyl-tert-Butyl Ether (ETBE)	**<0.020**	0.020	ug/L		<0.020				30	
4-Ethyltoluene	**<0.020**	0.020	ug/L		<0.020				30	
Heptane	**<0.020**	0.020	ug/L		<0.020				30	
Hexachlorobutadiene	**<0.020**	0.020	ug/L		<0.020				30	
n-Hexane	**<0.020**	0.020	ug/L		<0.020				30	
2-Hexanone (MBK)	**<0.020**	0.020	ug/L		<0.020				30	
Isopropanol (IPA)	**<0.20**	0.20	ug/L		<0.20				30	
Methyl-tert-Butyl Ether (MTBE)	**<0.020**	0.020	ug/L		<0.020				30	
Methylene Chloride	**<0.020**	0.020	ug/L		<0.020				30	
4-Methyl-2-pentanone (MIBK)	**<0.020**	0.020	ug/L		<0.020				30	
Naphthalene	**<0.020**	0.020	ug/L		<0.020				30	
Propylene	**<0.020**	0.020	ug/L		<0.020				30	
Styrene	**<0.020**	0.020	ug/L		<0.020				30	
1,1,2,2-Tetrachloroethane	**<0.020**	0.020	ug/L		<0.020				30	
Tetrachloroethylene (PCE)	**<0.020**	0.020	ug/L		<0.020				30	
Tetrahydrofuran (THF)	**<0.020**	0.020	ug/L		<0.020				30	
Toluene	**0.0535**	0.020	ug/L		0.0539			0.702	30	
1,2,4-Trichlorobenzene	**<0.020**	0.020	ug/L		<0.020				30	

Allen Aminian
QA/QC Manager

LABORATORY ANALYSIS RESULTS

Client: CH2M Hill, Inc.
Project No: 496965.A1.01
Project Name: KMEP Norwalk Biosparge Startup

AA Project No: MB187308
Date Received: 04/27/16
Date Reported: 05/09/16

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
VOCs by GCMS EPA TO-15 - Quality Control										
*Batch B6E0226 - *** DEFAULT PREP ****										
Duplicate (B6E0226-DUP1) Continued	**Source: 6D28021-38**		Prepared & Analyzed: 04/29/16							
1,1,2-Trichloroethane	**<0.020**	0.020	ug/L		<0.020				30	
1,1,1-Trichloroethane	**<0.020**	0.020	ug/L		<0.020				30	
Trichloroethylene (TCE)	**<0.020**	0.020	ug/L		<0.020				30	
Trichlorofluoromethane (R11)	**<0.020**	0.020	ug/L		<0.020				30	
1,1,2-Trichloro-1,2,2-trifluoroethane (R113)	**<0.020**	0.020	ug/L		<0.020				30	
1,3,5-Trimethylbenzene	**<0.020**	0.020	ug/L		<0.020				30	
1,2,4-Trimethylbenzene	**<0.020**	0.020	ug/L		<0.020				30	
2,2,4-Trimethylpentane	**<0.020**	0.020	ug/L		<0.020				30	
Vinyl acetate	**<0.020**	0.020	ug/L		<0.020				30	
Vinyl bromide	**<0.020**	0.020	ug/L		<0.020				30	
Vinyl chloride	**<0.020**	0.020	ug/L		<0.020				30	
o-Xylene	**0.0484**	0.020	ug/L		0.0479			1.08	30	
m,p-Xylenes	**0.102**	0.020	ug/L		0.101			1.12	30	
1,1,1,2-Tetrachloroethane	**<0.020**	0.020	ug/L		<0.020				30	
1,2,3-Trichloropropane	**<0.020**	0.020	ug/L		<0.020				30	
sec-Butylbenzene	**<0.020**	0.020	ug/L		<0.020				30	
Isopropylbenzene	**<0.020**	0.020	ug/L		<0.020				30	
n-Propylbenzene	**<0.020**	0.020	ug/L		<0.020				30	
4-Isopropyltoluene	**<0.020**	0.020	ug/L		<0.020				30	
n-Butylbenzene	**<0.020**	0.020	ug/L		<0.020				30	
Surrogate: 4-Bromofluorobenzene	*0.141*		*ug/L*	*0.14*		*98.8*	*70-130*			
Fixed Gases by TCD - Quality Control										
*Batch B6E0230 - *** DEFAULT PREP ****										
Blank (B6E0230-BLK1)			Prepared & Analyzed: 04/27/16							
Methane	<0.10	0.10	% by Volume							
Oxygen	<0.10	0.10	% by Volume							
Carbon Dioxide	<0.10	0.10	% by Volume							

Allen Aminian
QA/QC Manager

LABORATORY ANALYSIS RESULTS

Client: CH2M Hill, Inc.
Project No: 496965.A1.01
Project Name: KMEP Norwalk Biosparge Startup

AA Project No: MB187308
Date Received: 04/27/16
Date Reported: 05/09/16

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Fixed Gases by TCD - Quality Control										
*Batch B6E0230 - *** DEFAULT PREP ****										
LCS (B6E0230-BS1)				Prepared & Analyzed: 04/27/16						
Methane	**4.60**	0.10	% by Volume	4.5		102	75-125			
Oxygen	**3.80**	0.10	% by Volume	4.0		95.0	75-125			
Carbon Dioxide	**13.8**	0.10	% by Volume	15		92.3	75-125			
LCS Dup (B6E0230-BSD1)				Prepared & Analyzed: 04/27/16						
Methane	**4.62**	0.10	% by Volume	4.5		103	75-125	0.521	30	
Oxygen	**3.64**	0.10	% by Volume	4.0		91.1	75-125	4.14	30	
Carbon Dioxide	**13.9**	0.10	% by Volume	15		92.9	75-125	0.662	30	
Duplicate (B6E0230-DUP1)				**Source: 6D28021-09**	Prepared & Analyzed: 04/27/16					
Methane	**<0.10**	0.10	% by Volume		<0.10				30	
Oxygen	**18.3**	0.10	% by Volume		18.3			0.322	30	
Carbon Dioxide	**0.343**	0.10	% by Volume		0.357			4.00	30	
*Batch B6E0231 - *** DEFAULT PREP ****										
Blank (B6E0231-BLK1)				Prepared & Analyzed: 04/28/16						
Methane	<0.10	0.10	% by Volume							
Oxygen	<0.10	0.10	% by Volume							
Carbon Dioxide	<0.10	0.10	% by Volume							
LCS (B6E0231-BS1)				Prepared & Analyzed: 04/28/16						
Methane	**4.53**	0.10	% by Volume	4.5		101	75-125			

Allen Aminian
QA/QC Manager

LABORATORY ANALYSIS RESULTS

Client: CH2M Hill, Inc.
Project No: 496965.A1.01
Project Name: KMEP Norwalk Biosparge Startup

AA Project No: MB187308
Date Received: 04/27/16
Date Reported: 05/09/16

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Fixed Gases by TCD - Quality Control										
*Batch B6E0231 - *** DEFAULT PREP ****										
LCS (B6E0231-BS1) Continued				Prepared & Analyzed: 04/28/16						
Oxygen	**3.57**	0.10	% by Volume	4.0		89.2	75-125			
Carbon Dioxide	**13.6**	0.10	% by Volume	15		91.0	75-125			
LCS Dup (B6E0231-BSD1)				Prepared & Analyzed: 04/28/16						
Methane	**4.63**	0.10	% by Volume	4.5		103	75-125	2.23	30	
Oxygen	**3.67**	0.10	% by Volume	4.0		91.8	75-125	2.93	30	
Carbon Dioxide	**13.5**	0.10	% by Volume	15		90.0	75-125	1.10	30	
Duplicate (B6E0231-DUP1)				**Source: 6D28021-27**	Prepared & Analyzed: 04/28/16					
Methane	**<0.10**	0.10	% by Volume		<0.10				30	
Oxygen	**14.4**	0.10	% by Volume		13.9			3.18	30	
Carbon Dioxide	**2.12**	0.10	% by Volume		2.13			0.611	30	
*Batch B6E0232 - *** DEFAULT PREP ****										
Blank (B6E0232-BLK1)				Prepared & Analyzed: 04/29/16						
Methane	<0.10	0.10	% by Volume							
Oxygen	<0.10	0.10	% by Volume							
Carbon Dioxide	<0.10	0.10	% by Volume							
LCS (B6E0232-BS1)				Prepared & Analyzed: 04/29/16						
Methane	**4.49**	0.10	% by Volume	4.5		99.7	75-125			
Oxygen	**3.94**	0.10	% by Volume	4.0		98.6	75-125			

Allen Aminian
QA/QC Manager

LABORATORY ANALYSIS RESULTS

Client: CH2M Hill, Inc.
Project No: 496965.A1.01
Project Name: KMEP Norwalk Biosparge Startup

AA Project No: MB187308
Date Received: 04/27/16
Date Reported: 05/09/16

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Fixed Gases by TCD - Quality Control										
*Batch B6E0232 - *** DEFAULT PREP ****										
LCS (B6E0232-BS1) Continued				Prepared & Analyzed: 04/29/16						
Carbon Dioxide	**13.4**	0.10	% by Volume	15		89.3	75-125			
LCS Dup (B6E0232-BSD1)				Prepared & Analyzed: 04/29/16						
Methane	**4.64**	0.10	% by Volume	4.5		103	75-125	3.24	30	
Oxygen	**3.75**	0.10	% by Volume	4.0		93.8	75-125	4.99	30	
Carbon Dioxide	**13.4**	0.10	% by Volume	15		89.2	75-125	0.0374	30	
Duplicate (B6E0232-DUP1)				**Source: 6D28021-38**	Prepared & Analyzed: 04/29/16					
Methane	**<0.10**	0.10	% by Volume		<0.10				30	
Oxygen	**<0.10**	0.10	% by Volume		17.2				30	
Carbon Dioxide	**<0.10**	0.10	% by Volume		1.26				30	

Allen Aminian
QA/QC Manager

LABORATORY ANALYSIS RESULTS

Client:	CH2M Hill, Inc.	**AA Project No:**	MB187308
Project No:	496965.A1.01	**Date Received:**	04/27/16
Project Name:	KMEP Norwalk Biosparge Startup	**Date Reported:**	05/09/16

Special Notes

[1] = ****** : Analyte recovery exceeds the upper control limit.

Allen Aminian
QA/QC Manager

AMERICAN ANALYTICS CHAIN-OF-CUSTODY RECORD

9765 ETON AVE., CHATSWORTH, CA 91311
Tel: 818-998-5547 FAX: 818-998-7258

A.A. COC No.: 125003

70046095

Page 1 of 1

Client: CH2MHILL | Project Name / No.: KINDER MORGAN NORWALK | Sampler's Name: WILLIAM SCHROM

Project Manager: | Site Address: 15306 NORWALK BLVD | Sampler's Signature:

Phone: | City: NORWALK | P.O. No.:

Fax: | State & Zip: CA | Quote No.:

TAT Turnaround Codes **

(1) = Same Day Rush
(2) = 24 Hour Rush
(3) = 48 Hour Rush
(4) = 72 Hour Rush
(5) = 5 Day Rush
X = 10 Working Days (Standard TAT)

ANALYSIS REQUESTED (Test Name)

Please enter the TAT Turnaround Codes ** below

Client I.D.	A.A. I.D.	Date	Time	Sample Matrix	No. of Cont	TO15	TO3	FIXED GASES	Special Instructions
SVM-1-15	6D28021-01	4-27-16	0757	V	3	X	X	X	
SVM-1-5	2		0807	V	3	X	X	X	
SVM-2-5	3		0832	V	3	X	X	X	
SVM-15-22	4		0919	V	3	X	X	X	
SVM-15-7	5		0925	V	3	X	X	X	
SVM-15-15	6		0948	V	3	X	X	X	
SVM-6-16	7		1020	V	3	X	X	X	
SVM-6-7	8		1022	V	3	X	X	X	
SVM-7-7	9		1128	V	3	X	X	X	
SVM-7-7 DUP	10		1128	V	3	X	X	X	
SVM-7-13	11		1138	V	3	X	X	X	
SVM-10-15	12		1232	V	3	X	X	X	
AMBIENT AIR	13		1245	V	3	X	X	X	
SVM-10-7	14		1305	V	3	X	X	X	

For Laboratory Use

REVIEWED

Date 5/2/16 Time 15:35

TAT 5 Days Sign:

A.A. Project No.: MB187308/6D2802

	Relinquished by	Date	Time	Received by
1		4/27/16	1320	
2		4/27/16	1500	
3		Date	Time	Received by

Note: By relinquishing samples to American Analytics, client agrees to pay for the services requested on this chain of custody form and any additional client-requested analyses performed on this project.

AMERICAN ANALYTICS CHAIN-OF-CUSTODY RECORD

9765 ETON AVE., CHATSWORTH, CA 91311
Tel: 818-998-5547 FAX: 818-998-7258

A.A. COC No.: 70046094

Page 1 of _

Client: CH2M HILL | Project Name / No.: KINDER MORGAN NORWALK | Sampler's Name: WILLIAM SCHOONOVER

Project Manager: | Site Address: 5306 NORWALK BLVD | Sampler's Signature:

Phone: | City: NORWALK | P.O. No.:

Fax: | State & Zip: CA. | Quote No.:

TAT Turnaround Codes **

(1) = Same Day Rush
(2) = 24 Hour Rush
(3) = 48 Hour Rush
(4) = 72 Hour Rush
(5) = 5 Day Rush
X = 10 Working Days (Standard TAT)

ANALYSIS REQUESTED (Test Name)

Please enter the TAT Turnaround Codes ** below

Client I.D.	A.A. I.D.	Date	Time	Sample Matrix	No. of Cont	TO-15	TO-3	FIXED GASES	Special Instructions
SVM-5-15	6028021-15	4-28-16	0845	V	3	X	X	X	
SVM-5-5	-16		0830	V	3	X	X	X	
SVM-8-15	-17		0900	V	3	X	X	X	
SVM-8-5	-18		0914	V	3	X	X	X	
SVM-16-7	-19		0954	V	3	X	X	X	
SVM-16-22	-20		0957	V	3	X	X	X	
SVM-16-16	-21		1012	V	3	X	X	X	
SVM-3-15	-22		1150	V	3	X	X	X	
SVM-3-5	-23		1205	V	3	X	X	X	
SVM-12-7	-24		1257	V	3	X	X	X	
SVM-12-22	-25		1258	V	3	X	X	X	
AMBIENT AIR	-26		1300	V	3	X	X	X	
SVM-12-15	-27		1318	V	3	X	X	X	
SVM-12-15 DUP	-28		1318	V	3	X	X	X	

For Laboratory Use

REVIEWED
Date 5/2/16 Time 1515
TAT 5 Days Sign:

A.A. Project No.: MB187306/6028021

Relinquished by	Date	Time	Received by
	4-28-16	1320	
	4/28/16	15:00	
	Date	Time	Received by

Note: By relinquishing samples to American Analytics, client agrees to pay for the services requested on this chain of custody form and any additional client-requested analyses performed on this project.

AMERICAN ANALYTICS CHAIN-OF-CUSTODY RECORD

9765 ETON AVE., CHATSWORTH, CA 91311
Tel: 818-998-5547 FAX: 818-998-7258

A.A. COC No.: 70046091

Page 1 of 1

Client: CH2M HILL | Project Name / No.: KINDER MORGAN NORWALK | Sampler's Name: WILLIAM SCHMIDT

Project Manager: | Site Address: 15306 NORWALK BLVD | Sampler's Signature:

Phone: | City: NORWALK | P.O. No.:

Fax: | State & Zip: CA. | Quote No.:

TAT Turnaround Codes **

(1) = Same Day Rush
(2) = 24 Hour Rush
(3) = 48 Hour Rush
(4) = 72 Hour Rush
(5) = 5 Day Rush
X = 10 Working Days (Standard TAT)

ANALYSIS REQUESTED (Test Name)

Please enter the TAT Turnaround Codes ** below

Client I.D.	A.A. I.D.	Date	Time	Sample Matrix	No. of Cont	TO15	TO3	FIXED GASES	Special Instructions
SVM-11-15	6D28021-29	4-29-16	0809	V	3	X	X	X	
SVM-11-22	-30		0912	V	3	X	X	X	
SVM-11-7	-31		0826	V	3	X	X	X	
SVM-13-22.5	-32		0906	V	3	X	X	X	
SVM-13-7	-33		0915	V	3	X	X	X	
SVM-13-15.5	-34		0927	V	3	X	X	X	
SVM-14-22	-35		1023	V	3	X	X	X	
SVM-14-7	-36		1025	V	3	X	X	X	
AMBIENT AIR	-37		1033	V	3	X	X	X	
SVM-14-15	-38		1050	V	3	X	X	X	
SVM-1415DUP	-39		1050	V	3	X	X	X	

For Lab Use Only

REVIEWED
Date 5/2/16 Time 15:35
TAT 5 Days Sign:

A.A. Project No.: MB187308/6D28021

Relinquished by	Date	Time	Received by
	4-29-16	1130	
	4/29/16	14:00	
	Date	Time	Received by

Note: By relinquishing samples to American Analytics, client agrees to pay for the services requested on this chain of custody form and any additional client-requested analyses performed on this project.