

**Groundwater Compliance Monitoring
Data Summary Report – February 2016**

318 State Avenue NE Property
Olympia, Washington

for
City of Olympia

March 18, 2016



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Groundwater Compliance Monitoring Data Summary Report – February 2016

318 State Avenue NE Property Olympia, Washington

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March 18, 2016

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INTRODUCTION

This data summary report presents the results of groundwater compliance monitoring performed by the City of Olympia (City) in February 2016 at the 318 State Avenue NE property in Olympia, Washington (Property) (Figure 1). Groundwater compliance monitoring at the Property is intended to monitor the natural attenuation of chlorinated organic solvents and associated degradation products identified as chemicals of concern (COCs) in groundwater after completion of the soil remedial action performed in September and October 2009. Remediation of soil and groundwater at the Property is being performed to support the goal of achieving a No Further Action (NFA) determination for the entire Property under the Washington State Department of Ecology (Ecology) Voluntary Cleanup Program (VCP). An NFA determination was provided by Ecology in February 2016 for the southeast portion of the Property to support redevelopment activities by the Low Income Housing Institute (LIHI) (Ecology, 2016). Groundwater compliance monitoring is being performed at the Property to support achieving an NFA determination for the remaining portion of the Property as well as to fulfill monitoring requirements associated with the NFA for the southeast portion of the Property.

The chlorinated solvents being monitored for natural attenuation as part of groundwater compliance monitoring include tetrachloroethene (PCE) and trichloroethene (TCE) as well as associated degradation products. Monitoring also includes measurement of water quality parameters that are indicators of the natural attenuation. Monitoring of chlorinated solvents, degradation products and natural attenuation parameters is being performed in accordance with the Groundwater Compliance Monitoring Plan (CMP) prepared for the Property (GeoEngineers, 2010a) as well as a groundwater monitoring plan prepared for the southeast portion of the Property (GeoEngineers, 2015).

Groundwater samples were collected on February 17, 2016 from four monitoring wells that included MW-03, MW-16, MW-18 and MW-19 (Figure 2). These samples were submitted for analysis to TestAmerica Laboratory in Fife, Washington. Groundwater samples and groundwater levels were collected from selected monitoring wells in accordance with the CMPs for the Property (GeoEngineers, 2010a and 2015).

The following sections summarize the background for compliance monitoring, field sampling activities, groundwater gradients at the Property and results of groundwater sampling and analysis.

BACKGROUND

Remedial actions were performed in September and October 2009 to remove soil and fill material containing volatile organic compounds (VOCs) including chlorinated solvents, metals and carcinogenic polycyclic aromatic compounds (cPAHs) at concentrations greater than the Model Toxics Control Act (MTCA) cleanup levels (CULs). Soil samples were subsequently collected from the boundary of remedial action areas to assess if soil and fill with contaminant concentrations greater than cleanup levels were present at the limits of the remedial excavation. The results of the soil remedial action are presented in the Remedial Action Construction Report prepared for the Property (GeoEngineers, 2010b).

Compliance monitoring is being performed after completion of soil remedial actions to evaluate the concentrations and natural attenuation of chlorinated organic solvents in groundwater at the Property. The

natural attenuation of chlorinated organic solvents has been monitored via quarterly monitoring through February 2012 and semi-annual monitoring starting in August 2012. Monitoring has included the following:

- Installation of two new monitoring wells in May 2010 during the first compliance groundwater monitoring event. Monitoring well MW-17 was installed within Contaminated Soil Zone 1 (CSZ 1) where soil remediation was performed in September and October 2009 and MW-18 was installed north of the CSZ 1 (Figure 2).
- Quarterly groundwater sampling at eight monitoring wells including MW-03, MW-04, MW-08, MW-09, MW-13 and MW-16 through MW-18 in May 2010, August 2010, November 2010 and February 2011.
- Quarterly groundwater sampling at five monitoring wells including MW-03, MW-08 and MW-16 through MW-18 in May 2011, August 2011, November 2011 and February 2012.
- Semi-annual groundwater sampling at five monitoring wells including MW-03, MW-08 and MW-16 through MW-18 in August 2012, February 2013 and August 2013.
- Semi-annual groundwater sampling at three monitoring wells including MW-03, MW-16 and MW-18 in February 2014, August 2014, February 2015, July 2015 and February 2016.
- Quarterly groundwater sampling at one monitoring well, MW-19, in July 2015, October 2015 and February 2016.
- Analysis for chlorinated organic solvents and associated degradation products including PCE, TCE, 1,1-dichloroethene (1,1-DCE), cis-dichloroethene (cis-DCE), trans-dichloroethene (trans-DCE) and vinyl chloride (VC).
- Monitoring for indicators of natural attenuation including ferrous iron, sulfate, dissolved oxygen (DO), pH, electrical conductivity and oxidation-reduction potential (ORP).
- Monitoring of groundwater gradients by measuring water levels at all existing monitoring wells at the Property through February 2012. Groundwater level measurements have been collected from each well undergoing groundwater sampling after February 2012.
- Groundwater monitoring wells MW-04 and MW-17 are expected to be properly decommissioned by the LIHI in the near future to accommodate redevelopment of the SE portion of the Property.

Additionally, analysis for arsenic was performed in accordance with the CMP between May 2010 and February 2011 to provide additional information concerning arsenic concentrations in the area. Arsenic analysis was discontinued after the February 2011 groundwater compliance monitoring event because the arsenic results for sampling performed between May 2010 and February 2011 indicate that arsenic concentrations are less than the MTCA Method A CUL in groundwater on the Property. Arsenic concentrations were detected at concentrations greater than the MTCA CUL in locations upgradient of the Property that are likely related to area-wide groundwater conditions or an upgradient source. Ecology concurrence for discontinuing arsenic analysis was provided in an email from Eugene Radcliff, Ecology to Iain Wingard, GeoEngineers dated May 16, 2011.

Ecology also previously requested that groundwater be analyzed for constituents associated with a petroleum hydrocarbon release during the May 2010 groundwater compliance monitoring event to evaluate the potential impacts from a UST encountered at the Property during the remedial action for soil. The sampling and analysis requirements to assess potential impacts from the former UST were documented in

an email from Iain Wingard, GeoEngineers to Eugene Radcliff; Ecology dated May 11, 2010. The additional analyses requested by Ecology were performed during the May 2010 compliance monitoring event (GeoEngineers, 2010c). Only benzene was detected in two samples at concentrations well below the MTCA Method A groundwater CUL. Based on the May 2010 sample results, no additional monitoring was necessary to assess potential impacts from the UST or petroleum hydrocarbons at the Property. However, Ecology requested in an email from Eugene Radcliff of Ecology to Iain Wingard of GeoEngineers dated July 19, 2010 that compliance groundwater monitoring include benzene analysis. Therefore, groundwater compliance monitoring performed between May 2010 and February 2011 continued to include analysis for benzene. Benzene analysis was discontinued after the February 2011 compliance monitoring event because the results for sampling performed between May 2010 and February 2011 indicated that benzene is not present at concentrations greater than the MTCA Method A CUL. Ecology concurrence for discontinuing benzene analysis was provided in an email from Eugene Radcliff, Ecology to Iain Wingard, GeoEngineers dated May 16, 2011.

Eight groundwater wells were sampled during the May 2010, August 2010, November 2010 and February 2011 groundwater compliance monitoring events. The number of groundwater monitoring locations were reduced from eight to five during the May 2011 compliance monitoring event as the results of groundwater compliance monitoring performed between May 2010 and February 2011 indicate that the concentrations of chlorinated organic solvents and associated degradation products are less than the MTCA CULs at monitoring well locations MW-13, MW-04, MW-17 and MW-09. Ecology concurrence for discontinuing groundwater monitoring at monitoring well locations MW-13, MW-04 and MW-09 was provided in an email from Eugene Radcliff, Ecology to Iain Wingard, GeoEngineers dated May 16, 2011. Groundwater compliance monitoring continued to be performed at MW-17 to monitor upgradient/background conditions on the Property.

Quarterly groundwater compliance monitoring was implemented between May 2010 and February 2012. The frequency of groundwater monitoring was reduced from quarterly to semi-annually during the August 2012 compliance monitoring event after the results of previous groundwater compliance monitoring events indicated that the highest and lowest concentrations of chlorinated organic solvents and associated degradation products were detected during the month of February and August. Groundwater gradient mapping has also been discontinued as part of reporting and is not included in this compliance groundwater report because groundwater gradient patterns have generally been established through groundwater measurements collected between May 2010 and February 2012. Ecology concurrence for reducing compliance monitoring frequency and discontinuing groundwater gradient mapping was provided in an email from Eugene Radcliff, Ecology to Iain Wingard, GeoEngineers dated May 8, 2012.

Five groundwater wells were sampled during the August and February 2011, August and February 2012 and August and February 2013 groundwater compliance monitoring events. The number of groundwater monitoring locations were reduced from five to three during the February 2014 compliance monitoring event as the results of groundwater compliance monitoring performed between February 2011 and August 2013 indicate that the concentrations of chlorinated organic solvents and associated degradation products are less than the MTCA CULs at monitoring well locations MW-08 and MW-17. Ecology concurrence for discontinuing groundwater monitoring at monitoring well locations MW-08 and MW-17 were provided in two emails from Eugene Radcliff, Ecology to Iain Wingard, GeoEngineers dated October 3, 2013 and November 4, 2013, respectively.

An additional monitoring well, MW-19, was installed at the Property in July 2015 on the eastern portion of the property to support the redevelopment of the southeast portion of the property (Figure 2). The City sold the southeastern portion of the Property for redevelopment by LIHI. LIHI is constructing a multistory, low income residential housing structure with vapor intrusion mitigation controls in accordance with the environmental covenant established as part of the NFA determination by Ecology (Ecology, 2016). Monitoring well MW-19 is located adjacent to northern boundary of the southeast portion of the Property to characterize groundwater from the southeast portion of the Property. A groundwater monitoring plan was prepared that identifies the monitoring approach and schedule for groundwater from MW-19 (GeoEngineers, 2015).

FIELD ACTIVITIES

Groundwater compliance monitoring samples were collected from MW-03, MW-16, MW-18 and MW-19 in February 2016 using low-flow/low-turbidity sampling techniques to minimize the suspension of particulates in the samples. Groundwater samples were obtained from the wells using dedicated submersible electric pumps (Whale Pump Brand) with dedicated flexible vinyl tubing. Groundwater was pumped at approximately 0.5 liters per minute from the approximate mid-point of the screened interval to collect the samples.

Water quality parameters were measured during purging using an YSI 556 MPS water quality meter with a flow-through cell. The measured water quality parameters included electrical conductivity, dissolved oxygen (DO), potential hydrogen (pH), turbidity, reduction potential (ORP), salinity, total dissolved solids (TDS) and temperature. Groundwater samples were collected once the water quality parameters generally varied by less than 10 percent on three consecutive measurements. All field measurements were documented on the field logs.

Following well purging, the flow-through cell was disconnected and the groundwater samples were collected in appropriate laboratory-prepared and -provided containers. The samples were protected and placed into a cooler with ice and delivered to TestAmerica Laboratory in Fife, Washington, for analysis following appropriate chain-of-custody procedures. Purge water was stored in labeled 55-gallon drums for future permitted off-site disposal. The groundwater samples were submitted for the following analyses to provide results for chlorinated organic solvents and associated degradation products as well as water quality parameters as specified in the CMP:

- VOCs by Environmental Protection Agency (EPA) Method 8260
- Sulfate by EPA Method 300.0

Ferrous iron concentrations were evaluated in the field using a Hach field test kit and the results were recorded on the field logs prior to collection of samples for laboratory analysis.

ANALYTICAL RESULTS

The results from semi-annual groundwater sample collection and analysis from MW-03, MW-16 and MW-18 performed in February 2016 are described in the following sections. Table 1 presents the results for the chemical analyses performed as part of semi-annual groundwater compliance monitoring in

February 2016. Table 1 also includes the results from previous groundwater compliance monitoring for comparison purposes.

The results from monitoring MW-19 installed in July 2015 are also described below and presented in Table 1. MW-19 is being monitored in accordance with a separate groundwater monitoring plan that was prepared for monitoring groundwater from the southeast portion of the Property and that identifies the monitoring approach and schedule for sampling and analysis of groundwater from MW-19 (GeoEngineers, 2015).

The results for groundwater samples from MW-03, MW-16, MW-18 and MW-19 are compared to MTCA groundwater CULs protective of the highest beneficial use for groundwater. Ecology does not consider groundwater at the Property as a likely potable water source (Ecology, 2015). Therefore, the highest beneficial use for groundwater is as marine surface water. The results were also compared to the MTCA Method B groundwater screening level protective of soil vapor intrusion provided in Ecology's Draft Guidance for Evaluating Soil Vapor Intrusion in Washington State (Ecology, 2009) as updated in April 2015 to revise the soil gas screening levels provided in Appendix B of the guidance document (Ecology, 2015). The CULs and screening levels are presented in Table 1. Table 2 summarizes water quality and natural attenuation parameter measurements collected in February 2016 and also includes the results from previous groundwater compliance monitoring for comparison. Finally, Appendix A contains the laboratory analytical reports and Appendix B contains the Data Quality Assessment Report presenting the results of data validation of the chemical analyses performed in February 2016.

Groundwater Compliance Monitoring Analyses

Natural Attenuation Parameters

The geochemical indicators of natural attenuation measured in February 2016 indicate more oxidative/less reductive conditions in groundwater downgradient of soil remediation area CSZ 1 than the conditions in the July 2015 compliance monitoring event (Table 2). The more oxidative/less reductive conditions are indicated by higher ORP and DO in groundwater collected from monitoring wells MW-03, MW-16, MW-18 and MW-19. Ferrous iron and sulfate concentrations measured in MW-03, MW-16 and MW-18 in February 2016 are generally similar to the previous February groundwater monitoring event.

The more oxidative/less reductive conditions measured downgradient of the soil remediation area CSZ 1 are related to seasonal groundwater conditions in February resulting from increased precipitation and associated increase in stormwater infiltration on and around the Property. The groundwater conditions in February 2016 are generally more favorable for degradation of lower chlorinated compounds such as VC and less favorable for degradation of higher chlorinated compounds, causing a decrease in the concentrations of degradation products including vinyl chloride.

Chlorinated Organic Solvents and Associated Degradation Products

TCE, cis-DCE, trans-DCE and/or VC were detected in groundwater during monitoring in February 2016 (Table 1). PCE, 1,1-DCE, cis-DCE and trans-DCE were either not detected in groundwater at the Property or were detected at concentrations less than the MTCA Method B groundwater CULs based on protection of surface water and the screening level for soil vapor intrusion. VC was detected in groundwater from MW-18 at a concentration greater than the MTCA Method B screening level for soil vapor intrusion but was less than the CUL for protection of surface water. VC was either not detected or detected at a concentration less than the CUL for protection of surface water and screening level for soil vapor intrusion in groundwater from

MW-03, MW-16 and MW-19. TCE was detected at a concentration greater than the MTCA Method B screening level for soil vapor intrusion in groundwater samples collected from MW-03 and MW-19 but was less than the screening level in groundwater from MW-16 and MW-18 during the February 2016 sampling event (Table 1 and Figure 3).

DISCUSSION

Natural Attenuation of Chlorinated Solvents and Associated Degradation Products in Groundwater

Temporal analysis of the detected concentrations of chlorinated compounds in groundwater at the Property is being performed to assess trends in the natural attenuation of the chlorinated compounds at the Property. The detected chlorinated compound concentrations plotted through time are presented in Figures 4 through 7. The data presented for monitoring wells MW-03 and MW-16 include the results of the groundwater monitoring event performed prior to remedial actions for soil (i.e., March 2009) as well as the groundwater monitoring events that have been performed after the completion of soil remedial. The data presented for monitoring well MW-18 include the groundwater monitoring events performed after the soil remedial actions as this well was installed after completion of the soil remedial actions. Monitoring well MW-19 was installed in July 2015 and has been sampled in July 2015, October 2015 and February 2016.

It also should be noted that that February 2016 groundwater levels at the Property were among the highest recorded during post-remediation compliance monitoring.

The following summarizes the results of the trend analysis for MW-03, MW-16, MW-18 and MW-19:

- MW-03 – Monitoring well MW-03 is located downgradient/crossgradient of soil remedial action area CSZ 1 (Figure 3). The concentrations of chlorinated compounds including VC in groundwater from MW-03 decreased after completion of soil remedial actions at CSZ 1 in the sample collected in May 2010 (Figure 4 and Table 1). The concentrations of chlorinated compounds have fluctuated (i.e., increased and decreased) in groundwater at MW-03 between August 2010 and February 2016. Higher concentrations of chlorinated compounds in groundwater at MW-03 are generally present when groundwater levels are higher in the winter including February 2016 (Figure 4 and Tables 1 and 2). The VC concentration in groundwater at MW-03 in February 2016 (0.0.19 µg/L) was below the MTCA Method B CUL for protection of surface water and screening level for soil vapor intrusion. The February 2016 groundwater sample results at MW-03 is the first time VC has been detected at a concentration less than the MTCA Method B screening level for soil vapor intrusion and less than the CUL for protection of surface water during monitoring events performed in the winter. The concentration of TCE continues to periodically be detected at concentrations greater than the MTCA Method B screening level for soil vapor intrusion (i.e., February 2016, February 2014 and February and November 2011) but is less than the CUL for protection of surface water (7 µg/L). PCE and DCE are either not detected or are detected at concentrations less than the MTCA Method B CUL for protection of surface water and screening level for soil vapor intrusion in groundwater from MW-03 (Table 1). The February 2016 results at MW-03 are likely attributed to higher precipitation and stormwater infiltration at the Property during the recent winter months.
- MW-16 – Monitoring well MW-16 is located downgradient of soil remedial action area CSZ 1 (Figure 3). The concentration of VC in groundwater from MW-16 decreased after completion of soil remedial

actions at CSZ 1 (Figure 5 and Table 1). Lower concentrations of chlorinated compounds are generally present in groundwater in MW-16 during monitoring events performed in the winter including February 2016, which is likely attributed to the winter season-related greater precipitation and stormwater infiltration at the Property. PCE, TCE, 1,1 DCE, cis-DCE, trans-DCE and VC were either not detected or detected at concentrations less than the MTCA Method B CUL for protection of surface water and screening level for soil vapor intrusion in groundwater from MW-16.

- MW-18 – Monitoring well MW-18 is located downgradient of soil remedial action area CSZ 1 (Figure 3). The concentration of VC in groundwater from MW-18 decreased between May 2010 and February 2011 after completion of soil remedial actions at CSZ 1 (Figure 6 and Table 1). The VC concentrations in groundwater at monitoring well MW-18 have fluctuated between May 2010 and February 2016. Lower concentrations of chlorinated degradation products are generally present in groundwater in MW-18 during winter monitoring events. The concentration of VC detected in groundwater in MW-18 was greater than the MTCA Method B screening level for soil vapor intrusion (0.347 µg/L) but was less than the CUL for protection of surface water (1.6 µg/L) during the February 2016 monitoring event. PCE, TCE, 1,1 DCE, cis-DCE and trans-DCE at MW-18 are consistently either not detected or detected at concentrations less than the MTCA Method B CUL for protection of surface water and screening level for soil vapor intrusion.
- MW-19 – Monitoring well MW-19 was installed in July 2015 to monitor groundwater from the southeast portion of the Property. The initial concentrations of VC in MW-19 was greater than the MTCA Method B screening level for soil vapor intrusion (0.347 µg/L), but was less than the CUL for protection of surface water (1.6 µg/L) during the July 2015 and October 2015 monitoring events. VC was not detected above the reporting limit during the February 2016 monitoring event. During the July 2015 and October 2015 monitoring events, TCE concentrations were detected at concentrations less than the CUL for protection of surface water and the MTCA Method B screening level for soil vapor intrusion. The TCE concentration increased to greater than the MTCA Method B screening level (1.55 µg/L) for soil vapor intrusion during the February 2016 monitoring event. All other analyzed chlorinated solvents were not detected during the July 2015, October 2015 and February 2016 monitoring events.

Overview of Groundwater Compliance Monitoring Results

One location had a VC concentration greater than the MTCA Method B screening level for soil vapor intrusion CUL in groundwater during the February 2016 monitoring event (i.e., MW-18) (Table 1 and Figure 3). VC concentrations were either not detected or less than the MTCA Method B screening level for soil vapor intrusion in groundwater during the February 2016 monitoring event at three locations (i.e., MW-03, MW-16 and MW-19). VC decreased in groundwater at all four monitoring wells during the February 2016 monitoring event.

Geochemical indicators of natural attenuation have fluctuated seasonally between reductive and oxidative conditions during compliance monitoring events performed at the Property. February 2016 conditions were generally observed to be more oxidative/less reductive which is similar to previous monitoring events performed during the winter due to increased precipitation and associated increase in stormwater infiltration on and around the Property. The highest groundwater levels were observed in the wells monitored during the February 2016 compliance event. It is anticipated that more reducing/less oxidative conditions will return during the summer months of 2016 which are more favorable for degradation of higher chlorinated compounds including TCE.

Future Groundwater Compliance Monitoring

The next round of semi-annual groundwater compliance monitoring is scheduled to be performed in August 2016. Groundwater compliance monitoring will be performed at groundwater monitoring wells MW-03, MW-16 and MW-18. Groundwater monitoring will likely also be performed at monitoring well MW-19 in August 2016 to continue to monitor groundwater from the southeast portion of the Property.

REFERENCES

Ecology, 2016, No Further Action at a Property associated with a Site: 318 State Ave NE, Olympia, WA 98501, Opinion Letter, dated February 23, 2016.

Email from Iain Wingard, GeoEngineers to Eugene Radcliff, Ecology "Subject: City of Olympia Groundwater Compliance Monitoring," dated May 11, 2010.

Email from Eugene Radcliff of Ecology to Iain Wingard of GeoEngineers, "Subject: State Avenue Property May 2010 Groundwater Compliance Monitoring Report," dated July 19, 2010.

Email from Eugene Radcliff, Ecology to Iain Wingard, GeoEngineers, "Subject: Ecology response to the February 2011 Groundwater Monitoring Report," dated May 16, 2011.

Email from Eugene Radcliff, Ecology to Iain Wingard, GeoEngineers, "Subject: Monitoring and Reporting at the City of Olympia 318 State Avenue Property," dated May 8, 2012.

Email from Eugene Radcliff, Ecology to Iain Wingard, GeoEngineers, "Subject: Groundwater Monitoring Report for City of Olympia 318 S State Street Property," dated October 3, 2013.

Email from Eugene Radcliff, Ecology to Iain Wingard, GeoEngineers, "Subject: Groundwater Monitoring Report for City of Olympia 318 S State Street Property," dated November 4, 2013.

GeoEngineers, 2010a, "Groundwater Compliance Monitoring Plan, 318 State Avenue NE, Olympia, Washington," April 16, 2010.

GeoEngineers, 2010b, "Remedial Action Construction Report, 318 State Avenue NE, Olympia, Washington," January 5, 2010.

GeoEngineers, 2010c, "Groundwater Compliance Monitoring Data Summary Report – May 2010, 318 State Avenue NE, Olympia, Washington," July 16, 2010.

GeoEngineers, 2015, "Groundwater Monitoring Plan, Southeast Portion of the 318 State Avenue NE Property, Olympia, Washington," October 1, 2015.

LIMITATIONS

This Groundwater Monitoring Report has been prepared for use by the City of Olympia. GeoEngineers has performed these services in general accordance with the scope and limitations of our proposal.

Within the limitations of scope, schedule and budget, our services have been executed in accordance with the generally accepted environmental science practices for groundwater monitoring in this area at the time this report was prepared. No warranty or other conditions, express or implied, should be understood.

TABLE 1
SUMMARY OF GROUNDWATER COMPLIANCE MONITORING PARAMETERS¹ - FEBRUARY 2016
 318 STATE AVENUE NE
 OLYMPIA, WASHINGTON

Analyte			Volatile Organic Compounds					
			Tetrachloroethene (PCE)	Trichloroethene (TCE)	1,1-Dichloroethene (1,1-DCE)	Cis-1,2-Dichloroethene (cis 1,2-DCE)	Trans-1,2-Dichloroethene (trans 1,2-DCE)	Vinyl Chloride (VC)
Unit			µg/l	µg/l	µg/l	µg/l	µg/l	µg/l
MTCRA Groundwater Cleanup Levels ²			8.85	7	3.2	NE	4,000	1.6
Groundwater Screening Level for Soil Vapor Intrusion ³			22.9	1.55	130	NE	NE	0.347
Location	Sample ID	Sample Date						
MW-03	MW3-052410-W	05/24/10	0.1 U	0.48	0.1 U	0.14	0.1 U	0.48
	MW3-082510-W	08/25/10	0.1 U	0.26	0.1 U	0.11	0.1 U	0.12
	MW3-112410-W	11/24/10	0.1 U	1.3	0.1 U	0.28	0.1 U	1.1
	MW3-022311-W	02/23/11	0.1 U	1.6	0.1 U	0.59	0.1 U	0.92
	MW3-052511-W	05/25/11	0.1 U	1.5	0.1 U	0.60	0.15	0.83
	DUP-052511-W ⁴	05/25/11	0.1 U	1.2	0.1 U	0.36	0.12	0.69
	MW3-082411-W	08/24/11	0.1 U	0.64 J	0.1 U	0.31	0.11	0.37 J
	DUP-082411-W ⁵	08/24/11	0.1 U	0.49 J	0.1 U	0.23	0.1 U	0.27 J
	MW3-112911-W	11/29/11	0.1 U	2.6	0.1 U	0.39	0.11	0.45
	DUP-112911-W ⁶	11/29/11	0.1 U	2.7	0.1 U	0.41	0.10	0.52
	MW3-022812-W	02/28/12	0.1 U	0.99	0.1 U	0.63	0.18	1.4
	DUP-022812-W ⁷	02/28/12	0.1 U	1.3	0.1 U	0.84	0.19	1.9
	MW3-082312-W	08/23/12	0.1 U	0.11	0.1 U	0.36	0.30	0.27
	DUP-082312-W ⁸	08/23/12	0.1 U	0.11	0.1 U	0.34	0.33	0.26
	MW3-022813-W	02/28/13	0.1 U	0.70	0.1 U	0.34	0.14	0.72
	DUP-022813-W ⁹	02/28/13	0.1 U	0.68	0.1 U	0.32	0.12	0.69
	MW03-82213-W	08/22/13	0.1 U	0.1 U	0.1 U	0.24	0.28	0.15
	DUP01-82213-W ¹⁰	08/22/13	0.1 U	0.1 U	0.1 U	0.23	0.32	0.16
	MW3-140227-W	02/27/14	0.1 U	2.5	0.1 U	0.75	0.12	0.79
	MW03-140825-W	08/25/14	0.1 U	0.1 U	0.1 U	0.35	0.36	0.25
MW03-150225-W	02/25/15	0.5 U	0.58	0.1 U	1.8	0.2 U	3.6	
MW03-150723-W	07/23/15	0.5 U	0.2 U	0.1 U	0.34	0.34	0.28	
MW3-160217-W	02/17/16	0.5 U	4.0	0.1 U	0.41	0.2 U	0.19	
MW-16	MW16-052410-W	05/24/10	0.1 U	0.44	0.1 U	0.20	0.18	0.76
	MW16-082510-W	08/25/10	0.1 U	0.46	0.1 U	0.32	0.34	1.0
	MW16-112410-W	11/24/10	0.1 U	0.49	0.1 U	0.17	0.19	0.33
	DUP-1-112410-W ¹¹	11/24/10	0.1 U	0.50	0.1 U	0.16	0.21	0.38
	MW16-022311-W	02/23/11	0.1 U	0.42	0.1 U	0.13	0.13	0.22
	DUP-1-022311-W ¹²	02/23/11	0.1 U	0.43	0.1 U	0.11	0.15	0.23
	MW16-052511-W	05/25/11	0.1 U	0.47	0.1 U	0.1 U	0.16	0.18
	MW16-082411-W	08/24/11	0.1 U	0.41	0.1 U	0.26	0.24	0.70
	MW16-112911-W	11/29/11	0.1 U	0.35	0.1 U	0.10	0.12	0.15
	MW16-022812-W	02/28/12	0.1 U	0.40	0.1 U	0.1 U	0.13	0.17
	MW16-082312-W	08/23/12	0.1 U	0.52	0.1 U	0.21	0.20	0.47
	MW16-022813-W	02/28/13	0.1 U	0.28	0.1 U	0.1 U	0.1 U	0.086
	MW16-82213-W	08/22/13	0.1 U	0.26	0.1 U	0.22	0.13	0.44
	MW16-140227-W	02/27/14	0.1 U	0.24	0.1 U	0.1 U	0.1 U	0.093
	DUP01-140227-W ¹³	02/27/14	0.1 U	0.26	0.1 U	0.1 U	0.1 U	0.090
	MW16-140825-W	08/25/14	0.1 U	0.37	0.1 U	0.25	0.18	0.52
	DUP01-140825-W ¹⁴	08/25/14	0.1 U	0.36	0.1 U	0.25	0.19	0.51
	MW16-150225-W	02/25/15	0.5 U	0.24	0.1 U	0.2 U	0.2 U	0.16
	DUP01-150225-W ¹⁵	02/25/15	0.5 U	0.23	0.1 U	0.2 U	0.2 U	0.15
	MW16-150712-W	07/23/15	0.5 U	0.23	0.1 U	0.27	0.2 U	0.60
DUP01-150723-W ¹⁶	07/23/15	0.5 U	0.24	0.1 U	0.28	0.2 U	0.54	
MW16-160217-W	02/17/16	0.5 U	0.23	0.1 U	0.2 U	0.2 U	0.02 U	
DUP1-160217-W ¹⁷	02/17/16	0.5 U	0.25	0.1 U	0.2 U	0.2 U	0.02 U	
MW-18	MW18-052410-W	05/24/10	0.1 U	0.62	0.1 U	0.28	0.16	2.3
	MW18-082510-W	08/25/10	0.1 U	0.25	0.1 U	0.22	0.13	1.9
	MW18-112410-W	11/24/10	0.1 U	0.81	0.1 U	0.34	0.23	1.7
	MW18-022311-W	02/23/11	0.1 U	0.72	0.1 U	0.30	0.16	0.90
	MW18-052511-W	05/25/11	0.1 U	0.63	0.1 U	0.21	0.14	1.2
	MW18-082411-W	08/24/11	0.1 U	0.40	0.1 U	0.39	0.24	2.3
	MW18-112911-W	11/29/11	0.1 U	0.57	0.1 U	0.30	0.15	0.86
	MW18-022812-W	02/28/12	0.1 U	0.49	0.1 U	0.20	0.16	1.20
	MW18-082312-W	08/23/12	0.1 U	0.62	0.1 U	0.43	0.29	2.7
	MW18-022813-W	02/28/13	0.1 U	0.34	0.1 U	0.1 U	0.1 U	0.15
	MW18-82213-W	08/22/13	0.1 U	0.61	0.1 U	0.45	0.28	2.1
	MW18-140227-W	02/27/14	0.1 U	0.57	0.1 U	0.26	0.26	1.3
	MW18-140825-W	08/25/14	0.1 U	0.48	0.1 U	0.51	0.43	2.7
	MW18-150225-W	02/25/15	0.5 U	0.68	0.1 U	0.23	0.20	1.5
	MW18-150723-W	07/23/15	0.5 U	0.29	0.1 U	0.34	0.27	2.0
	MW18-160217-W	02/17/16	0.5 U	0.48	0.1 U	0.26	0.26	1.5
MW-19	MW-19-150723-W	07/23/15	0.5 U	0.47	0.1 U	0.2 U	0.2 U	0.89
	MW-19-151027-W	10/27/15	0.5 U	0.91	0.1 U	0.2 U	0.2 U	0.41
	MW19-160217-W	02/17/16	0.5 U	1.7	0.1 U	0.2 U	0.2 U	0.02 U

Notes:

¹ The parameters presented are the groundwater compliance monitoring parameters specified in the Groundwater Compliance Monitoring Plan (GeoEngineers, 2010).

² MTCA groundwater cleanup levels based on the highest beneficial use of groundwater as marine surface water. The cleanup levels provided are the lowest of the available marine surface water criteria including MTCA Method B surface water (Chapter 173-340 WAC), Water Quality Standards for Surface Waters of the State of Washington (Chapter 173-201A WAC), National Recommended Water Quality Criteria (Clean Water Act Section 304) and National Toxics Rule (40 CFR 131).

³ Groundwater Screening Level based on Guidance for Evaluating Soil Vapor Intrusion in Washington State: Investigation on Remedial Action (Ecology, 2009) as updated in 2015 (Ecology, 2015) to revise screening levels in Appendix B.

⁴ Sample DUP-052511-W is a field duplicate of sample MW3-052511-W.

⁵ Sample DUP-082411-W is a field duplicate of sample MW3-082411-W.

⁶ Sample DUP-112911-W is a field duplicate of sample MW3-112911-W.

⁷ Sample DUP-022812-W is a field duplicate of sample MW3-022812-W.

⁸ Sample DUP-082312-W is a field duplicate of sample MW3-082312-W.

⁹ Sample DUP-022813-W is a field duplicate of sample MW3-022813-W.

¹⁰ Sample DUP01-82213-W is a field duplicate of sample MW03-82213-W.

¹¹ Sample DUP-1-112410-W is a field duplicate of sample MW16-112410-W.

¹² Sample DUP-1-022311-W is a field duplicate of sample MW16-022311-W.

¹³ Sample DUP01-140227-W is a field duplicate of sample MW16-140227-W.

¹⁴ Sample DUP01-140825-W is a field duplicate of sample MW16-140825-W.

¹⁵ Sample DUP01-150225-W is a field duplicate of sample MW16-150225-W.

¹⁶ Sample DUP01-150723-W is a field duplicate of sample MW16-150723-W.

¹⁷ Sample DUP1-160217-W is a field duplicate of sample MW16-160217-W.

MTCA = Model Toxics Control Act

µg/l = microgram per liter

mg/l = milligram per liter

J = The analyte concentration is estimated

U = The analyte was not detected at a concentration greater than the identified reporting limit

UJ = The analyte was not detected at a concentration greater than the identified reporting limit and the reporting limit concentration is estimated

Bold indicates analyte was detected.

Green shading indicates sample results for the current monitoring event.

Gray shading indicates concentration is greater than groundwater cleanup and/or screening level.

TABLE 2
SUMMARY OF GROUNDWATER QUALITY PARAMETERS¹ - FEBRUARY 2016
 318 STATE AVENUE NE
 OLYMPIA, WASHINGTON

Location ID	Sample Date	Ferrous Iron (mg/l)	Sulfate (mg/l)	Dissolved Oxygen (mg/l)	pH	Conductivity (mS/m)	Salinity (ppt)	Total Dissolved Solids (g/l)	Turbidity (NTU)	Temperature (C)	ORP ² (mv)	Water Level (ft btoc)
MW-03	05/24/10	0.9	7.5	4.38	9.79	27.2	0.1	1.4	0.89	16.2	-211	4.27
	08/25/10	1.4	1.2 U	0.31	6.96	75.0	0	0.48	0.94	21.32	-133	4.99
	11/24/10	0.8	6.6	0.00	7.04	66.7	0	0.43	0.84	15.53	-94	3.80
	02/23/11	0.6	2.5	0.01	7.10	46.3	0	0.3	2.51	11.26	-117	4.05
	05/25/11	0.8	2.4	0.01	7.07	46.7	NC	NC	0.59	15.12	-130	4.10
	08/24/11	1.1	1 U	0.40	7.20	72.3	0	0.46	0.44	21.02	-90	4.82
	11/29/11	0.6	11	5.00	7.10	59.0	0	0.38	3.06	13.67	89	3.49
	02/28/12	0.8	40 UJ	2.60	7.25	41.5	0	0.27	5.45	10.99	-59	3.75
	08/23/12	1.0	1.2 U	7.14	6.87	53.0	0	0.34	0.59	21.3	-117	4.92
	02/28/13	1.5	2.1	0.78	6.53	48.0	0	0.31	17.6	11.52	-48	3.98
	08/22/13	1.6	1.2 U	0.10	7.61	61.7	0	0.40	37.4 ³	23.2	-156	4.98
	02/27/14	0.0	11	3.80	7.30	33.2	0	0.31	0.63	10.3	204.4	3.44
	08/25/14	1.8	1.2 U	0.68	7.25	52.0	0.26	0.35	2.48	22.99	-108.6	4.78
	02/25/15	0.5	2.1	1.25	7.31	31.9	0.2	0.26	1.56	12.21	-70.3	4.14
	07/23/15	0.5	1.2 U	0.09	7.11	48.8	0.25	0.34	0.81	22.6	-150	5.04
02/17/16	0.0	12	4.94	7.50	30.0	0.19	0.25	2.3	12.7	46.5	3.41	
MW-16	05/24/10	0.0	20.0	2.44	8.19	26.6	0	0.17	2.9	15.1	-116	4.24
	08/25/10	0.4	42.0	0.04	7.26	69.8	0	0.44	1.2	21.91	-106	5.02
	11/24/10	0.0	28	1.93	7.54	49.8	0	0.36	1.16	15.42	-34	3.68
	02/23/11	0.0	17	5.08	7.53	37.5	0	0.24	2.58	11.53	-9	4.04
	05/25/11	0.0	11	1.02	7.55	33.1	NC	NC	2.28	13.87	64	4.06
	08/24/11	1.2	4.9	1.00	7.66	51.0	0	0.33	1.28	20.26	-56	4.86
	11/29/11	0.4	19	6.20	7.60	35.3	0	0.23	4.00	13.82	96	3.33
	02/28/12	0.0	54 UJ	6.80	7.70	29.8	0	0.19	1.87	10.89	87	3.72
	08/23/12	0.0	3.9	3.21	7.02	31.4	0	0.2	1.22	19.7	-109	4.91
	02/28/13	0.0	7.7	5.86	6.84	29.4	0	0.19	0.40	11.36	115	3.86
	08/22/13	0.0	3.5	0.11	7.93	46.5	0	0.3	62 ³	22.9	-177	4.91
	02/27/14	0.0	7.3	2.61	7.24	23.6	0	0.21	0.31	10.9	206.2	3.33
	08/25/14	0.5	3.1	0.72	7.59	42.1	0.21	0.28	0.42	22.35	-30.8	4.73
	02/25/15	0.0	5.7	3.07	7.64	23.1	0.15	0.2	1.39	11.51	-52.2	4.09
	07/23/15	0.5	1.2 U	0.11	7.41	42.6	0.22	0.31	0.91	20.6	-168.8	4.93
02/17/16	0.0	8.5	3.32	7.66	21.3	0.13	0.18	2.65	12.6	40.1	3.28	
MW-18	05/24/10	0.0	34.0	3.92	9.16	9.0	0	0.5	1.9	14.3	-194	4.39
	08/25/10	0.2	11.0	0.00	6.81	71.9	0	0.46	4.12	21.82	-75	5.09
	11/24/10	0.0	38	0.01	7.11	47.9	0	0.31	0.61	15.52	39	3.87
	02/23/11	0.0	23	0.17	7.22	40.3	0	0.26	0.99	11.7	55	4.15
	05/25/11	0.0	17	0.00	7.15	40.8	NC	NC	1.07	12.8	31	4.21
	08/24/11	0.2	18.5	0.50	7.33	74.1	0	0.47	0.48	19.54	-48	4.97
	11/29/11	0.4	23	3.50	6.81	34.3	0	0.22	2.82	13.18	183	3.53
	02/28/12	0.0	67 UJ	8.20	7.21	32.9	0	0.21	1.56	10.33	93	3.87
	08/23/12	1.0	7.5	4.03	7.08	53.4	0	0.34	3	18.2	-110	5.02
	02/28/13	0.0	7.4	5.68	6.05	21.1	0	0.14	7	10.94	182	4.02
	08/22/13	1.1	4.1	1.90	7.72	59.3	0	0.38	54.8 ³	20.9	-153	5.04
	02/27/14	0.0	11	3.00	7.1	22.2	0	0.2	0.48	10.6	201.3	3.52
	08/25/14	0.8	1.2 U	2.02	9.23	46.7	0.25	0.33	2.79	20.37	-102.9	4.85
	02/25/15	0.0	5.9	1.71	7.37	25.4	0.17	0.23	1.81	11.2	-35.2	4.21
	07/23/15	0.6	1.2 U	0.07	7.06	44.2	0.24	0.31	3.67	20.4	-102.6	5.08
02/17/16	0.0	6.7	1.56	7.23	20.8	0.13	0.18	3.2	11.9	-5.2	3.53	
MW-19	07/23/15	0.5	1.2 U	0.11	7.36	47.6	0.34	0.33	5.02	21.6	-144.5	4.66
	10/27/15	1.0	5.0	0.24	7.07	37.8	0.21	0.28	12.9	18.3	-136.7	3.47
	02/17/16	0.0	8.1	6.85	7.69	15.4	0.10	0.13	5.2	12.3	23.4	2.85

Notes:

¹ Groundwater quality parameters include the analytes ferrous iron and sulfate to evaluate and monitor natural attenuation.

² ORP field readings are considered to be an estimate.

³ Turbidity measurements collected at this compliance monitoring location are considered to be biased high due to a water quality equipment malfunction. Visual observation made at the time of sampling identified that the sample was clear and free of particulates.

ORP = Oxidation/reduction potential

mg/l = milligrams per liter

g/l = grams per liter

ppt = parts per trillion

mv = Millivolts

mS/m = milliSiemens per meter

C = Celsius

NTU = nephelometric turbidity unit

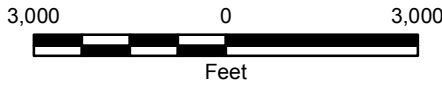
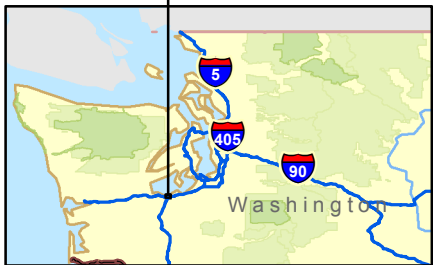
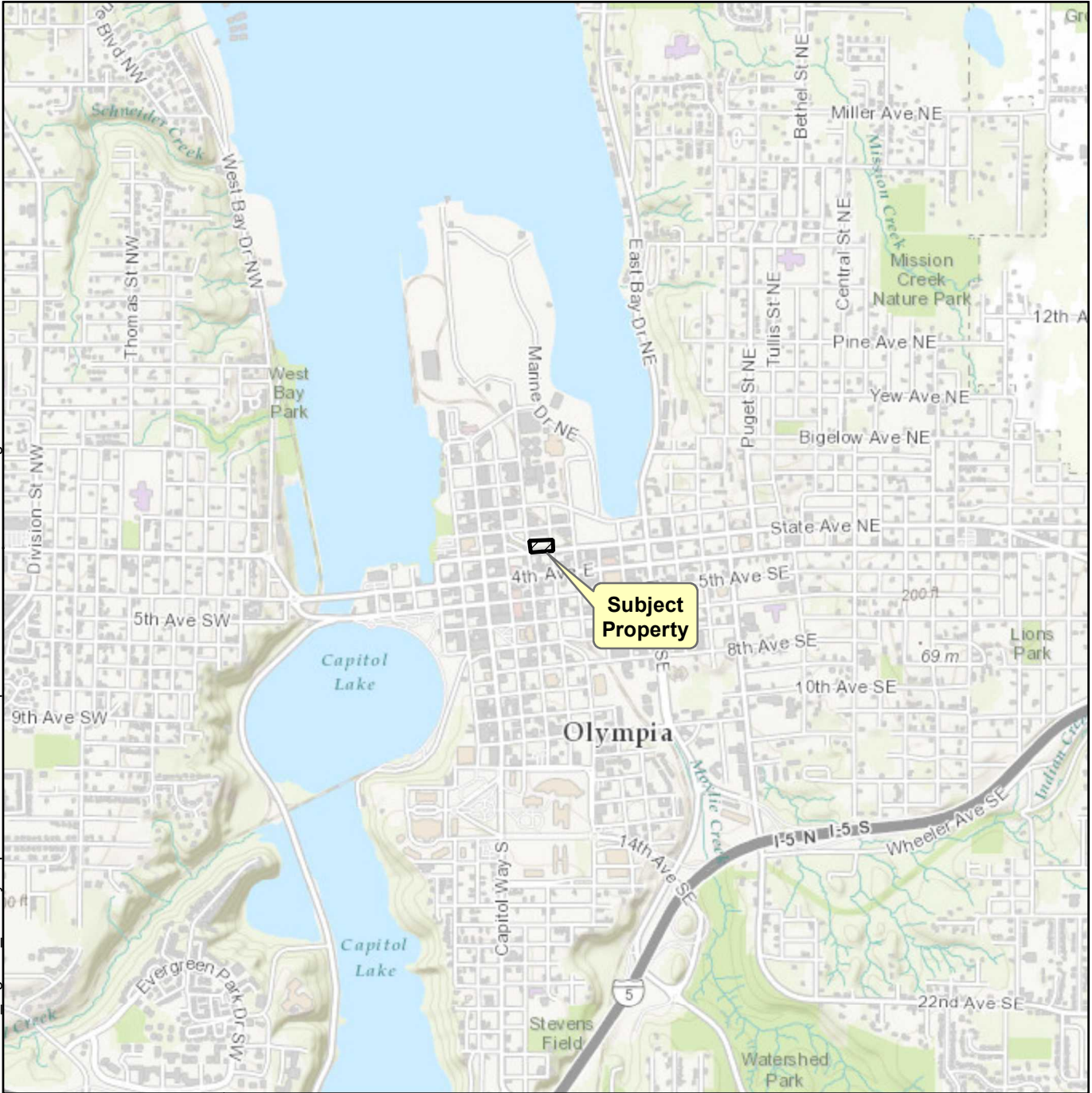
NC = Not collected

ft btoc = feet below the top of monitoring well casing

J = Analyte concentration is estimated

U = The analyte was not detected at a concentration greater than the identified reporting limit

Green shading indicates sample results for current quarter of monitoring.



Notes:

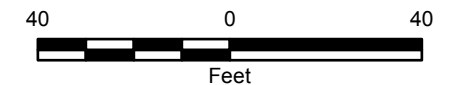
1. The locations of all features shown are approximate.
2. This drawing is for information purposes. It is intended to assist in showing features discussed in an attached document. GeoEngineers, Inc. can not guarantee the accuracy and content of electronic files. The master file is stored by GeoEngineers, Inc. and will serve as the official record of this communication.
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Data Sources: 2008 Shaded Relief from ESRI, 2008 Topographic Maps from National Geographic Society
 Projection: NAD_1983_StatePlane_Washington_North_FIPS_4601_Feet
 Datum: D_North_American_1983

Vicinity Map	
318 State Avenue NE Olympia, Washington	
	Figure 1



- Legend**
- CSZ 1 Contaminated Soil Zones (CSZ) Remediated in September-October 2009
 - Approximate 318 State Avenue NE Property Boundary
 - Southeast portion of property redeveloped by LIHI
 - + MW-03 Monitoring well currently being monitored as part of semi-annual monitoring events
 - + MW-19 Monitoring well installed to monitor groundwater from the southeast portion of the property
 - + MW-01 Monitoring well that was previously monitored as part of quarterly or semi-annual monitoring events



Groundwater Monitoring Locations

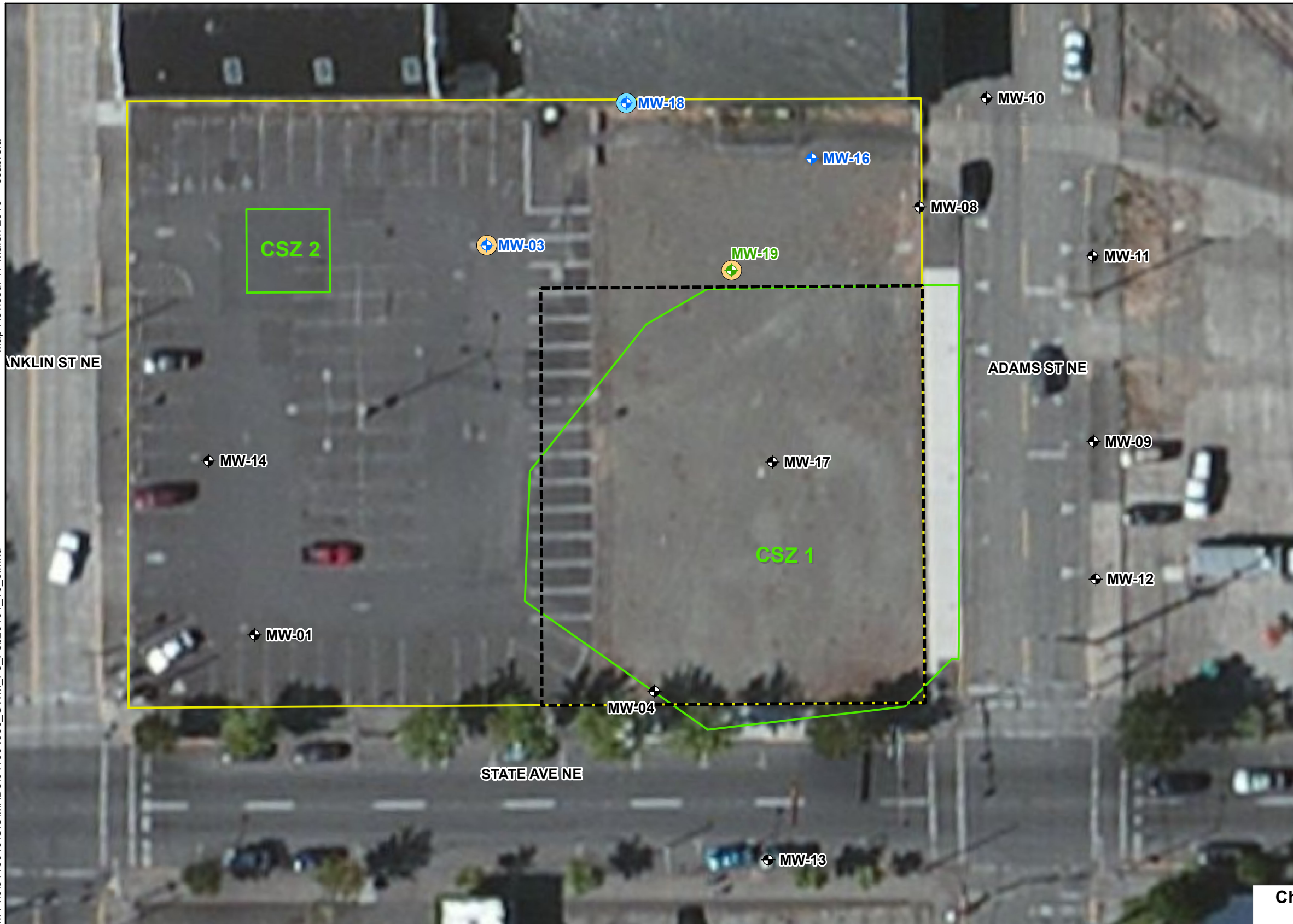
318 State Avenue NE
Olympia, Washington



Figure 2

Notes:
 1. MTCA = Model Toxics Control Act, ug/L = micrograms per liter.
 2. The locations of all features shown are approximate.
 3. This drawing is for information purposes. It is intended to assist in showing features discussed in an attached document. GeoEngineers, Inc. cannot guarantee the accuracy and content of electronic files. The master file is stored by GeoEngineers, Inc. and will serve as the official record of this communication.

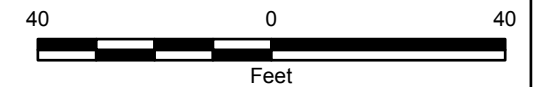
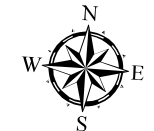
Data Sources: Approximate Property Boundary from Thurston County parcels (revised by GeoEngineers).
 Aerial photograph 2013 from ESRI. Data Frame Rotated 356 degrees.
 Projection: NAD_1983_StatePlane_Washington_South_FIPS_4602_Feet
 Datum: D_North_American_1983



Legend

- CSZ 1 Contaminated Soil Zones (CSZ) Remediated in September-October 2009
- Approximate 318 State Avenue NE Property Boundary
- Southeast portion of property redeveloped by LIHI
- ⊕ Monitoring well currently being monitored as part of semi-annual monitoring events
- ⊕ Monitoring well installed to monitor groundwater from the southeast portion of the property
- ⊕ Monitoring well that was previously monitored as part of quarterly or semi-annual monitoring events
- Trichloroethene at concentrations greater than the groundwater screening level based on Guidance for Evaluating Soil Vapor Intrusion in Washington State (1.55 µg/L)
- Vinyl Chloride at concentrations greater than the groundwater screening level based on Guidance for Evaluating Soil Vapor Intrusion in Washington State (0.347 µg/L)

Well	Event	Result
MW-03		
Trichloroethene	February 2016	4.0 µg/L
MW-19		
Trichloroethene	February 2016	1.7 µg/L
MW-18		
Vinyl Chloride	February 2016	1.5 µg/L



Chemical Analytical Results Exceeding Compliance Criteria

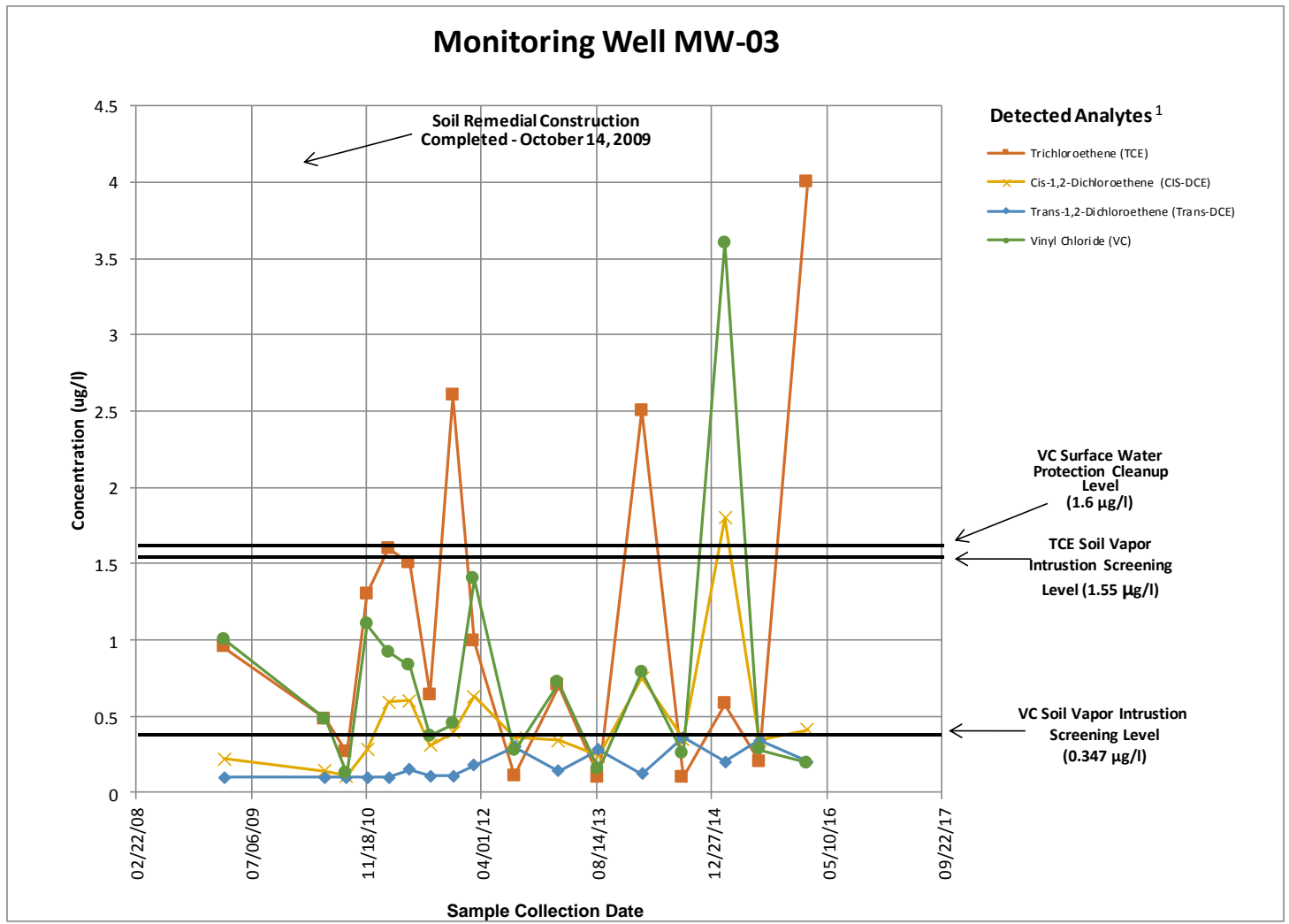
318 State Avenue NE
Olympia, Washington



Figure 3

Notes:
 1. MTCA = Model Toxics Control Act, µg/L = micrograms per liter.
 2. The locations of all features shown are approximate.
 3. This drawing is for information purposes. It is intended to assist in showing features discussed in an attached document. GeoEngineers, Inc. cannot guarantee the accuracy and content of electronic files. The master file is stored by GeoEngineers, Inc. and will serve as the official record of this communication.

Data Sources: Approximate Property Boundary from Thurston County parcels (revised by GeoEngineers).
 Aerial photograph 2013 from ESRI. Data Frame Rotated 356 degrees.
 Projection: NAD_1983_StatePlane_Washington_South_FIPS_4602_Feet
 Datum: D_North_American_1983



Notes:

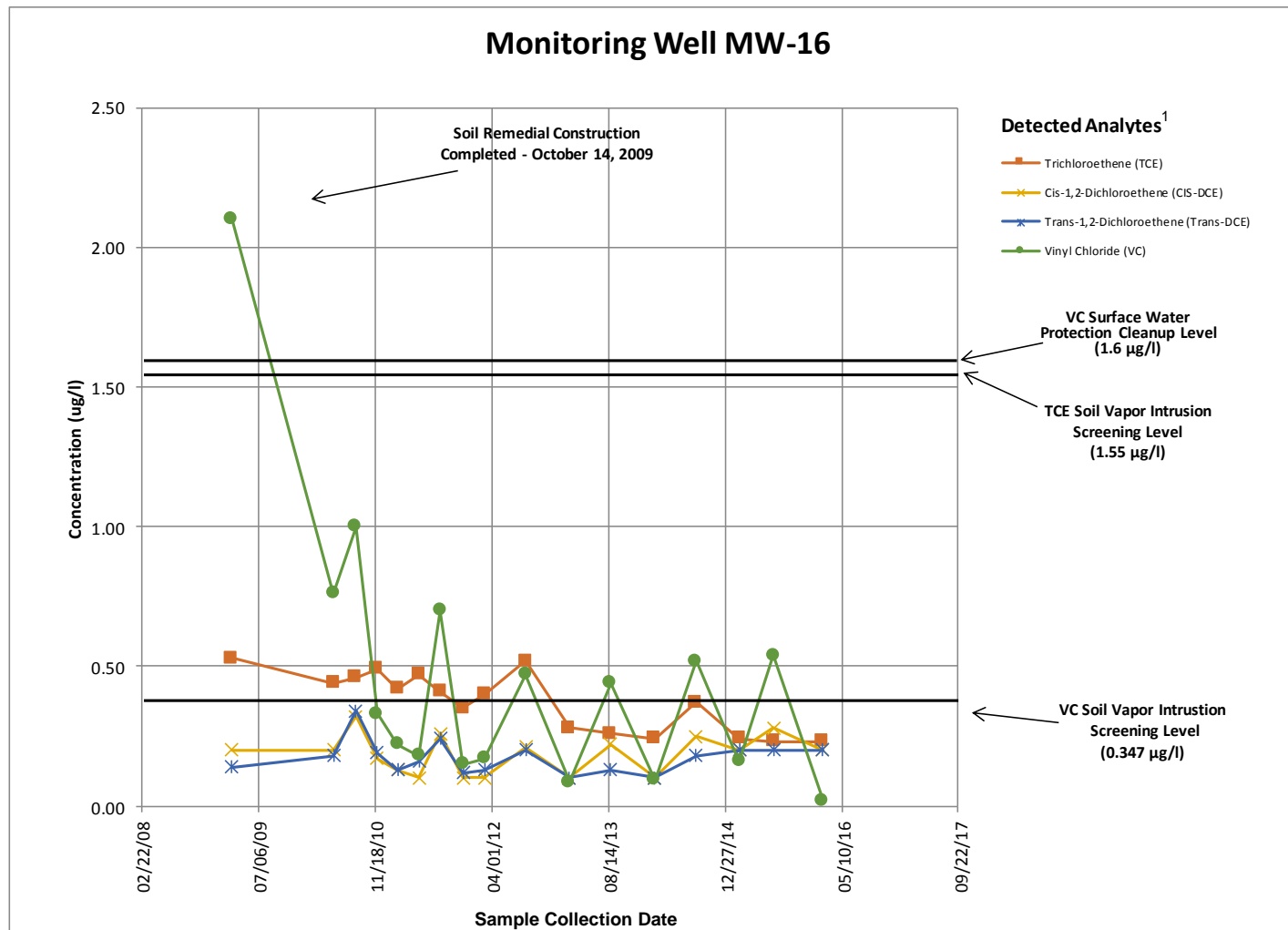
¹ See Table 1 for a comprehensive summary of the groundwater compliance monitoring results and groundwater cleanup and screening levels.

Trend Analysis – February 2016

318 State Avenue NE
Olympia, Washington



Figure 4



Notes:

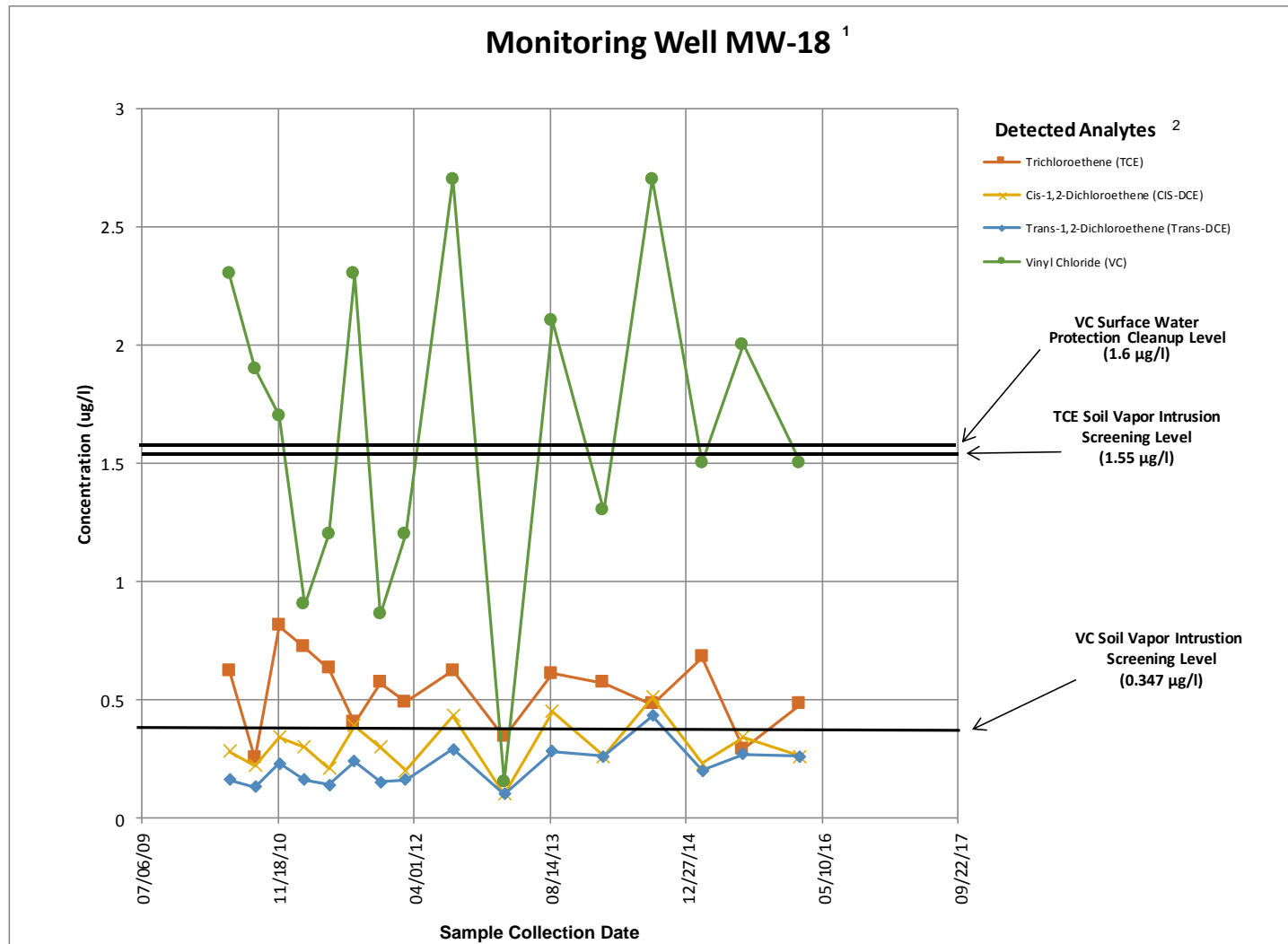
¹ See Table 1 for a comprehensive summary of the groundwater compliance monitoring results and groundwater cleanup and screening levels.

Trend Analysis – February 2016

318 State Avenue NE
Olympia, Washington



Figure 5



Notes:

¹ MW-18 was installed after remedial actions for soil were completed on October 14, 2009.

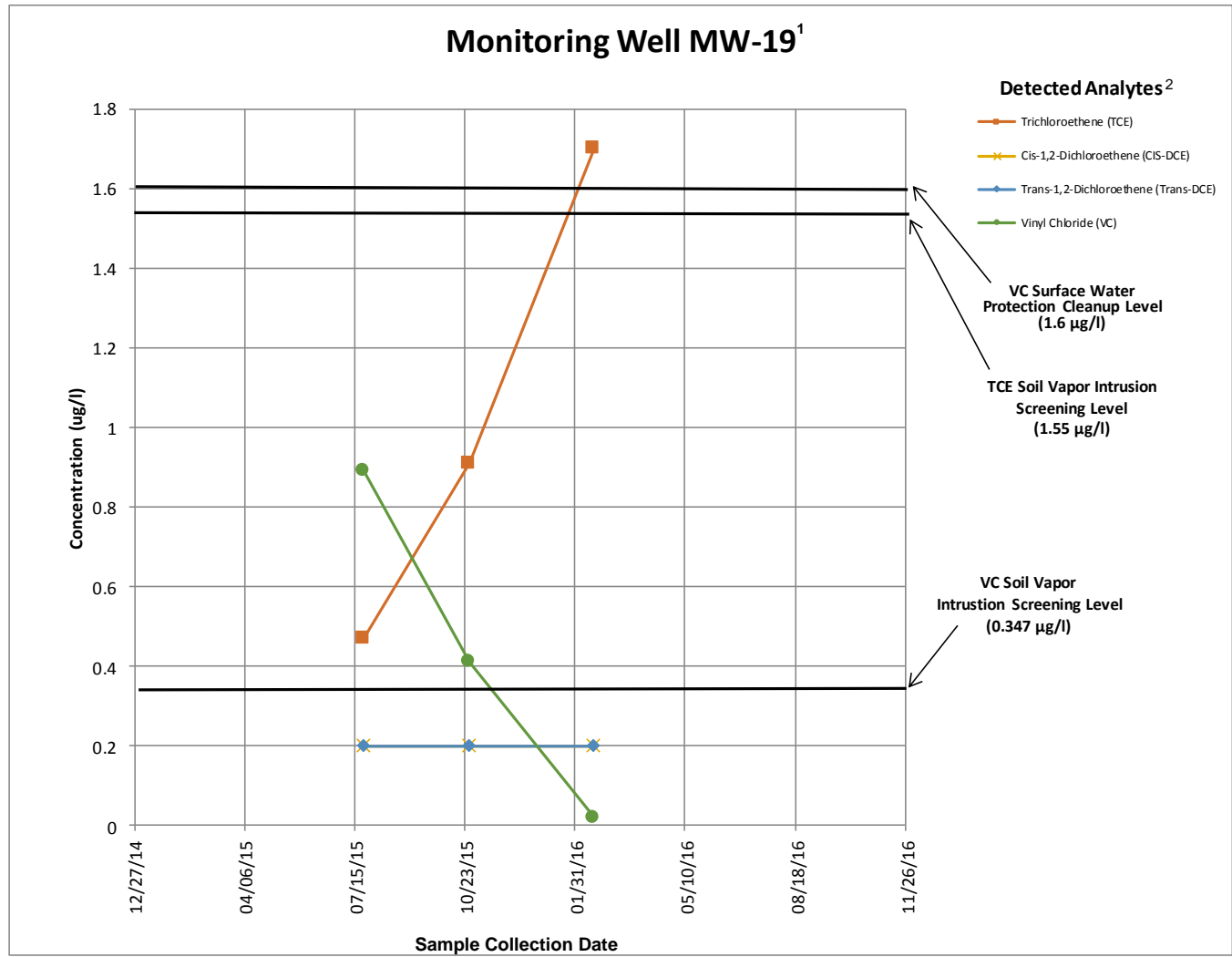
² See Table 1 for a comprehensive summary of the groundwater compliance monitoring results and groundwater cleanup and screening levels.

Trend Analysis – February 2016

318 State Avenue NE
Olympia, Washington



Figure 6



Notes:

¹ MW-19 was installed on July 16, 2015 as part of monitoring groundwater from the southeast portion of the property.

² See Table 1 for a comprehensive summary of the groundwater compliance monitoring results and groundwater cleanup and screening levels.

Trend Analysis – February 2016

318 State Avenue NE
Olympia, Washington



Figure 7

APPENDIX A
Laboratory Reports

ANALYTICAL REPORT

Job Number: 580-57365-1
Job Description: 318 State AVE NE (WA)

For:
GeoEngineers Inc
1101 Fawcett, Suite 200
Tacoma, WA 98402
Attention: Nick Rohrbach



Approved for release.
Robert A Greer
Project Manager II
2/29/2016 8:50 AM

Robert A Greer, Project Manager II
5755 8th Street East, Tacoma, WA, 98424
(253)922-2310
robert.greer@testamericainc.com
02/29/2016
Revision: 1

cc: Mr. Iain Wingard

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This report shall not be reproduced except in full, without prior express written approval by the laboratory. The results relate only to the item(s) tested and the sample(s) as received by the laboratory.

The results included in this report have been reviewed for compliance with the laboratory QA/QC plan and meet all requirements of NELAC. All data have been found to be compliant with laboratory protocol, with the exception of any items noted in the case narrative.

TestAmerica Laboratories, Inc.

TestAmerica Seattle 5755 8th Street East, Tacoma, WA 98424
Tel (253) 922-2310 Fax (253) 922-5047 www.testamericainc.com



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CASE NARRATIVE
Client: GeoEngineers Inc
Project: 318 State AVE NE (WA)
Report Number: 580-57365-1

This case narrative is in the form of an exception report, where only the anomalies related to this report, method specific performance and/or QA/QC issues are discussed. If there are no issues to report, this narrative will include a statement that documents that there are no relevant data issues.

It should be noted that samples with elevated Reporting Limits (RLs) resulting from a dilution may not be able to satisfy customer reporting limits in some cases. Such increases in the RLs are an unavoidable but acceptable consequence of sample dilution that enables quantification of target analytes within the calibration range of the instrument or that reduces the interferences thereby enabling the quantification of target analytes.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

RECEIPT

The samples were received on 02/17/2016; the samples arrived in good condition, properly preserved and on ice. The temperature of the coolers at receipt was 7.3 C. The sample(s) is considered acceptable since it was collected and submitted to the laboratory on the same day and there is evidence that the chilling process has begun.

Note: All samples which require thermal preservation are considered acceptable if the arrival temperature is within 2C of the required temperature or method specified range. For samples with a specified temperature of 4C, samples with a temperature ranging from just above freezing temperature of water to 6C shall be acceptable. Samples that are hand delivered immediately following collection may not meet these criteria, however they will be deemed acceptable according to NELAC standards, if there is evidence that the chilling process has begun, such as arrival on ice, etc.

VOLATILE ORGANIC COMPOUNDS (GC-MS) LOW LEVEL

Samples MW3-160217-W (580-57365-1), MW16-160217-W (580-57365-2), MW18-160217-W (580-57365-3), MW19-160217-W (580-57365-4), DUP1-160217-W (580-57365-5) and Trip Blank-160217 (580-57365-6) were analyzed for volatile organic compounds (GC-MS) low level in accordance with EPA SW-846 8260B. The samples were analyzed on 02/24/2016.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

ANIONS

Samples MW3-160217-W (580-57365-1), MW16-160217-W (580-57365-2), MW18-160217-W (580-57365-3), MW19-160217-W (580-57365-4) and DUP1-160217-W (580-57365-5) were analyzed for anions in accordance with EPA Method 300.0. The samples were analyzed on 02/22/2016.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GC/MS VOA MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Seattle Job No.: 580-57365-1

SDG No.: _____

Instrument ID: SEA015 Analysis Batch Number: 183987Lab Sample ID: STD0.1 IC Client Sample ID: _____Date Analyzed: 03/09/15 15:59 Lab File ID: I0346376.D GC Column: ZB-624short ID: 0.18 (mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Acetone	6.16	Peak Tail	christens ens	03/10/15 09:22

Lab Sample ID: STD0.2 IC Client Sample ID: _____Date Analyzed: 03/09/15 16:26 Lab File ID: I0346377.D GC Column: ZB-624short ID: 0.18 (mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Chloroethane	5.41	Baseline	christens ens	03/09/15 17:41

Lab Sample ID: STD0.4 IC Client Sample ID: _____Date Analyzed: 03/09/15 16:53 Lab File ID: I0346378.D GC Column: ZB-624short ID: 0.18 (mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Chloroethane	5.41	Shouldering	christens ens	03/09/15 17:52

Lab Sample ID: STD001 580-183987/7 IC Client Sample ID: _____Date Analyzed: 03/09/15 17:20 Lab File ID: I0346379.D GC Column: ZB-624short ID: 0.18 (mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Chloroethane	5.42	Shouldering	christens ens	03/09/15 17:51

GC/MS VOA MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Seattle Job No.: 580-57365-1

SDG No.: _____

Instrument ID: SEA015 Analysis Batch Number: 183987

Lab Sample ID: STD005 580-183987/8 IC Client Sample ID: _____

Date Analyzed: 03/09/15 17:47 Lab File ID: I0346380.D GC Column: ZB-624short ID: 0.18 (mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Chloroethane	5.41	Shouldering	christens ens	03/10/15 09:19

GC/MS VOA MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Seattle Job No.: 580-57365-1

SDG No.: _____

Instrument ID: SEA015 Analysis Batch Number: 211854Lab Sample ID: CCVIS 580-211854/2 Client Sample ID: _____Date Analyzed: 02/24/16 08:53 Lab File ID: B242028.D GC Column: ZB-624short ID: 0.18 (mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Acetone	6.15	Baseline	sodsaip	02/25/16 08:47

Lab Sample ID: 580-57365-2 Client Sample ID: MW16-160217-WDate Analyzed: 02/24/16 14:51 Lab File ID: B242041.D GC Column: ZB-624short ID: 0.18 (mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
cis-1,2-Dichloroethene		Unspecified		
trans-1,2-Dichloroethene		Unspecified		
Vinyl chloride		Unspecified		

Lab Sample ID: 580-57365-4 Client Sample ID: MW19-160217-WDate Analyzed: 02/24/16 15:17 Lab File ID: B242042.D GC Column: ZB-624short ID: 0.18 (mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Tetrachloroethene		Unspecified		

Lab Sample ID: 580-57365-5 Client Sample ID: DUP1-160217-WDate Analyzed: 02/24/16 15:44 Lab File ID: B242043.D GC Column: ZB-624short ID: 0.18 (mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
cis-1,2-Dichloroethene		Unspecified		
Tetrachloroethene		Unspecified		
trans-1,2-Dichloroethene		Unspecified		
Vinyl chloride		Unspecified		

HPLC/IC MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Spokane Job No.: 580-57365-1

SDG No.: _____

Instrument ID: IC Analysis Batch Number: 5445

Lab Sample ID: IC 590-5445/2 Client Sample ID: _____

Date Analyzed: 02/17/16 10:36 Lab File ID: 021716_002.d GC Column: _____ ID: _____

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Chloride	3.08	Incomplete Integration	sudam	02/17/16 11:32

Lab Sample ID: IC 590-5445/3 Client Sample ID: _____

Date Analyzed: 02/17/16 10:52 Lab File ID: 021716_003.d GC Column: _____ ID: _____

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Fluoride	2.55	Baseline Smoothing	sudam	02/17/16 13:32

SAMPLE SUMMARY

Client: GeoEngineers Inc

Job Number: 580-57365-1

Lab Sample ID	Client Sample ID	Client Matrix	Date/Time Sampled	Date/Time Received
580-57365-1	MW3-160217-W	Water	02/17/2016 1430	02/17/2016 1610
580-57365-2	MW16-160217-W	Water	02/17/2016 1220	02/17/2016 1610
580-57365-3	MW18-160217-W	Water	02/17/2016 1335	02/17/2016 1610
580-57365-3MS	MW18-160217-W	Water	02/17/2016 1335	02/17/2016 1610
580-57365-3MSD	MW18-160217-W	Water	02/17/2016 1335	02/17/2016 1610
580-57365-4	MW19-160217-W	Water	02/17/2016 1120	02/17/2016 1610
580-57365-5	DUP1-160217-W	Water	02/17/2016 1300	02/17/2016 1610
580-57365-6	Trip Blank-160217	Water	02/17/2016 0001	02/17/2016 1610

EXECUTIVE SUMMARY - Detections

Client: GeoEngineers Inc

Job Number: 580-57365-1

Lab Sample ID Analyte	Client Sample ID	Result	Qualifier	Reporting Limit	Units	Method
580-57365-1	MW3-160217-W					
cis-1,2-Dichloroethene		0.41		0.20	ug/L	8260B
Trichloroethene		4.0		0.20	ug/L	8260B
Vinyl chloride		0.19		0.020	ug/L	8260B
Sulfate		12		1.2	mg/L	300.0
580-57365-2	MW16-160217-W					
Trichloroethene		0.23		0.20	ug/L	8260B
Sulfate		8.5		1.2	mg/L	300.0
580-57365-3	MW18-160217-W					
cis-1,2-Dichloroethene		0.26		0.20	ug/L	8260B
trans-1,2-Dichloroethene		0.26		0.20	ug/L	8260B
Trichloroethene		0.48		0.20	ug/L	8260B
Vinyl chloride		1.5		0.020	ug/L	8260B
Sulfate		6.7		1.2	mg/L	300.0
580-57365-4	MW19-160217-W					
Trichloroethene		1.7		0.20	ug/L	8260B
Sulfate		8.1		1.2	mg/L	300.0
580-57365-5	DUP1-160217-W					
Trichloroethene		0.25		0.20	ug/L	8260B
Sulfate		8.5		1.2	mg/L	300.0

METHOD SUMMARY

Client: GeoEngineers Inc

Job Number: 580-57365-1

Description	Lab Location	Method	Preparation Method
Matrix: Water			
Volatile Organic Compounds (GC/MS)	TAL SEA	SW846 8260B	
Purge and Trap	TAL SEA		SW846 5030B
Anions, Ion Chromatography	TAL SPK	MCAWW 300.0	

Lab References:

TAL SEA = TestAmerica Seattle

TAL SPK = TestAmerica Spokane

Method References:

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

METHOD / ANALYST SUMMARY

Client: GeoEngineers Inc

Job Number: 580-57365-1

Method	Analyst	Analyst ID
SW846 8260B	Jantanu, Charinporn	CJ
MCAWW 300.0	Suda, Matt R	MRS

Analytical Data

Client: GeoEngineers Inc

Job Number: 580-57365-1

Client Sample ID: MW3-160217-W

Lab Sample ID: 580-57365-1

Date Sampled: 02/17/2016 1430

Client Matrix: Water

Date Received: 02/17/2016 1610

8260B Volatile Organic Compounds (GC/MS)

Analysis Method: 8260B	Analysis Batch: 580-211854	Instrument ID: SEA015
Prep Method: 5030B	Prep Batch: N/A	Lab File ID: B242040.D
Dilution: 1.0		Initial Weight/Volume: 10 mL
Analysis Date: 02/24/2016 1424		Final Weight/Volume: 10 mL
Prep Date: 02/24/2016 1424		

Analyte	Result (ug/L)	Qualifier	RL	RL
cis-1,2-Dichloroethene	0.41		0.20	0.20
1,1-Dichloroethene	ND		0.10	0.10
Tetrachloroethene	ND		0.50	0.50
trans-1,2-Dichloroethene	ND		0.20	0.20
Trichloroethene	4.0		0.20	0.20
Vinyl chloride	0.19		0.020	0.020

Surrogate	%Rec	Qualifier	Acceptance Limits
4-Bromofluorobenzene (Surr)	93		75 - 120
Trifluorotoluene (Surr)	101		80 - 127
Toluene-d8 (Surr)	105		75 - 125
Dibromofluoromethane (Surr)	91		85 - 115
1,2-Dichloroethane-d4 (Surr)	99		70 - 128

Analytical Data

Client: GeoEngineers Inc

Job Number: 580-57365-1

Client Sample ID: MW16-160217-W

Lab Sample ID: 580-57365-2

Date Sampled: 02/17/2016 1220

Client Matrix: Water

Date Received: 02/17/2016 1610

8260B Volatile Organic Compounds (GC/MS)

Analysis Method: 8260B	Analysis Batch: 580-211854	Instrument ID: SEA015
Prep Method: 5030B	Prep Batch: N/A	Lab File ID: B242041.D
Dilution: 1.0		Initial Weight/Volume: 10 mL
Analysis Date: 02/24/2016 1451		Final Weight/Volume: 10 mL
Prep Date: 02/24/2016 1451		

Analyte	Result (ug/L)	Qualifier	RL	RL
cis-1,2-Dichloroethene	ND		0.20	0.20
1,1-Dichloroethene	ND		0.10	0.10
Tetrachloroethene	ND		0.50	0.50
trans-1,2-Dichloroethene	ND		0.20	0.20
Trichloroethene	0.23		0.20	0.20
Vinyl chloride	ND		0.020	0.020

Surrogate	%Rec	Qualifier	Acceptance Limits
4-Bromofluorobenzene (Surr)	93		75 - 120
Trifluorotoluene (Surr)	96		80 - 127
Toluene-d8 (Surr)	104		75 - 125
Dibromofluoromethane (Surr)	92		85 - 115
1,2-Dichloroethane-d4 (Surr)	101		70 - 128

Analytical Data

Client: GeoEngineers Inc

Job Number: 580-57365-1

Client Sample ID: MW18-160217-W

Lab Sample ID: 580-57365-3

Date Sampled: 02/17/2016 1335

Client Matrix: Water

Date Received: 02/17/2016 1610

8260B Volatile Organic Compounds (GC/MS)

Analysis Method: 8260B	Analysis Batch: 580-211854	Instrument ID: SEA015
Prep Method: 5030B	Prep Batch: N/A	Lab File ID: B242037.D
Dilution: 1.0		Initial Weight/Volume: 10 mL
Analysis Date: 02/24/2016 1259		Final Weight/Volume: 10 mL
Prep Date: 02/24/2016 1259		

Analyte	Result (ug/L)	Qualifier	RL	RL
cis-1,2-Dichloroethene	0.26		0.20	0.20
1,1-Dichloroethene	ND		0.10	0.10
Tetrachloroethene	ND		0.50	0.50
trans-1,2-Dichloroethene	0.26		0.20	0.20
Trichloroethene	0.48		0.20	0.20
Vinyl chloride	1.5		0.020	0.020

Surrogate	%Rec	Qualifier	Acceptance Limits
4-Bromofluorobenzene (Surr)	93		75 - 120
Trifluorotoluene (Surr)	98		80 - 127
Toluene-d8 (Surr)	103		75 - 125
Dibromofluoromethane (Surr)	91		85 - 115
1,2-Dichloroethane-d4 (Surr)	99		70 - 128

Analytical Data

Client: GeoEngineers Inc

Job Number: 580-57365-1

Client Sample ID: MW19-160217-W

Lab Sample ID: 580-57365-4

Date Sampled: 02/17/2016 1120

Client Matrix: Water

Date Received: 02/17/2016 1610

8260B Volatile Organic Compounds (GC/MS)

Analysis Method: 8260B	Analysis Batch: 580-211854	Instrument ID: SEA015
Prep Method: 5030B	Prep Batch: N/A	Lab File ID: B242042.D
Dilution: 1.0		Initial Weight/Volume: 10 mL
Analysis Date: 02/24/2016 1517		Final Weight/Volume: 10 mL
Prep Date: 02/24/2016 1517		

Analyte	Result (ug/L)	Qualifier	RL	RL
cis-1,2-Dichloroethene	ND		0.20	0.20
1,1-Dichloroethene	ND		0.10	0.10
Tetrachloroethene	ND		0.50	0.50
trans-1,2-Dichloroethene	ND		0.20	0.20
Trichloroethene	1.7		0.20	0.20
Vinyl chloride	ND		0.020	0.020

Surrogate	%Rec	Qualifier	Acceptance Limits
4-Bromofluorobenzene (Surr)	93		75 - 120
Trifluorotoluene (Surr)	100		80 - 127
Toluene-d8 (Surr)	104		75 - 125
Dibromofluoromethane (Surr)	93		85 - 115
1,2-Dichloroethane-d4 (Surr)	99		70 - 128

Analytical Data

Client: GeoEngineers Inc

Job Number: 580-57365-1

Client Sample ID: DUP1-160217-W

Lab Sample ID: 580-57365-5

Date Sampled: 02/17/2016 1300

Client Matrix: Water

Date Received: 02/17/2016 1610

8260B Volatile Organic Compounds (GC/MS)

Analysis Method: 8260B	Analysis Batch: 580-211854	Instrument ID: SEA015
Prep Method: 5030B	Prep Batch: N/A	Lab File ID: B242043.D
Dilution: 1.0		Initial Weight/Volume: 10 mL
Analysis Date: 02/24/2016 1544		Final Weight/Volume: 10 mL
Prep Date: 02/24/2016 1544		

Analyte	Result (ug/L)	Qualifier	RL	RL
cis-1,2-Dichloroethene	ND		0.20	0.20
1,1-Dichloroethene	ND		0.10	0.10
Tetrachloroethene	ND		0.50	0.50
trans-1,2-Dichloroethene	ND		0.20	0.20
Trichloroethene	0.25		0.20	0.20
Vinyl chloride	ND		0.020	0.020

Surrogate	%Rec	Qualifier	Acceptance Limits
4-Bromofluorobenzene (Surr)	91		75 - 120
Trifluorotoluene (Surr)	103		80 - 127
Toluene-d8 (Surr)	105		75 - 125
Dibromofluoromethane (Surr)	94		85 - 115
1,2-Dichloroethane-d4 (Surr)	102		70 - 128

Analytical Data

Client: GeoEngineers Inc

Job Number: 580-57365-1

Client Sample ID: Trip Blank-160217

Lab Sample ID: 580-57365-6

Date Sampled: 02/17/2016 0001

Client Matrix: Water

Date Received: 02/17/2016 1610

8260B Volatile Organic Compounds (GC/MS)

Analysis Method: 8260B	Analysis Batch: 580-211854	Instrument ID: SEA015
Prep Method: 5030B	Prep Batch: N/A	Lab File ID: B242036.D
Dilution: 1.0		Initial Weight/Volume: 10 mL
Analysis Date: 02/24/2016 1232		Final Weight/Volume: 10 mL
Prep Date: 02/24/2016 1232		

Analyte	Result (ug/L)	Qualifier	RL	RL
cis-1,2-Dichloroethene	ND		0.20	0.20
1,1-Dichloroethene	ND		0.10	0.10
Tetrachloroethene	ND		0.50	0.50
trans-1,2-Dichloroethene	ND		0.20	0.20
Trichloroethene	ND		0.20	0.20
Vinyl chloride	ND		0.020	0.020

Surrogate	%Rec	Qualifier	Acceptance Limits
4-Bromofluorobenzene (Surr)	95		75 - 120
Trifluorotoluene (Surr)	94		80 - 127
Toluene-d8 (Surr)	103		75 - 125
Dibromofluoromethane (Surr)	90		85 - 115
1,2-Dichloroethane-d4 (Surr)	98		70 - 128

Analytical Data

Client: GeoEngineers Inc

Job Number: 580-57365-1

Client Sample ID: MW3-160217-W

Lab Sample ID: 580-57365-1

Date Sampled: 02/17/2016 1430

Client Matrix: Water

Date Received: 02/17/2016 1610

300.0 Anions, Ion Chromatography

Analysis Method:	300.0	Analysis Batch:	590-5496	Instrument ID:	IC
	N/A	Prep Batch:	N/A	Lab File ID:	022216_004.d
Dilution:	1.0			Initial Weight/Volume:	5 mL
Analysis Date:	02/22/2016 1351			Final Weight/Volume:	
Prep Date:	N/A			Injection Volume:	5 mL

Analyte	Result (mg/L)	Qualifier	MDL	RL
Sulfate	12		0.13	1.2

Analytical Data

Client: GeoEngineers Inc

Job Number: 580-57365-1

Client Sample ID: MW16-160217-W

Lab Sample ID: 580-57365-2

Date Sampled: 02/17/2016 1220

Client Matrix: Water

Date Received: 02/17/2016 1610

300.0 Anions, Ion Chromatography

Analysis Method:	300.0	Analysis Batch:	590-5496	Instrument ID:	IC
	N/A	Prep Batch:	N/A	Lab File ID:	022216_005.d
Dilution:	1.0			Initial Weight/Volume:	5 mL
Analysis Date:	02/22/2016 1408			Final Weight/Volume:	
Prep Date:	N/A			Injection Volume:	5 mL

Analyte	Result (mg/L)	Qualifier	MDL	RL
Sulfate	8.5		0.13	1.2

Analytical Data

Client: GeoEngineers Inc

Job Number: 580-57365-1

Client Sample ID: MW18-160217-W

Lab Sample ID: 580-57365-3

Date Sampled: 02/17/2016 1335

Client Matrix: Water

Date Received: 02/17/2016 1610

300.0 Anions, Ion Chromatography

Analysis Method:	300.0	Analysis Batch:	590-5496	Instrument ID:	IC
	N/A	Prep Batch:	N/A	Lab File ID:	022216_007.d
Dilution:	1.0			Initial Weight/Volume:	5 mL
Analysis Date:	02/22/2016 1441			Final Weight/Volume:	
Prep Date:	N/A			Injection Volume:	5 mL

Analyte	Result (mg/L)	Qualifier	MDL	RL
Sulfate	6.7		0.13	1.2

Analytical Data

Client: GeoEngineers Inc

Job Number: 580-57365-1

Client Sample ID: MW19-160217-W

Lab Sample ID: 580-57365-4

Date Sampled: 02/17/2016 1120

Client Matrix: Water

Date Received: 02/17/2016 1610

300.0 Anions, Ion Chromatography

Analysis Method:	300.0	Analysis Batch:	590-5496	Instrument ID:	IC
	N/A	Prep Batch:	N/A	Lab File ID:	022216_010.d
Dilution:	1.0			Initial Weight/Volume:	5 mL
Analysis Date:	02/22/2016 1529			Final Weight/Volume:	
Prep Date:	N/A			Injection Volume:	5 mL

Analyte	Result (mg/L)	Qualifier	MDL	RL
Sulfate	8.1		0.13	1.2

Analytical Data

Client: GeoEngineers Inc

Job Number: 580-57365-1

Client Sample ID: DUP1-160217-W

Lab Sample ID: 580-57365-5

Date Sampled: 02/17/2016 1300

Client Matrix: Water

Date Received: 02/17/2016 1610

300.0 Anions, Ion Chromatography

Analysis Method:	300.0	Analysis Batch:	590-5496	Instrument ID:	IC
	N/A	Prep Batch:	N/A	Lab File ID:	022216_011.d
Dilution:	1.0			Initial Weight/Volume:	5 mL
Analysis Date:	02/22/2016 1546			Final Weight/Volume:	
Prep Date:	N/A			Injection Volume:	5 mL

Analyte	Result (mg/L)	Qualifier	MDL	RL
Sulfate	8.5		0.13	1.2

Client: GeoEngineers Inc

Job Number: 580-57365-1

Surrogate Recovery Report

8260B Volatile Organic Compounds (GC/MS)

Client Matrix: Water

Lab Sample ID	Client Sample ID	DBFM %Rec	DCA %Rec	TFT %Rec	TOL %Rec	BFB %Rec
580-57365-1	MW3-160217-W	91	99	101	105	93
580-57365-2	MW16-160217-W	92	101	96	104	93
580-57365-3	MW18-160217-W	91	99	98	103	93
580-57365-4	MW19-160217-W	93	99	100	104	93
580-57365-5	DUP1-160217-W	94	102	103	105	91
580-57365-6	Trip Blank-160217	90	98	94	103	95
MB 580-211854/4		91	95	97	104	93
LCS 580-211854/5		92	97	94	102	90
LCSD 580-211854/6		92	97	98	104	92
580-57365-3 MS	MW18-160217-W MS	95	101	96	104	93
580-57365-3 MSD	MW18-160217-W MSD	91	98	99	103	91

Surrogate	Acceptance Limits
DBFM = Dibromofluoromethane (Surr)	85-115
DCA = 1,2-Dichloroethane-d4 (Surr)	70-128
TFT = Trifluorotoluene (Surr)	80-127
TOL = Toluene-d8 (Surr)	75-125
BFB = 4-Bromofluorobenzene (Surr)	75-120

Quality Control Results

Client: GeoEngineers Inc

Job Number: 580-57365-1

Method Blank - Batch: 580-211854

**Method: 8260B
Preparation: 5030B**

Lab Sample ID: MB 580-211854/4
 Client Matrix: Water
 Dilution: 1.0
 Analysis Date: 02/24/2016 0949
 Prep Date: 02/24/2016 0949
 Leach Date: N/A

Analysis Batch: 580-211854
 Prep Batch: N/A
 Leach Batch: N/A
 Units: ug/L

Instrument ID: SEA015
 Lab File ID: B242030.D
 Initial Weight/Volume: 10 mL
 Final Weight/Volume: 10 mL

Analyte	Result	Qual	RL	RL
cis-1,2-Dichloroethene	ND		0.20	0.20
1,1-Dichloroethene	ND		0.10	0.10
Tetrachloroethene	ND		0.50	0.50
trans-1,2-Dichloroethene	ND		0.20	0.20
Trichloroethene	ND		0.20	0.20
Vinyl chloride	ND		0.020	0.020
Surrogate	% Rec		Acceptance Limits	
4-Bromofluorobenzene (Surr)	93		75 - 120	
Trifluorotoluene (Surr)	97		80 - 127	
Toluene-d8 (Surr)	104		75 - 125	
Dibromofluoromethane (Surr)	91		85 - 115	
1,2-Dichloroethane-d4 (Surr)	95		70 - 128	

Quality Control Results

Client: GeoEngineers Inc

Job Number: 580-57365-1

Lab Control Sample/

Lab Control Sample Duplicate Recovery Report - Batch: 580-211854

Method: 8260B

Preparation: 5030B

LCS Lab Sample ID: LCS 580-211854/5	Analysis Batch: 580-211854	Instrument ID: SEA015
Client Matrix: Water	Prep Batch: N/A	Lab File ID: B242031.D
Dilution: 1.0	Leach Batch: N/A	Initial Weight/Volume: 10 mL
Analysis Date: 02/24/2016 1017	Units: ug/L	Final Weight/Volume: 10 mL
Prep Date: 02/24/2016 1017		5 mL
Leach Date: N/A		

LCSD Lab Sample ID: LCSD 580-211854/6	Analysis Batch: 580-211854	Instrument ID: SEA015
Client Matrix: Water	Prep Batch: N/A	Lab File ID: B242032.D
Dilution: 1.0	Leach Batch: N/A	Initial Weight/Volume: 10 mL
Analysis Date: 02/24/2016 1044	Units: ug/L	Final Weight/Volume: 10 mL
Prep Date: 02/24/2016 1044		5 mL
Leach Date: N/A		

Analyte	% Rec.		Limit	RPD	RPD Limit	LCS Qual	LCSD Qual
	LCS	LCSD					
cis-1,2-Dichloroethene	93	94	80 - 130	1	20		
1,1-Dichloroethene	90	92	70 - 150	2	20		
Tetrachloroethene	92	96	40 - 180	4	20		
trans-1,2-Dichloroethene	93	95	80 - 140	2	20		
Trichloroethene	93	94	80 - 130	1	20		
Vinyl chloride	89	93	65 - 140	4	20		
Surrogate	LCS % Rec		LCSD % Rec	Acceptance Limits			
4-Bromofluorobenzene (Surr)	90		92	75 - 120			
Trifluorotoluene (Surr)	94		98	80 - 127			
Toluene-d8 (Surr)	102		104	75 - 125			
Dibromofluoromethane (Surr)	92		92	85 - 115			
1,2-Dichloroethane-d4 (Surr)	97		97	70 - 128			

Laboratory Control/

Laboratory Duplicate Data Report - Batch: 580-211854

Method: 8260B

Preparation: 5030B

LCS Lab Sample ID: LCS 580-211854/5	Units: ug/L	LCSD Lab Sample ID: LCSD 580-211854/6
Client Matrix: Water		Client Matrix: Water
Dilution: 1.0		Dilution: 1.0
Analysis Date: 02/24/2016 1017		Analysis Date: 02/24/2016 1044
Prep Date: 02/24/2016 1017		Prep Date: 02/24/2016 1044
Leach Date: N/A		Leach Date: N/A

Analyte	LCS Spike Amount	LCSD Spike Amount	LCS Result/Qual	LCSD Result/Qual
cis-1,2-Dichloroethene	5.01	5.01	4.68	4.72
1,1-Dichloroethene	5.04	5.04	4.55	4.64
Tetrachloroethene	5.01	5.01	4.64	4.82
trans-1,2-Dichloroethene	5.01	5.01	4.67	4.76
Trichloroethene	5.01	5.01	4.65	4.70
Vinyl chloride	5.03	5.03	4.49	4.67

Quality Control Results

Client: GeoEngineers Inc

Job Number: 580-57365-1

**Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 580-211854**

**Method: 8260B
Preparation: 5030B**

MS Lab Sample ID: 580-57365-3
Client Matrix: Water
Dilution: 1.0
Analysis Date: 02/24/2016 1326
Prep Date: 02/24/2016 1326
Leach Date: N/A

Analysis Batch: 580-211854
Prep Batch: N/A
Leach Batch: N/A

Instrument ID: SEA015
Lab File ID: B242038.D
Initial Weight/Volume: 10 mL
Final Weight/Volume: 10 mL
5 mL

MSD Lab Sample ID: 580-57365-3
Client Matrix: Water
Dilution: 1.0
Analysis Date: 02/24/2016 1353
Prep Date: 02/24/2016 1353
Leach Date: N/A

Analysis Batch: 580-211854
Prep Batch: N/A
Leach Batch: N/A

Instrument ID: SEA015
Lab File ID: B242039.D
Initial Weight/Volume: 10 mL
Final Weight/Volume: 10 mL
5 mL

Analyte	% Rec.		Limit	RPD	RPD Limit	MS Qual	MSD Qual
	MS	MSD					
cis-1,2-Dichloroethene	99	100	71 - 144	1	20		
1,1-Dichloroethene	94	105	78 - 151	11	30		
Tetrachloroethene	107	109	64 - 161	2	20		
trans-1,2-Dichloroethene	102	105	73 - 135	3	20		
Trichloroethene	101	107	79 - 131	6	30		
Vinyl chloride	108	110	47 - 160	1	20		
Surrogate	MS % Rec		MSD % Rec	Acceptance Limits			
4-Bromofluorobenzene (Surr)	93		91	75 - 120			
Trifluorotoluene (Surr)	96		99	80 - 127			
Toluene-d8 (Surr)	104		103	75 - 125			
Dibromofluoromethane (Surr)	95		91	85 - 115			
1,2-Dichloroethane-d4 (Surr)	101		98	70 - 128			

**Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 580-211854**

**Method: 8260B
Preparation: 5030B**

MS Lab Sample ID: 580-57365-3
Client Matrix: Water
Dilution: 1.0
Analysis Date: 02/24/2016 1326
Prep Date: 02/24/2016 1326
Leach Date: N/A

Units: ug/L

MSD Lab Sample ID: 580-57365-3
Client Matrix: Water
Dilution: 1.0
Analysis Date: 02/24/2016 1353
Prep Date: 02/24/2016 1353
Leach Date: N/A

Analyte	Sample Result/Qual	MS Spike Amount	MSD Spike Amount	MS Result/Qual	MSD Result/Qual
cis-1,2-Dichloroethene	0.26	5.01	5.01	5.21	5.25
1,1-Dichloroethene	ND	5.04	5.04	4.74	5.28
Tetrachloroethene	ND	5.01	5.01	5.34	5.45
trans-1,2-Dichloroethene	0.26	5.01	5.01	5.36	5.50
Trichloroethene	0.48	5.01	5.01	5.53	5.86
Vinyl chloride	1.5	5.03	5.03	6.98	7.06

Quality Control Results

Client: GeoEngineers Inc

Job Number: 580-57365-1

Method Blank - Batch: 590-5496

Lab Sample ID: MB 590-5496/1013
 Client Matrix: Water
 Dilution: 1.0
 Analysis Date: 02/22/2016 1619
 Prep Date: N/A
 Leach Date: N/A

Analysis Batch: 590-5496
 Prep Batch: N/A
 Leach Batch: N/A
 Units: mg/L

**Method: 300.0
 Preparation: N/A**

Instrument ID: IC
 Lab File ID: 022216_013-MB.d
 Initial Weight/Volume: 5 mL
 Final Weight/Volume:
 Injection Volume: 5 mL

Analyte	Result	Qual	MDL	RL
Sulfate	ND		0.13	1.2

Lab Control Sample - Batch: 590-5496

Lab Sample ID: LCS 590-5496/1012
 Client Matrix: Water
 Dilution: 1.0
 Analysis Date: 02/22/2016 1602
 Prep Date: N/A
 Leach Date: N/A

Analysis Batch: 590-5496
 Prep Batch: N/A
 Leach Batch: N/A
 Units: mg/L

**Method: 300.0
 Preparation: N/A**

Instrument ID: IC
 Lab File ID: 022216_012-LCS.d
 Initial Weight/Volume: 5 mL
 Final Weight/Volume:
 Injection Volume: 5 mL

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
Sulfate	12.5	12.7	101	90 - 110	

**Matrix Spike/
 Matrix Spike Duplicate Recovery Report - Batch: 590-5496**

**Method: 300.0
 Preparation: N/A**

MS Lab Sample ID: 580-57365-3
 Client Matrix: Water
 Dilution: 1.0
 Analysis Date: 02/22/2016 1424
 Prep Date: N/A
 Leach Date: N/A

Analysis Batch: 590-5496
 Prep Batch: N/A
 Leach Batch: N/A

Instrument ID: IC
 Lab File ID: 022216_006.d
 Initial Weight/Volume: 5 mL
 Final Weight/Volume:
 Injection Volume: 5 mL

MSD Lab Sample ID: 580-57365-3
 Client Matrix: Water
 Dilution: 1.0
 Analysis Date: 02/22/2016 1513
 Prep Date: N/A
 Leach Date: N/A

Analysis Batch: 590-5496
 Prep Batch: N/A
 Leach Batch: N/A

Instrument ID: IC
 Lab File ID: 022216_009.d
 Initial Weight/Volume: 5 mL
 Final Weight/Volume:
 Injection Volume: 5 mL

Analyte	% Rec.		Limit	RPD	RPD Limit	MS Qual	MSD Qual
	MS	MSD					
Sulfate	104	104	80 - 120	0	10		

Quality Control Results

Client: GeoEngineers Inc

Job Number: 580-57365-1

**Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 590-5496**

**Method: 300.0
Preparation: N/A**

MS Lab Sample ID: 580-57365-3
 Client Matrix: Water
 Dilution: 1.0
 Analysis Date: 02/22/2016 1424
 Prep Date: N/A
 Leach Date: N/A

Units: mg/L

MSD Lab Sample ID: 580-57365-3
 Client Matrix: Water
 Dilution: 1.0
 Analysis Date: 02/22/2016 1513
 Prep Date: N/A
 Leach Date: N/A

Analyte	Sample Result/Qual	MS Spike Amount	MSD Spike Amount	MS Result/Qual	MSD Result/Qual
Sulfate	6.7	11.4	11.4	18.6	18.6

Duplicate - Batch: 590-5496

**Method: 300.0
Preparation: N/A**

Lab Sample ID: 580-57365-3
 Client Matrix: Water
 Dilution: 1.0
 Analysis Date: 02/22/2016 1457
 Prep Date: N/A
 Leach Date: N/A

Analysis Batch: 590-5496
 Prep Batch: N/A
 Leach Batch: N/A
 Units: mg/L

Instrument ID: IC
 Lab File ID: 022216_008.d
 Initial Weight/Volume: 5 mL
 Final Weight/Volume:
 Injection Volume: 5 mL

Analyte	Sample Result/Qual	Result	RPD	Limit	Qual
Sulfate	6.7	6.66	1	15.7	

DATA REPORTING QUALIFIERS

Lab Section	Qualifier	Description
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Quality Control Results

Client: GeoEngineers Inc

Job Number: 580-57365-1

QC Association Summary

Lab Sample ID	Client Sample ID	Report Basis	Client Matrix	Method	Prep Batch
GC/MS VOA					
Analysis Batch:580-211854					
LCS 580-211854/5	Lab Control Sample	T	Water	8260B	
LCSD 580-211854/6	Lab Control Sample Duplicate	T	Water	8260B	
MB 580-211854/4	Method Blank	T	Water	8260B	
580-57365-1	MW3-160217-W	T	Water	8260B	
580-57365-2	MW16-160217-W	T	Water	8260B	
580-57365-3	MW18-160217-W	T	Water	8260B	
580-57365-3MS	Matrix Spike	T	Water	8260B	
580-57365-3MSD	Matrix Spike Duplicate	T	Water	8260B	
580-57365-4	MW19-160217-W	T	Water	8260B	
580-57365-5	DUP1-160217-W	T	Water	8260B	
580-57365-6	Trip Blank-160217	T	Water	8260B	

Report Basis

T = Total

HPLC/IC

Analysis Batch:590-5496					
LCS 590-5496/1012	Lab Control Sample	T	Water	300.0	
MB 590-5496/1013	Method Blank	T	Water	300.0	
580-57365-1	MW3-160217-W	T	Water	300.0	
580-57365-2	MW16-160217-W	T	Water	300.0	
580-57365-3	MW18-160217-W	T	Water	300.0	
580-57365-3DU	Duplicate	T	Water	300.0	
580-57365-3MS	Matrix Spike	T	Water	300.0	
580-57365-3MSD	Matrix Spike Duplicate	T	Water	300.0	
580-57365-4	MW19-160217-W	T	Water	300.0	
580-57365-5	DUP1-160217-W	T	Water	300.0	

Report Basis

T = Total

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Seattle

Job No.: 580-57365-1

SDG No.: _____

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
SURR/IS/TFT_00014	06/10/15	02/23/15	blk, Lot voarsurr/is_00013	25 mL	V-TFTStk_00024	100 uL	Trifluorotoluene (Surr)	39.984 ppm
					VOARSURR/IS_00013	24.9 mL	1,2-Dichloroethane-d4 (Surr)	150.595 ppm
							1,4-Dichlorobenzene-d4	250.394 ppm
							4-Bromofluorobenzene (Surr)	150.197 ppm
							Chlorobenzene-d5	250.394 ppm
							Dibromofluoromethane (Surr)	150.396 ppm
							Fluorobenzene (IS)	251.191 ppm
TBA-d9 (IS)	5018.05 ppm							
Toluene-d8 (Surr)	149.998 ppm							
.V-TFTStk_00024	06/10/15	02/23/15	methanol, Lot 0000038701	50 mL	TFTneat_00009	420 uL	Trifluorotoluene (Surr)	9996 mg/L
..TFTneat_00009	09/11/15	Sigma-Aldrich, Lot STBD8875V			(Purchased Reagent)		Trifluorotoluene (Surr)	1190000 mg/L
.VOARSURR/IS_00013	11/30/19	Restek, Lot A0107315			(Purchased Reagent)		1,2-Dichloroethane-d4 (Surr)	151.2 ug/mL
							1,4-Dichlorobenzene-d4	251.4 ug/mL
							4-Bromofluorobenzene (Surr)	150.8 ug/mL
							Chlorobenzene-d5	251.4 ug/mL
							Dibromofluoromethane (Surr)	151 ug/mL
							Fluorobenzene (IS)	252.2 ug/mL
							TBA-d9 (IS)	5038.2 ug/mL
							Toluene-d8 (Surr)	150.6 ug/mL
SURR/IS/TFT_00024	09/11/15	06/08/15	blk, Lot voarsurr/is_00018	5.02 mL	V-TFTStk_00025	20 uL	Trifluorotoluene (Surr)	39.8247 ppm
					VOARSURR/IS_00018	5 mL	1,2-Dichloroethane-d4 (Surr)	150 ppm
							1,4-Dichlorobenzene-d4	250.697 ppm
							4-Bromofluorobenzene (Surr)	150.199 ppm
							Chlorobenzene-d5	250.598 ppm
							Dibromofluoromethane (Surr)	150.199 ppm
							Fluorobenzene (IS)	250.996 ppm
TBA-d9 (IS)	5021.91 ppm							
Toluene-d8 (Surr)	150.398 ppm							
.V-TFTStk_00025	09/11/15	05/04/15	methanol, Lot 0000038701	50 mL	TFTneat_00009	420 uL	Trifluorotoluene (Surr)	9996 mg/L
..TFTneat_00009	09/11/15	Sigma-Aldrich, Lot STBD8875V			(Purchased Reagent)		Trifluorotoluene (Surr)	1190000 mg/L
.VOARSURR/IS_00018	02/29/20	Restek, Lot A0108756			(Purchased Reagent)		1,2-Dichloroethane-d4 (Surr)	150.6 ug/mL
							1,4-Dichlorobenzene-d4	251.7 ug/mL
							4-Bromofluorobenzene (Surr)	150.8 ug/mL
							Chlorobenzene-d5	251.6 ug/mL
							Dibromofluoromethane (Surr)	150.8 ug/mL
							Fluorobenzene (IS)	252 ug/mL
							TBA-d9 (IS)	5042 ug/mL
							Toluene-d8 (Surr)	151 ug/mL
SURR/IS/TFT_00035	02/28/16	08/31/15	blk, Lot voarsurr/is_00021	25.1 mL	VOARSURR/IS_00021	25 mL	1,4-Dichlorobenzene-d4	249.9 ppm
							Chlorobenzene-d5	250.598 ppm
							Fluorobenzene (IS)	250.199 ppm
.VOARSURR/IS_00021	05/20/20	Restek, Lot A0111222			(Purchased Reagent)		1,4-Dichlorobenzene-d4	250.9 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Seattle

Job No.: 580-57365-1

SDG No.: _____

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
							Chlorobenzene-d5	251.6 ug/mL
							Fluorobenzene (IS)	251.2 ug/mL
SURR/IS/TFT_00035	02/28/16	08/31/15	blk, Lot voarsurr/is_00021	25.1 mL	V-TFTStk_00026	100 uL	Trifluorotoluene (Surr)	39.8247 ppm
					VOARSURR/IS_00021	25 mL	1,2-Dichloroethane-d4 (Surr)	149.701 ppm
							4-Bromofluorobenzene (Surr)	150.498 ppm
							Dibromofluoromethane (Surr)	149.602 ppm
							Toluene-d8 (Surr)	150 ppm
.V-TFTStk_00026	02/28/16	08/31/15	methanol, Lot 0000099494	50 mL	TFTneat_00010	420 uL	Trifluorotoluene (Surr)	9996 mg/L
..TFTneat_00010	05/05/16		Sigma-Aldrich, Lot STBD8875V		(Purchased Reagent)		Trifluorotoluene (Surr)	1190000 mg/L
.VOARSURR/IS_00021	05/20/20		Restek, Lot A0111222		(Purchased Reagent)		1,2-Dichloroethane-d4 (Surr)	150.3 ug/mL
							4-Bromofluorobenzene (Surr)	151.1 ug/mL
							Dibromofluoromethane (Surr)	150.2 ug/mL
							Toluene-d8 (Surr)	150.6 ug/mL
VOAGASweekly_00008	03/11/15	03/04/15	methanol, Lot 0000062345	50 mL	VOARGAS__00004	1250 uL	Bromomethane	50.0025 mg/L
							Chloroethane	50 mg/L
							Chloromethane	49.995 mg/L
							Dichlorodifluoromethane	50 mg/L
							Trichlorofluoromethane	49.9975 mg/L
							Vinyl chloride	50.0025 mg/L
.VOARGAS__00004	09/30/16		Restek, Lot A0105755		(Purchased Reagent)		Bromomethane	2000.1 ug/mL
							Chloroethane	2000 ug/mL
							Chloromethane	1999.8 ug/mL
							Dichlorodifluoromethane	2000 ug/mL
							Trichlorofluoromethane	1999.9 ug/mL
							Vinyl chloride	2000.1 ug/mL
VOAGASweekly_00067	02/29/16	02/22/16	methanol, Lot 0000085233	2 mL	VOAGASNOTFTPT_00007	2 mL	Vinyl chloride	50.306 mg/L
.VOAGASNOTFTPT_00007	05/27/16	11/12/15	methanol, Lot 0000099494	50 mL	VOARGAS__00006	1000 uL	Vinyl chloride	50.306 mg/L
..VOARGAS_00006	01/31/18		Restek, Lot A0108198		(Purchased Reagent)		Vinyl chloride	2515.3 ug/mL
VOASECGAS2_00007	05/18/15	11/18/14	methanol, Lot 0000062345	50 mL	VOAGAS2__00003	1250 uL	Vinyl chloride	50.0025 ug/mL
.VOAGAS2_00003	11/30/15		Restek, Lot A099261		(Purchased Reagent)		Vinyl chloride	2000.1 ug/mL
VOASECLIQ2_00019	06/10/15	03/09/15	methanol, Lot 0000085233	10 mL	VOASMegMix2__00006	250 uL	1,1-Dichloroethene	50 ug/mL
							cis-1,2-Dichloroethene	50 ug/mL
							Tetrachloroethene	50 ug/mL
							trans-1,2-Dichloroethene	50 ug/mL
							Trichloroethene	50 ug/mL
.VOASMegMix2__00006	02/29/16		Restek, Lot A093733		(Purchased Reagent)		1,1-Dichloroethene	2000 mg/L
							cis-1,2-Dichloroethene	2000 mg/L
							Tetrachloroethene	2000 mg/L
							trans-1,2-Dichloroethene	2000 mg/L
							Trichloroethene	2000 mg/L

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Seattle

Job No.: 580-57365-1

SDG No.: _____

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
VOASTDACROVA_00002	05/31/15	03/06/15	Methanol, Lot 0000085233	50 mL	VOARAcrolein_00014	750 uL	Acrolein	296.505 ug/mL
					VOARVA_00011	1250 uL	Vinyl acetate	125 ug/mL
.VOARAcrolein_00014	05/31/15		Restek, Lot A0108734		(Purchased Reagent)		Acrolein	19767 ug/mL
.VOARVA_00011	07/31/15		Restek, Lot A0108225		(Purchased Reagent)		Vinyl acetate	5000 ug/mL
VOASTDADDEPT_00012	03/31/15	02/19/15	methanol, Lot 0000085233	50 mL	VOARADDCOM_00004	1250 uL	1,3,5-Trichlorobenzene	50 ug/mL
							Tert-amyl methyl ether	50 ug/mL
							Tert-butyl ethyl ether	50 ug/mL
.VOARADDCOM_00004	03/31/15		Restek, Lot A097910		(Purchased Reagent)		1,3,5-Trichlorobenzene	2000 ug/mL
							Tert-amyl methyl ether	2000 ug/mL
							Tert-butyl ethyl ether	2000 ug/mL
VOASTDLIQPT_00024	06/10/15	02/13/15	methanol, Lot 0000062345	50 mL	VOAR2CEVE_00001	1250 uL	2-Chloroethyl vinyl ether	50 ug/mL
					VOARKETON_00004	1000 uL	2-Butanone (MEK)	200 ug/mL
							2-Hexanone	200 ug/mL
							4-Methyl-2-pentanone (MIBK)	200 ug/mL
					VOARMegMix_00009	1250 uL	Acetone	200 ug/mL
							1,1,1,2-Tetrachloroethane	50 ug/mL
							1,1,1-Trichloroethane	50 ug/mL
							1,1,2,2-Tetrachloroethane	50 ug/mL
							1,1,2-Trichloro-1,2,2-trifluoroethane	49.9975 ug/mL
							1,1,2-Trichloroethane	50 ug/mL
							1,1-Dichloroethane	50 ug/mL
							1,1-Dichloroethene	50 ug/mL
							1,1-Dichloropropene	50 ug/mL
							1,2,3-Trichlorobenzene	50 ug/mL
							1,2,3-Trichloropropane	50 ug/mL
							1,2,4-Trichlorobenzene	50 ug/mL
							1,2,4-Trimethylbenzene	50 ug/mL
							1,2-Dibromo-3-Chloropropane	50 ug/mL
							1,2-Dichlorobenzene	50 ug/mL
							1,2-Dichloroethane	50 ug/mL
							1,2-Dichloropropane	50 ug/mL
							1,3,5-Trimethylbenzene	50 ug/mL
							1,3-Dichlorobenzene	50 ug/mL
							1,3-Dichloropropane	50 ug/mL
							1,4-Dichlorobenzene	50 ug/mL
							2,2-Dichloropropane	50 ug/mL
							2-Chlorotoluene	50 ug/mL
							2-Methyl-2-propanol	500 ug/mL
							4-Chlorotoluene	50 ug/mL
							4-Isopropyltoluene	50 ug/mL
							Acrylonitrile	500 ug/mL
					Benzene	50 ug/mL		
					Bromobenzene	50 ug/mL		
Bromoform	50 ug/mL							

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Seattle

Job No.: 580-57365-1

SDG No.: _____

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
							Carbon disulfide	50 ug/mL
							Carbon tetrachloride	50 ug/mL
							Chlorobenzene	50 ug/mL
							Chlorobromomethane	50 ug/mL
							Chlorodibromomethane	50 ug/mL
							Chloroform	50 ug/mL
							cis-1,2-Dichloroethene	50 ug/mL
							cis-1,3-Dichloropropene	50 ug/mL
							Dibromomethane	50 ug/mL
							Dichlorobromomethane	50 ug/mL
							Ethylbenzene	50 ug/mL
							Ethylene Dibromide	50 ug/mL
							Hexachlorobutadiene	50 ug/mL
							Hexane	50 ug/mL
							Iodomethane	50 ug/mL
							Isopropylbenzene	50 ug/mL
							m-Xylene & p-Xylene	50 ug/mL
							Methyl tert-butyl ether	50 ug/mL
							Methylene Chloride	50 ug/mL
							n-Butylbenzene	50 ug/mL
							N-Propylbenzene	50 ug/mL
							Naphthalene	50 ug/mL
							o-Xylene	50 ug/mL
							sec-Butylbenzene	50 ug/mL
							Styrene	50 ug/mL
							tert-Butylbenzene	50 ug/mL
							Tetrachloroethene	50 ug/mL
							Toluene	50 ug/mL
							trans-1,2-Dichloroethene	50 ug/mL
							trans-1,3-Dichloropropene	50 ug/mL
							trans-1,4-Dichloro-2-butene	50 ug/mL
							Trichloroethene	50 ug/mL
.VOAR2CEVE_00001	02/29/16		Restek, Lot A093368		(Purchased Reagent)		2-Chloroethyl vinyl ether	2000 ug/mL
.VOARKETON__00004	02/29/16		Restek, Lot A093365		(Purchased Reagent)		2-Butanone (MEK)	10000 ug/mL
							2-Hexanone	10000 ug/mL
							4-Methyl-2-pentanone (MIBK)	10000 ug/mL
							Acetone	10000 ug/mL
.VOARMegMix__00009	02/29/16		Restek, Lot A093581		(Purchased Reagent)		1,1,1,2-Tetrachloroethane	2000 mg/L
							1,1,1-Trichloroethane	2000 mg/L
							1,1,2,2-Tetrachloroethane	2000 mg/L
							1,1,2-Trichloro-1,2,2-trifluoroethane	1999.9 mg/L
							1,1,2-Trichloroethane	2000 mg/L
							1,1-Dichloroethane	2000 mg/L
							1,1-Dichloroethene	2000 mg/L
							1,1-Dichloropropene	2000 mg/L
							1,2,3-Trichlorobenzene	2000 mg/L
							1,2,3-Trichloropropane	2000 mg/L

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Seattle

Job No.: 580-57365-1

SDG No.: _____

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
							1,2,4-Trichlorobenzene	2000 mg/L
							1,2,4-Trimethylbenzene	2000 mg/L
							1,2-Dibromo-3-Chloropropane	2000 mg/L
							1,2-Dichlorobenzene	2000 mg/L
							1,2-Dichloroethane	2000 mg/L
							1,2-Dichloropropane	2000 mg/L
							1,3,5-Trimethylbenzene	2000 mg/L
							1,3-Dichlorobenzene	2000 mg/L
							1,3-Dichloropropane	2000 mg/L
							1,4-Dichlorobenzene	2000 mg/L
							2,2-Dichloropropane	2000 mg/L
							2-Chlorotoluene	2000 mg/L
							2-Methyl-2-propanol	20000 mg/L
							4-Chlorotoluene	2000 mg/L
							4-Isopropyltoluene	2000 mg/L
							Acrylonitrile	20000 mg/L
							Benzene	2000 mg/L
							Bromobenzene	2000 mg/L
							Bromoform	2000 mg/L
							Carbon disulfide	2000 mg/L
							Carbon tetrachloride	2000 mg/L
							Chlorobenzene	2000 mg/L
							Chlorobromomethane	2000 mg/L
							Chlorodibromomethane	2000 mg/L
							Chloroform	2000 mg/L
							cis-1,2-Dichloroethene	2000 mg/L
							cis-1,3-Dichloropropene	2000 mg/L
							Dibromomethane	2000 mg/L
							Dichlorobromomethane	2000 mg/L
							Ethylbenzene	2000 mg/L
							Ethylene Dibromide	2000 mg/L
							Hexachlorobutadiene	2000 mg/L
							Hexane	2000 mg/L
							Iodomethane	2000 mg/L
							Isopropylbenzene	2000 mg/L
							m-Xylene & p-Xylene	2000 mg/L
							Methyl tert-butyl ether	2000 mg/L
							Methylene Chloride	2000 mg/L
							n-Butylbenzene	2000 mg/L
							N-Propylbenzene	2000 mg/L
							Naphthalene	2000 mg/L
							o-Xylene	2000 mg/L
							sec-Butylbenzene	2000 mg/L
							Styrene	2000 mg/L
							tert-Butylbenzene	2000 mg/L
							Tetrachloroethene	2000 mg/L
							Toluene	2000 mg/L
							trans-1,2-Dichloroethene	2000 mg/L

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Seattle Job No.: 580-57365-1

SDG No.: _____

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
							trans-1,3-Dichloropropene	2000 mg/L
							trans-1,4-Dichloro-2-butene	2000 mg/L
							Trichloroethene	2000 mg/L
VOASTDLIQPT_00027	02/29/16	11/11/15	methanol, Lot 0000062345	50 mL	VOARMegMix__00010	1000 uL	1,1-Dichloroethene	50.426 ug/mL
							cis-1,2-Dichloroethene	50.078 ug/mL
							Tetrachloroethene	50.13 ug/mL
							trans-1,2-Dichloroethene	50.1 ug/mL
							Trichloroethene	50.096 ug/mL
.VOARMegMix__00010	01/31/17		Restek, Lot A0108166		(Purchased Reagent)		1,1-Dichloroethene	2521.3 mg/L
							cis-1,2-Dichloroethene	2503.9 mg/L
							Tetrachloroethene	2506.5 mg/L
							trans-1,2-Dichloroethene	2505 mg/L
							Trichloroethene	2504.8 mg/L

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Spokane Job No.: 580-57365-1

SDG No.: _____

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
GEN_IC_CAL_00009	07/22/16	02/17/16	DI Water, Lot NA	25 mL	GEN_IC_CCV1_00008	10 mL	Chloride	100 ug/mL
							Fluoride	40 ug/mL
							Sulfate	100 ug/mL
.GEN_IC_CCV1_00008	07/22/16	02/02/16	DI Water, Lot NA	100 mL	GEN_IC_P1_00002	5 mL	Chloride	250 ug/mL
							Fluoride	100 ug/mL
							Sulfate	250 ug/mL
..GEN_IC_P1_00002	07/22/16	Environmental Express, Lot 1520241			(Purchased Reagent)		Chloride	5000 ug/mL
							Fluoride	2000 ug/mL
							Sulfate	5000 ug/mL
GEN_IC_CCV1_00008	07/22/16	02/02/16	DI Water, Lot NA	100 mL	GEN_IC_P1_00002	5 mL	Sulfate	250 ug/mL
.GEN_IC_P1_00002	07/22/16	Environmental Express, Lot 1520241			(Purchased Reagent)		Sulfate	5000 ug/mL

Certification Summary

Client: GeoEngineers Inc
Project/Site: 318 State AVE NE (WA)

TestAmerica Job ID: 580-57365-1

Laboratory	Authority	Program	EPA Region	Certification ID
TestAmerica Seattle	Alaska (UST)	State Program	10	UST-022
TestAmerica Seattle	California	State Program	9	2901
TestAmerica Seattle	L-A-B	DoD ELAP		L2236
TestAmerica Seattle	L-A-B	ISO/IEC 17025		L2236
TestAmerica Seattle	Montana (UST)	State Program	8	N/A
TestAmerica Seattle	Oregon	NELAP	10	WA100007
TestAmerica Seattle	USDA	Federal		P330-14-00126
TestAmerica Spokane	Alaska (UST)	State Program	10	UST-071
TestAmerica Spokane	Washington	State Program	10	C569

Accreditation may not be offered or required for all methods and analytes reported in this package. Please contact your project manager for the laboratory's current list of certified methods and analytes.

Method 8260B Low Level

Volatile Organic Compounds (GC/MS)
by Method 8260B Low Level

FORM II
GC/MS VOA SURROGATE RECOVERY

Lab Name: TestAmerica Seattle Job No.: 580-57365-1

SDG No.: _____

Matrix: Water Level: Low

GC Column (1): ZB-624short ID: 0.18 (mm)

Client Sample ID	Lab Sample ID	DBFM #	DCA #	TFT #	TOL #	BFB #
MW3-160217-W	580-57365-1	91	99	101	105	93
MW16-160217-W	580-57365-2	92	101	96	104	93
MW18-160217-W	580-57365-3	91	99	98	103	93
MW19-160217-W	580-57365-4	93	99	100	104	93
DUP1-160217-W	580-57365-5	94	102	103	105	91
Trip Blank-160217	580-57365-6	90	98	94	103	95
	MB 580-211854/4	91	95	97	104	93
	LCS 580-211854/5	92	97	94	102	90
	LCSD 580-211854/6	92	97	98	104	92
MW18-160217-W MS	580-57365-3 MS	95	101	96	104	93
MW18-160217-W MSD	580-57365-3 MSD	91	98	99	103	91

DBFM = Dibromofluoromethane (Surr)
DCA = 1,2-Dichloroethane-d4 (Surr)
TFT = Trifluorotoluene (Surr)
TOL = Toluene-d8 (Surr)
BFB = 4-Bromofluorobenzene (Surr)

QC LIMITS

85-115
70-128
80-127
75-125
75-120

Column to be used to flag recovery values

FORM III
GC/MS VOA LAB CONTROL SAMPLE RECOVERY

Lab Name: TestAmerica Seattle Job No.: 580-57365-1

SDG No.: _____

Matrix: Water Level: Low Lab File ID: B242031.D

Lab ID: LCS 580-211854/5 Client ID: _____

COMPOUND	SPIKE ADDED (ug/L)	LCS CONCENTRATION (ug/L)	LCS % REC	QC LIMITS REC	#
cis-1,2-Dichloroethene	5.01	4.68	93	80-130	
1,1-Dichloroethene	5.04	4.55	90	70-150	
Tetrachloroethene	5.01	4.64	92	40-180	
trans-1,2-Dichloroethene	5.01	4.67	93	80-140	
Trichloroethene	5.01	4.65	93	80-130	
Vinyl chloride	5.03	4.49	89	65-140	

Column to be used to flag recovery and RPD values

FORM III
GC/MS VOA LAB CONTROL SAMPLE DUPLICATE RECOVERY

Lab Name: TestAmerica Seattle Job No.: 580-57365-1
 SDG No.: _____
 Matrix: Water Level: Low Lab File ID: B242032.D
 Lab ID: LCSD 580-211854/6 Client ID: _____

COMPOUND	SPIKE ADDED (ug/L)	LCSD CONCENTRATION (ug/L)	LCSD % REC	% RPD	QC LIMITS		#
					RPD	REC	
cis-1,2-Dichloroethene	5.01	4.72	94	1	20	80-130	
1,1-Dichloroethene	5.04	4.64	92	2	20	70-150	
Tetrachloroethene	5.01	4.82	96	4	20	40-180	
trans-1,2-Dichloroethene	5.01	4.76	95	2	20	80-140	
Trichloroethene	5.01	4.70	94	1	20	80-130	
Vinyl chloride	5.03	4.67	93	4	20	65-140	

Column to be used to flag recovery and RPD values

FORM III
GC/MS VOA MATRIX SPIKE RECOVERY

Lab Name: TestAmerica Seattle Job No.: 580-57365-1

SDG No.: _____

Matrix: Water Level: Low Lab File ID: B242038.D

Lab ID: 580-57365-3 MS Client ID: MW18-160217-W MS

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	MS CONCENTRATION (ug/L)	MS % REC	QC LIMITS REC	#
cis-1,2-Dichloroethene	5.01	0.26	5.21	99	71-144	
1,1-Dichloroethene	5.04	ND	4.74	94	78-151	
Tetrachloroethene	5.01	ND	5.34	107	64-161	
trans-1,2-Dichloroethene	5.01	0.26	5.36	102	73-135	
Trichloroethene	5.01	0.48	5.53	101	79-131	
Vinyl chloride	5.03	1.5	6.98	108	47-160	

Column to be used to flag recovery and RPD values

FORM III
GC/MS VOA MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: TestAmerica Seattle Job No.: 580-57365-1

SDG No.: _____

Matrix: Water Level: Low Lab File ID: B242039.D

Lab ID: 580-57365-3 MSD Client ID: MW18-160217-W MSD

COMPOUND	SPIKE ADDED (ug/L)	MSD CONCENTRATION (ug/L)	MSD % REC	% RPD	QC LIMITS		#
					RPD	REC	
cis-1,2-Dichloroethene	5.01	5.25	100	1	20	71-144	
1,1-Dichloroethene	5.04	5.28	105	11	30	78-151	
Tetrachloroethene	5.01	5.45	109	2	20	64-161	
trans-1,2-Dichloroethene	5.01	5.50	105	3	20	73-135	
Trichloroethene	5.01	5.86	107	6	30	79-131	
Vinyl chloride	5.03	7.06	110	1	20	47-160	

Column to be used to flag recovery and RPD values

FORM IV
GC/MS VOA METHOD BLANK SUMMARY

Lab Name: TestAmerica Seattle Job No.: 580-57365-1
 SDG No.: _____
 Lab File ID: B242030.D Lab Sample ID: MB 580-211854/4
 Matrix: Water Heated Purge: (Y/N) N
 Instrument ID: SEA015 Date Analyzed: 02/24/2016 09:49
 GC Column: ZB-624short ID: 0.18 (mm)

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES:

CLIENT SAMPLE ID	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
	LCS 580-211854/5	B242031.D	02/24/2016 10:17
	LCSD 580-211854/6	B242032.D	02/24/2016 10:44
Trip Blank-160217	580-57365-6	B242036.D	02/24/2016 12:32
MW18-160217-W	580-57365-3	B242037.D	02/24/2016 12:59
MW18-160217-W MS	580-57365-3 MS	B242038.D	02/24/2016 13:26
MW18-160217-W MSD	580-57365-3 MSD	B242039.D	02/24/2016 13:53
MW3-160217-W	580-57365-1	B242040.D	02/24/2016 14:24
MW16-160217-W	580-57365-2	B242041.D	02/24/2016 14:51
MW19-160217-W	580-57365-4	B242042.D	02/24/2016 15:17
DUP1-160217-W	580-57365-5	B242043.D	02/24/2016 15:44

FORM V
GC/MS VOA INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: TestAmerica Seattle Job No.: 580-57365-1
 SDG No.: _____
 Lab File ID: I0346374.D BFB Injection Date: 03/09/2015
 Instrument ID: SEA015 BFB Injection Time: 15:05
 Analysis Batch No.: 183987

M/E	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE	
50	15.0 - 40.0 % of mass 95	19.0	
75	30.0 - 60.0 % of mass 95	50.3	
95	Base Peak, 100% relative abundance	100.0	
96	5.0 - 9.0 % of mass 95	6.7	
173	Less than 2.0 % of mass 174	0.0	(0.0) 1
174	50.0 - 120.00 % of mass 95	88.0	
175	5.0 - 9.0 % of mass 174	6.2	(7.1) 1
176	95.0 - 101.0 % of mass 174	86.0	(97.7) 1
177	5.0 - 9.0 % of mass 176	5.6	(6.5) 2

1-Value is % mass 174

2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS AND STANDARDS:

CLIENT SAMPLE ID	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
	STD0.02	I0346375.D	03/09/2015	15:32
	STD0.1	I0346376.D	03/09/2015	15:59
	STD0.2	I0346377.D	03/09/2015	16:26
	STD0.4	I0346378.D	03/09/2015	16:53
	STD001 580-183987/7	I0346379.D	03/09/2015	17:20
	STD005 580-183987/8	I0346380.D	03/09/2015	17:47
	ICIS 580-183987/9	I0346381.D	03/09/2015	18:14
	STD025 580-183987/10	I0346382.D	03/09/2015	18:41
	STD050 580-183987/11	I0346383.D	03/09/2015	19:09
	STD050 580-183987/12	I0346384.D	03/09/2015	19:35
	STD080 580-183987/13	I0346385.D	03/09/2015	20:03
	STD080 580-183987/14	I0346386.D	03/09/2015	20:30
	ICV 580-183987/17	I0346389.D	03/09/2015	21:51

FORM V
GC/MS VOA INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: TestAmerica Seattle Job No.: 580-57365-1
 SDG No.: _____
 Lab File ID: I0346391.D BFB Injection Date: 03/10/2015
 Instrument ID: SEA015 BFB Injection Time: 10:32
 Analysis Batch No.: 183987

M/E	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE	
50	15.0 - 40.0 % of mass 95	18.2	
75	30.0 - 60.0 % of mass 95	48.6	
95	Base Peak, 100% relative abundance	100.0	
96	5.0 - 9.0 % of mass 95	6.6	
173	Less than 2.0 % of mass 174	0.0	(0.0) 1
174	50.0 - 120.00 % of mass 95	84.1	
175	5.0 - 9.0 % of mass 174	6.1	(7.3) 1
176	95.0 - 101.0 % of mass 174	82.8	(98.4) 1
177	5.0 - 9.0 % of mass 176	5.7	(6.9) 2

1-Value is % mass 174

2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS AND STANDARDS:

CLIENT SAMPLE ID	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
	ICV 580-183987/20	I0346392.D	03/10/2015	11:00

FORM V
GC/MS VOA INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: TestAmerica Seattle Job No.: 580-57365-1
 SDG No.: _____
 Lab File ID: I0347764.D BFB Injection Date: 06/18/2015
 Instrument ID: SEA015 BFB Injection Time: 17:03
 Analysis Batch No.: 192575

M/E	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE	
50	15.0 - 40.0 % of mass 95	18.4	
75	30.0 - 60.0 % of mass 95	53.6	
95	Base Peak, 100% relative abundance	100.0	
96	5.0 - 9.0 % of mass 95	6.9	
173	Less than 2.0 % of mass 174	0.0	(0.0) 1
174	50.0 - 120.00 % of mass 95	92.1	
175	5.0 - 9.0 % of mass 174	6.6	(7.2) 1
176	95.0 - 101.0 % of mass 174	91.5	(99.4) 1
177	5.0 - 9.0 % of mass 176	6.0	(6.5) 2

1-Value is % mass 174

2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS AND STANDARDS:

CLIENT SAMPLE ID	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
	IC 580-192575/2	I0347765.D	06/18/2015	17:29
	IC 580-192575/3	I0347766.D	06/18/2015	17:56
	ICIS 580-192575/4	I0347767.D	06/18/2015	18:22
	IC 580-192575/5	I0347768.D	06/18/2015	18:48
	IC 580-192575/6	I0347769.D	06/18/2015	19:15

FORM V
GC/MS VOA INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: TestAmerica Seattle Job No.: 580-57365-1
 SDG No.: _____
 Lab File ID: B242027.D BFB Injection Date: 02/24/2016
 Instrument ID: SEA015 BFB Injection Time: 08:25
 Analysis Batch No.: 211854

M/E	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE	
50	15.0 - 40.0 % of mass 95	19.8	
75	30.0 - 60.0 % of mass 95	49.0	
95	Base Peak, 100% relative abundance	100.0	
96	5.0 - 9.0 % of mass 95	6.6	
173	Less than 2.0 % of mass 174	0.0	(0.0) 1
174	50.0 - 120.00 % of mass 95	83.3	
175	5.0 - 9.0 % of mass 174	6.5	(7.8) 1
176	95.0 - 101.0 % of mass 174	81.7	(98.0) 1
177	5.0 - 9.0 % of mass 176	5.5	(6.7) 2

1-Value is % mass 174

2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS AND STANDARDS:

CLIENT SAMPLE ID	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
	CCVIS 580-211854/2	B242028.D	02/24/2016	08:53
	MB 580-211854/4	B242030.D	02/24/2016	09:49
	LCS 580-211854/5	B242031.D	02/24/2016	10:17
	LCSD 580-211854/6	B242032.D	02/24/2016	10:44
Trip Blank-160217	580-57365-6	B242036.D	02/24/2016	12:32
MW18-160217-W	580-57365-3	B242037.D	02/24/2016	12:59
MW18-160217-W MS	580-57365-3 MS	B242038.D	02/24/2016	13:26
MW18-160217-W MSD	580-57365-3 MSD	B242039.D	02/24/2016	13:53
MW3-160217-W	580-57365-1	B242040.D	02/24/2016	14:24
MW16-160217-W	580-57365-2	B242041.D	02/24/2016	14:51
MW19-160217-W	580-57365-4	B242042.D	02/24/2016	15:17
DUP1-160217-W	580-57365-5	B242043.D	02/24/2016	15:44

FORM VIII
GC/MS VOA INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: TestAmerica Seattle Job No.: 580-57365-1
 SDG No.: _____
 Sample No.: ICIS 580-183987/9 Date Analyzed: 03/09/2015 18:14
 Instrument ID: SEA015 GC Column: ZB-624short ID: 0.18 (mm)
 Lab File ID (Standard): I0346381.D Heated Purge: (Y/N) N
 Calibration ID: 19981

	TBA		FB		CBZ		
	AREA #	RT #	AREA #	RT #	AREA #	RT #	
INITIAL CALIBRATION MID-POINT	919116	6.53	2360025	9.45	2142313	12.40	
UPPER LIMIT	1838232	7.03		9.95	4284626	12.90	
LOWER LIMIT	459558	6.03		8.95	1071157	11.90	
LAB SAMPLE ID	CLIENT SAMPLE ID						
ICV 580-183987/17		1101992	6.53	2905533	9.45	2589531	12.40
ICV 580-183987/20		1302671	6.53	2775259	9.45	2434734	12.40
CCVIS 580-211854/2				2300797	9.44	1996782	12.39
LCS 580-211854/5				2170037	9.44	1862032	12.39
LCSD 580-211854/6				2160893	9.44	1832826	12.40
580-57365-6	Trip Blank-160217			2042196	9.44	1716882	12.39
580-57365-3	MW18-160217-W			1929813	9.44	1627887	12.40
580-57365-3 MS	MW18-160217-W MS			1959179	9.44	1665388	12.39
580-57365-3 MSD	MW18-160217-W MSD			2042550	9.44	1740528	12.40
580-57365-1	MW3-160217-W			1910066	9.44	1582700	12.39
580-57365-2	MW16-160217-W			1910369	9.44	1608536	12.39
580-57365-4	MW19-160217-W			1818753	9.45	1529625	12.40
580-57365-5	DUP1-160217-W			1849414	9.44	1526659	12.39

TBA = TBA-d9 (IS)

FB = Fluorobenzene (IS)

CBZ = Chlorobenzene-d5

Area Limit = 50%-200% of internal standard area

RT Limit = ± 0.5 minutes of internal standard RT

Column used to flag values outside QC limits

FORM VIII
GC/MS VOA INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: TestAmerica Seattle Job No.: 580-57365-1
 SDG No.: _____
 Sample No.: ICIS 580-183987/9 Date Analyzed: 03/09/2015 18:14
 Instrument ID: SEA015 GC Column: ZB-624short ID: 0.18 (mm)
 Lab File ID (Standard): I0346381.D Heated Purge: (Y/N) N
 Calibration ID: 19981

		DCB					
		AREA #	RT #	AREA #	RT #	AREA #	RT #
INITIAL CALIBRATION MID-POINT		1374298	14.69				
UPPER LIMIT		2748596	15.19				
LOWER LIMIT		687149	14.19				
LAB SAMPLE ID	CLIENT SAMPLE ID						
ICV 580-183987/17		1634391	14.70				
ICV 580-183987/20		1581999	14.70				
CCVIS 580-211854/2		1218444	14.69				
LCS 580-211854/5		1131675	14.69				
LCSD 580-211854/6		1114968	14.69				
580-57365-6	Trip Blank-160217	1071961	14.69				
580-57365-3	MW18-160217-W	1002804	14.69				
580-57365-3 MS	MW18-160217-W MS	1039562	14.69				
580-57365-3 MSD	MW18-160217-W MSD	1058551	14.69				
580-57365-1	MW3-160217-W	973406	14.69				
580-57365-2	MW16-160217-W	987460	14.69				
580-57365-4	MW19-160217-W	920461	14.68				
580-57365-5	DUP1-160217-W	919760	14.69				

DCB = 1,4-Dichlorobenzene-d4

Area Limit = 50%-200% of internal standard area
 RT Limit = ± 0.5 minutes of internal standard RT

Column used to flag values outside QC limits

FORM VIII
GC/MS VOA INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: TestAmerica Seattle Job No.: 580-57365-1
 SDG No.: _____
 Sample No.: CCVIS 580-211854/2 Date Analyzed: 02/24/2016 08:53
 Instrument ID: SEA015 GC Column: ZB-624short ID: 0.18 (mm)
 Lab File ID (Standard): B242028.D Heated Purge: (Y/N) N
 Calibration ID: 20552

	FB		CBZ		DCB		
	AREA #	RT #	AREA #	RT #	AREA #	RT #	
12/24 HOUR STD	2300797	9.44	1996782	12.39	1218444	14.69	
UPPER LIMIT		9.94	3993564	12.89	2436888	15.19	
LOWER LIMIT		8.94	998391	11.89	609222	14.19	
LAB SAMPLE ID	CLIENT SAMPLE ID						
MB 580-211854/4		2162277	9.44	1827971	12.39	1133382	14.69
LCS 580-211854/5		2170037	9.44	1862032	12.39	1131675	14.69
LCSD 580-211854/6		2160893	9.44	1832826	12.40	1114968	14.69
580-57365-6	Trip Blank-160217	2042196	9.44	1716882	12.39	1071961	14.69
580-57365-3	MW18-160217-W	1929813	9.44	1627887	12.40	1002804	14.69
580-57365-3 MS	MW18-160217-W MS	1959179	9.44	1665388	12.39	1039562	14.69
580-57365-3 MSD	MW18-160217-W MSD	2042550	9.44	1740528	12.40	1058551	14.69
580-57365-1	MW3-160217-W	1910066	9.44	1582700	12.39	973406	14.69
580-57365-2	MW16-160217-W	1910369	9.44	1608536	12.39	987460	14.69
580-57365-4	MW19-160217-W	1818753	9.45	1529625	12.40	920461	14.68
580-57365-5	DUP1-160217-W	1849414	9.44	1526659	12.39	919760	14.69

FB = Fluorobenzene (IS)
 CBZ = Chlorobenzene-d5
 DCB = 1,4-Dichlorobenzene-d4

Area Limit = 50%-200% of internal standard area
 RT Limit = ± 0.5 minutes of internal standard RT

Column used to flag values outside QC limits

FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Seattle Job No.: 580-57365-1
 SDG No.: _____
 Client Sample ID: MW3-160217-W Lab Sample ID: 580-57365-1
 Matrix: Water Lab File ID: B242040.D
 Analysis Method: 8260B Date Collected: 02/17/2016 14:30
 Sample wt/vol: 10 (mL) Date Analyzed: 02/24/2016 14:24
 Soil Aliquot Vol: _____ Dilution Factor: 1
 Soil Extract Vol.: _____ GC Column: ZB-624short ID: 0.18 (mm)
 % Moisture: _____ Level: (low/med) Low
 Analysis Batch No.: 211854 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	RL
156-59-2	cis-1,2-Dichloroethene	0.41		0.20	0.20
75-35-4	1,1-Dichloroethene	ND		0.10	0.10
127-18-4	Tetrachloroethene	ND		0.50	0.50
156-60-5	trans-1,2-Dichloroethene	ND		0.20	0.20
79-01-6	Trichloroethene	4.0		0.20	0.20
75-01-4	Vinyl chloride	0.19		0.020	0.020

CAS NO.	SURROGATE	%REC	Q	LIMITS
460-00-4	4-Bromofluorobenzene (Surr)	93		75-120
98-08-8	Trifluorotoluene (Surr)	101		80-127
2037-26-5	Toluene-d8 (Surr)	105		75-125
1868-53-7	Dibromofluoromethane (Surr)	91		85-115
17060-07-0	1,2-Dichloroethane-d4 (Surr)	99		70-128

FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Seattle Job No.: 580-57365-1
 SDG No.: _____
 Client Sample ID: MW16-160217-W Lab Sample ID: 580-57365-2
 Matrix: Water Lab File ID: B242041.D
 Analysis Method: 8260B Date Collected: 02/17/2016 12:20
 Sample wt/vol: 10 (mL) Date Analyzed: 02/24/2016 14:51
 Soil Aliquot Vol: _____ Dilution Factor: 1
 Soil Extract Vol.: _____ GC Column: ZB-624short ID: 0.18 (mm)
 % Moisture: _____ Level: (low/med) Low
 Analysis Batch No.: 211854 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	RL
156-59-2	cis-1,2-Dichloroethene	ND		0.20	0.20
75-35-4	1,1-Dichloroethene	ND		0.10	0.10
127-18-4	Tetrachloroethene	ND		0.50	0.50
156-60-5	trans-1,2-Dichloroethene	ND		0.20	0.20
79-01-6	Trichloroethene	0.23		0.20	0.20
75-01-4	Vinyl chloride	ND		0.020	0.020

CAS NO.	SURROGATE	%REC	Q	LIMITS
460-00-4	4-Bromofluorobenzene (Surr)	93		75-120
98-08-8	Trifluorotoluene (Surr)	96		80-127
2037-26-5	Toluene-d8 (Surr)	104		75-125
1868-53-7	Dibromofluoromethane (Surr)	92		85-115
17060-07-0	1,2-Dichloroethane-d4 (Surr)	101		70-128

FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Seattle Job No.: 580-57365-1
 SDG No.: _____
 Client Sample ID: MW18-160217-W Lab Sample ID: 580-57365-3
 Matrix: Water Lab File ID: B242037.D
 Analysis Method: 8260B Date Collected: 02/17/2016 13:35
 Sample wt/vol: 10 (mL) Date Analyzed: 02/24/2016 12:59
 Soil Aliquot Vol: _____ Dilution Factor: 1
 Soil Extract Vol.: _____ GC Column: ZB-624short ID: 0.18 (mm)
 % Moisture: _____ Level: (low/med) Low
 Analysis Batch No.: 211854 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	RL
156-59-2	cis-1,2-Dichloroethene	0.26		0.20	0.20
75-35-4	1,1-Dichloroethene	ND		0.10	0.10
127-18-4	Tetrachloroethene	ND		0.50	0.50
156-60-5	trans-1,2-Dichloroethene	0.26		0.20	0.20
79-01-6	Trichloroethene	0.48		0.20	0.20
75-01-4	Vinyl chloride	1.5		0.020	0.020

CAS NO.	SURROGATE	%REC	Q	LIMITS
460-00-4	4-Bromofluorobenzene (Surr)	93		75-120
98-08-8	Trifluorotoluene (Surr)	98		80-127
2037-26-5	Toluene-d8 (Surr)	103		75-125
1868-53-7	Dibromofluoromethane (Surr)	91		85-115
17060-07-0	1,2-Dichloroethane-d4 (Surr)	99		70-128

FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Seattle Job No.: 580-57365-1
 SDG No.: _____
 Client Sample ID: MW19-160217-W Lab Sample ID: 580-57365-4
 Matrix: Water Lab File ID: B242042.D
 Analysis Method: 8260B Date Collected: 02/17/2016 11:20
 Sample wt/vol: 10 (mL) Date Analyzed: 02/24/2016 15:17
 Soil Aliquot Vol: _____ Dilution Factor: 1
 Soil Extract Vol.: _____ GC Column: ZB-624short ID: 0.18 (mm)
 % Moisture: _____ Level: (low/med) Low
 Analysis Batch No.: 211854 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	RL
156-59-2	cis-1,2-Dichloroethene	ND		0.20	0.20
75-35-4	1,1-Dichloroethene	ND		0.10	0.10
127-18-4	Tetrachloroethene	ND		0.50	0.50
156-60-5	trans-1,2-Dichloroethene	ND		0.20	0.20
79-01-6	Trichloroethene	1.7		0.20	0.20
75-01-4	Vinyl chloride	ND		0.020	0.020

CAS NO.	SURROGATE	%REC	Q	LIMITS
460-00-4	4-Bromofluorobenzene (Surr)	93		75-120
98-08-8	Trifluorotoluene (Surr)	100		80-127
2037-26-5	Toluene-d8 (Surr)	104		75-125
1868-53-7	Dibromofluoromethane (Surr)	93		85-115
17060-07-0	1,2-Dichloroethane-d4 (Surr)	99		70-128

FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Seattle Job No.: 580-57365-1
 SDG No.: _____
 Client Sample ID: DUP1-160217-W Lab Sample ID: 580-57365-5
 Matrix: Water Lab File ID: B242043.D
 Analysis Method: 8260B Date Collected: 02/17/2016 13:00
 Sample wt/vol: 10 (mL) Date Analyzed: 02/24/2016 15:44
 Soil Aliquot Vol: _____ Dilution Factor: 1
 Soil Extract Vol.: _____ GC Column: ZB-624short ID: 0.18 (mm)
 % Moisture: _____ Level: (low/med) Low
 Analysis Batch No.: 211854 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	RL
156-59-2	cis-1,2-Dichloroethene	ND		0.20	0.20
75-35-4	1,1-Dichloroethene	ND		0.10	0.10
127-18-4	Tetrachloroethene	ND		0.50	0.50
156-60-5	trans-1,2-Dichloroethene	ND		0.20	0.20
79-01-6	Trichloroethene	0.25		0.20	0.20
75-01-4	Vinyl chloride	ND		0.020	0.020

CAS NO.	SURROGATE	%REC	Q	LIMITS
460-00-4	4-Bromofluorobenzene (Surr)	91		75-120
98-08-8	Trifluorotoluene (Surr)	103		80-127
2037-26-5	Toluene-d8 (Surr)	105		75-125
1868-53-7	Dibromofluoromethane (Surr)	94		85-115
17060-07-0	1,2-Dichloroethane-d4 (Surr)	102		70-128

FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Seattle Job No.: 580-57365-1
 SDG No.: _____
 Client Sample ID: Trip Blank-160217 Lab Sample ID: 580-57365-6
 Matrix: Water Lab File ID: B242036.D
 Analysis Method: 8260B Date Collected: 02/17/2016 00:01
 Sample wt/vol: 10 (mL) Date Analyzed: 02/24/2016 12:32
 Soil Aliquot Vol: _____ Dilution Factor: 1
 Soil Extract Vol.: _____ GC Column: ZB-624short ID: 0.18 (mm)
 % Moisture: _____ Level: (low/med) Low
 Analysis Batch No.: 211854 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	RL
156-59-2	cis-1,2-Dichloroethene	ND		0.20	0.20
75-35-4	1,1-Dichloroethene	ND		0.10	0.10
127-18-4	Tetrachloroethene	ND		0.50	0.50
156-60-5	trans-1,2-Dichloroethene	ND		0.20	0.20
79-01-6	Trichloroethene	ND		0.20	0.20
75-01-4	Vinyl chloride	ND		0.020	0.020

CAS NO.	SURROGATE	%REC	Q	LIMITS
460-00-4	4-Bromofluorobenzene (Surr)	95		75-120
98-08-8	Trifluorotoluene (Surr)	94		80-127
2037-26-5	Toluene-d8 (Surr)	103		75-125
1868-53-7	Dibromofluoromethane (Surr)	90		85-115
17060-07-0	1,2-Dichloroethane-d4 (Surr)	98		70-128

FORM VI
GC/MS VOA BY INTERNAL STANDARD - INITIAL CALIBRATION DATA
CURVE EVALUATION

Lab Name: TestAmerica Seattle Job No.: 580-57365-1 Analy Batch No.: 183987

SDG No.: _____

Instrument ID: SEA015 GC Column: ZB-624short ID: 0.18 (mm) Heated Purge: (Y/N) N

Calibration Start Date: 03/09/2015 15:32 Calibration End Date: 03/09/2015 20:30 Calibration ID: 19981

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	STD0.02	I0346375.D
Level 2	STD0.1	I0346376.D
Level 3	STD0.2	I0346377.D
Level 4	STD0.4	I0346378.D
Level 5	STD001 580-183987/7	I0346379.D
Level 6	STD005 580-183987/8	I0346380.D
Level 7	ICIS 580-183987/9	I0346381.D
Level 8	STD025 580-183987/10	I0346382.D
Level 9	STD050 580-183987/11	I0346383.D
Level 10	STD050 580-183987/12	I0346384.D
Level 11	STD080 580-183987/13	I0346385.D
Level 12	STD080 580-183987/14	I0346386.D

ANALYTE	RRF					CURVE TYPE	COEFFICIENT			#	MIN RRF	%RSD	#	MAX %RSD	R^2 OR COD	#	MIN R^2 OR COD
	LVL 1	LVL 2	LVL 3	LVL 4	LVL 5		B	M1	M2								
	LVL 6 LVL 11	LVL 7 LVL 12	LVL 8	LVL 9	LVL 10												
Dichlorodifluoromethane	++++ 0.4602 ++++	0.4516 0.3786 0.3524	0.3109 0.4124	0.3953 ++++	0.4281 0.4052	Ave		0.3994			11.9		15.0				
Chloromethane	++++ 0.2781 ++++	++++ 0.2436 0.2609	0.4142 0.2572	0.2891 ++++	0.3142 0.2823	Lin2	0.0273	0.2622		0.1000			0.9910		0.9900		
Vinyl chloride	0.3255 0.3363 ++++	0.3752 0.2793 0.2371	0.3376 0.3002	0.3411 ++++	0.3522 0.3192	Ave		0.3204			12.3		15.0				
Bromomethane	++++ 0.2316 ++++	++++ 0.1847 0.1857	++++ 0.1902	0.2377 ++++	0.2647 0.2023	Ave		0.2139			14.5		15.0				
Chloroethane	++++ 0.0786 ++++	++++ 0.0631 0.0744	++++ 0.0676	0.1192 ++++	0.0906 0.0770	Lin2	0.0194	0.0708					0.9930		0.9900		
Acrolein	++++ 0.0158 0.0200	0.0193 0.0207 ++++	0.0234 0.0214	0.0169 0.0212	0.0209 ++++	Ave		0.0200			11.7		15.0				
Trichlorofluoromethane	++++ 0.5950 ++++	0.5573 0.4341 0.4675	0.4002 0.4911	0.5427 ++++	0.4669 0.5430	Ave		0.4998			12.8		15.0				

Note: The m1 coefficient is the same as Ave RRF for an Ave curve type.

FORM VI
GC/MS VOA BY INTERNAL STANDARD - INITIAL CALIBRATION DATA
CURVE EVALUATION

Lab Name: TestAmerica Seattle Job No.: 580-57365-1 Analy Batch No.: 183987

SDG No.: _____

Instrument ID: SEA015 GC Column: ZB-624short ID: 0.18 (mm) Heated Purge: (Y/N) N

Calibration Start Date: 03/09/2015 15:32 Calibration End Date: 03/09/2015 20:30 Calibration ID: 19981

ANALYTE	RRF					CURVE TYPE	COEFFICIENT			#	MIN RRF	%RSD	#	MAX %RSD	R^2 OR COD	#	MIN R^2 OR COD
	LVL 1	LVL 2	LVL 3	LVL 4	LVL 5		B	M1	M2								
	LVL 6	LVL 7	LVL 8	LVL 9	LVL 10												
Acetone	++++ 0.0617 0.0477	0.3505 0.0522 ++++	0.2067 0.0565	0.1282 0.0522	0.0912 ++++	Lin2	0.1198	0.0535						0.9920		0.9900	
1,1-Dichloroethene	++++ 0.2703 0.2562	0.3669 0.2524 ++++	0.3199 0.2667	0.2913 0.2680	0.3023 ++++	Ave		0.2882			12.8		15.0				
2-Methyl-2-propanol	++++ 0.0190 0.0169	++++ 0.0175 ++++	++++ 0.0201	0.0236 0.0192	0.0232 ++++	Ave		0.0199			13.0		15.0				
Acrylonitrile	0.0570 0.0574 0.0498	0.0565 0.0516 ++++	0.0644 0.0583	0.0602 0.0540	0.0639 ++++	Ave		0.0573			8.3		15.0				
Iodomethane	++++ 0.5659 0.4957	0.5551 0.5056 ++++	0.5824 0.5324	0.5807 0.5140	0.5953 ++++	Ave		0.5474			6.7		15.0				
Methylene Chloride	++++ 0.3213 0.2630	++++ 0.2737 ++++	++++ 0.2845	0.3675 0.2687	0.3686 ++++	Ave		0.3068			15.0		15.0				
1,1,2-Trichloro-1,2,2-trifluoroethane	0.2430 0.3016 0.2554	0.3288 0.2657 ++++	0.2884 0.2893	0.3022 0.2774	0.3420 ++++	Ave		0.2894			10.7		15.0				
Carbon disulfide	++++ 0.9009 0.8976	0.8625 0.8220 ++++	0.7416 0.9038	0.8190 0.9050	0.8503 ++++	Ave		0.8559			6.4		15.0				
trans-1,2-Dichloroethene	++++ 0.2856 0.2629	0.3283 0.2572 ++++	0.3304 0.2714	0.2732 0.2645	0.2781 ++++	Ave		0.2835			9.6		15.0				
Methyl tert-butyl ether	0.6402 0.6861 0.6404	0.6752 0.6281 ++++	0.6875 0.7053	0.6675 0.6623	0.6745 ++++	Ave		0.6667			3.7		15.0				
1,1-Dichloroethane	++++ 0.5313 0.4590	0.5653 0.4686 ++++	0.5224 0.4952	0.5706 0.4677	0.5642 ++++	Ave		0.5160		0.1000	8.7		15.0				
Vinyl acetate	++++ 0.0233 0.0281	++++ 0.0282 ++++	++++ 0.0326	0.0193 0.0335	0.0258 ++++	Lin1	-0.014	0.0304						0.9910		0.9900	
n-Hexane	0.3370 0.3187 0.3004	0.2929 0.3079 ++++	0.3194 0.3412	0.2860 0.3351	0.3554 ++++	Ave		0.3194			7.1		15.0				

Note: The m1 coefficient is the same as Ave RRF for an Ave curve type.

FORM VI
GC/MS VOA BY INTERNAL STANDARD - INITIAL CALIBRATION DATA
CURVE EVALUATION

Lab Name: TestAmerica Seattle

Job No.: 580-57365-1

Analy Batch No.: 183987

SDG No.: _____

Instrument ID: SEA015

GC Column: ZB-624short ID: 0.18 (mm)

Heated Purge: (Y/N) N

Calibration Start Date: 03/09/2015 15:32

Calibration End Date: 03/09/2015 20:30

Calibration ID: 19981

ANALYTE	RRF					CURVE TYPE	COEFFICIENT			#	MIN RRF	%RSD	#	MAX %RSD	R ² OR COD	#	MIN R ² OR COD
	LVL 1	LVL 2	LVL 3	LVL 4	LVL 5		B	M1	M2								
	LVL 6	LVL 7	LVL 8	LVL 9	LVL 10												
2-Butanone	++++ 0.0176 0.0180	++++ 0.0183 ++++	0.0174 0.0201	0.0174 0.0197	0.0224 ++++	Ave		0.0189			9.4		15.0				
cis-1,2-Dichloroethene	0.3811 0.3137 0.2857	0.3424 0.2845 ++++	0.3222 0.3038	0.3493 0.2890	0.3226 ++++	Ave		0.3194			9.8		15.0				
Chlorobromomethane	++++ 0.2029 0.1834	0.1903 0.1826 ++++	0.2028 0.1982	0.2126 0.1892	0.2158 ++++	Ave		0.1975			6.1		15.0				
Chloroform	0.7238 0.5980 0.4941	0.6992 0.5334 ++++	0.6051 0.5614	0.6539 0.5183	0.6262 ++++	Ave		0.6013			12.7		15.0				
Tert-butyl ethyl ether	++++ 0.4078 0.3583	0.3458 0.3725 ++++	0.3411 0.3958	0.3585 0.3661	0.3788 ++++	Ave		0.3694			6.0		15.0				
2,2-Dichloropropane	++++ 0.3874 0.2576	0.3832 0.2951 ++++	0.3184 0.3280	0.3605 0.2812	0.3296 ++++	Ave		0.3268			13.7		15.0				
1,2-Dichloroethane	++++ 0.3877 0.3409	0.4563 0.3818 ++++	0.4740 0.3942	0.4401 0.3649	0.4747 ++++	Ave		0.4127			12.0		15.0				
1,1,1-Trichloroethane	++++ 0.5533 0.4281	0.5304 0.4798 ++++	0.4917 0.4966	0.5498 0.4485	0.5311 ++++	Ave		0.5010			8.8		15.0				
1,1-Dichloropropene	++++ 0.3848 0.3674	0.3637 0.3571 ++++	0.3591 0.3857	0.3663 0.3795	0.3783 ++++	Ave		0.3713			2.9		15.0				
Carbon tetrachloride	++++ 0.5033 0.4224	0.4380 0.4469 ++++	0.4759 0.4728	0.4768 0.4517	0.4903 ++++	Ave		0.4642			5.6		15.0				
Benzene	++++ 1.0489 1.0459	1.1790 1.0193 ++++	1.1913 1.0841	1.1107 1.0679	1.1866 ++++	Ave		1.1038			6.0		15.0				
Tert-amyl methyl ether	++++ 0.7117 0.7094	0.5735 0.6656 ++++	0.6250 0.7263	0.5888 0.6963	0.6582 ++++	Ave		0.6616			8.4		15.0				
Dibromomethane	++++ 0.1660 0.1751	0.1669 0.1726 ++++	0.1978 0.1867	0.1797 0.1833	0.1945 ++++	Ave		0.1803			6.3		15.0				

Note: The m1 coefficient is the same as Ave RRF for an Ave curve type.

FORM VI
GC/MS VOA BY INTERNAL STANDARD - INITIAL CALIBRATION DATA
CURVE EVALUATION

Lab Name: TestAmerica Seattle

Job No.: 580-57365-1

Analy Batch No.: 183987

SDG No.: _____

Instrument ID: SEA015

GC Column: ZB-624short ID: 0.18 (mm)

Heated Purge: (Y/N) N

Calibration Start Date: 03/09/2015 15:32

Calibration End Date: 03/09/2015 20:30

Calibration ID: 19981

ANALYTE	RRF					CURVE TYPE	COEFFICIENT			#	MIN RRF	%RSD	#	MAX %RSD	R^2 OR COD	#	MIN R^2 OR COD
	LVL 1	LVL 2	LVL 3	LVL 4	LVL 5		B	M1	M2								
	LVL 6	LVL 7	LVL 8	LVL 9	LVL 10												
1,2-Dichloropropane	++++ 0.2339 0.2485	0.2395 0.2441 ++++	0.2770 0.2505	0.2439 0.2507	0.2805 ++++	Ave		0.2521			6.4		15.0				
Trichloroethene	++++ 0.3233 0.3113	0.3091 0.3091 ++++	0.3337 0.3225	0.3285 0.3153	0.3459 ++++	Ave		0.3221			3.9		15.0				
Dichlorobromomethane	0.4235 0.4009 0.4099	0.3604 0.4249 ++++	0.4027 0.4405	0.3889 0.4312	0.4443 ++++	Ave		0.4127			6.2		15.0				
2-Chloroethyl vinyl ether	++++ 0.0961 0.1377	++++ 0.1293 ++++	++++ 0.1377	++++ 0.1410	0.1169 ++++	Ave		0.1264			13.6		15.0				
cis-1,3-Dichloropropene	++++ 0.4023 0.4654	0.3434 0.4474 ++++	0.4463 0.4962	0.3500 0.4771	0.4309 ++++	Ave		0.4288			12.5		15.0				
4-Methyl-2-pentanone	++++ 0.0692 0.0688	++++ 0.0705 ++++	0.0615 0.0790	0.0652 0.0739	0.0728 ++++	Ave		0.0701			7.6		15.0				
trans-1,3-Dichloropropene	++++ 0.3142 0.3885	0.2603 0.3777 ++++	0.3444 0.4124	0.2855 0.4051	0.3775 ++++	Lin1	-0.020	0.3947						0.9980		0.9900	
1,1,2-Trichloroethane	++++ 0.2110 0.2194	0.2272 0.2249 ++++	0.2770 0.2381	0.2455 0.2300	0.2583 ++++	Ave		0.2368			8.7		15.0				
Toluene	++++ 1.2362 1.1674	1.3662 1.2335 ++++	1.4996 1.2947	1.3616 1.2146	1.3901 ++++	Ave		1.3071			8.1		15.0				
1,3-Dichloropropane	++++ 0.3708 0.3824	0.4109 0.3957 ++++	0.4872 0.4130	0.3916 0.3983	0.4592 ++++	Ave		0.4121			9.1		15.0				
2-Hexanone	++++ 0.0602 0.0662	++++ 0.0690 ++++	0.0515 0.0736	0.0537 0.0720	0.0741 ++++	Ave		0.0650			13.7		15.0				
Chlorodibromomethane	++++ 0.2911 0.3166	0.2447 0.3062 ++++	0.2927 0.3446	0.2633 0.3288	0.3041 ++++	Ave		0.2991			10.4		15.0				
1,2-Dibromoethane	++++ 0.2362 0.2522	0.2413 0.2523 ++++	0.2600 0.2743	0.2481 0.2626	0.2832 ++++	Ave		0.2567			5.9		15.0				

Note: The m1 coefficient is the same as Ave RRF for an Ave curve type.

FORM VI
GC/MS VOA BY INTERNAL STANDARD - INITIAL CALIBRATION DATA
CURVE EVALUATION

Lab Name: TestAmerica Seattle Job No.: 580-57365-1 Analy Batch No.: 183987

SDG No.: _____

Instrument ID: SEA015 GC Column: ZB-624short ID: 0.18 (mm) Heated Purge: (Y/N) N

Calibration Start Date: 03/09/2015 15:32 Calibration End Date: 03/09/2015 20:30 Calibration ID: 19981

ANALYTE	RRF					CURVE TYPE	COEFFICIENT			#	MIN RRF	%RSD	#	MAX %RSD	R^2 OR COD	#	MIN R^2 OR COD
	LVL 1	LVL 2	LVL 3	LVL 4	LVL 5		B	M1	M2								
	LVL 6	LVL 7	LVL 8	LVL 9	LVL 10												
Tetrachloroethene	++++ 0.3029 0.2826	++++ 0.2889 ++++	0.3811 0.3058	0.3292 0.2895	0.3365 ++++	Ave		0.3146			10.5		15.0				
1,1,1,2-Tetrachloroethane	++++ 0.3978 0.3518	0.3838 0.3516 ++++	0.3598 0.3919	0.3897 0.3616	0.3823 ++++	Ave		0.3745			4.9		15.0				
Chlorobenzene	++++ 0.9321 0.9127	1.0867 0.9290 ++++	1.1812 0.9663	1.0542 0.9337	1.0771 ++++	Ave		1.0081		0.3000	9.4		15.0				
Ethylbenzene	1.5997 1.5324 1.4407	1.4363 1.5021 ++++	1.8899 1.6053	1.5294 1.5125	1.5997 ++++	Ave		1.5648			8.3		15.0				
m-Xylene & p-Xylene	++++ 1.2304 1.1705	1.1486 1.1972 ++++	1.2528 1.2692	1.1630 1.2063	1.2251 ++++	Ave		1.2070			3.4		15.0				
Bromoform	++++ 0.1757 0.2133	0.2398 0.1837 ++++	0.2096 0.2198	0.1856 0.2188	0.1847 ++++	Ave		0.2034		0.1000	10.7		15.0				
Styrene	++++ 0.9317 0.9897	0.6611 0.9598 ++++	0.7540 1.0504	0.7731 1.0106	0.8592 ++++	Ave		0.8877			15.0		15.0				
1,1,2,2-Tetrachloroethane	++++ 0.4581 0.4641	0.4866 0.4583 ++++	0.5262 0.5171	0.5365 0.4974	0.5504 ++++	Ave		0.4994		0.3000	7.0		15.0				
o-Xylene	1.2791 1.4512 1.2022	1.2213 1.3187 ++++	1.2078 1.3829	1.3293 1.2733	1.3993 ++++	Ave		1.3065			6.5		15.0				
trans-1,4-Dichloro-2-butene	++++ 0.1153 0.1373	++++ 0.1211 ++++	0.1313 0.1506	0.1102 0.1455	0.1304 ++++	Ave		0.1302			10.9		15.0				
1,2,3-Trichloropropane	++++ 0.1445 0.1512	0.1240 0.1514 ++++	0.1501 0.1673	0.1520 0.1586	0.1822 ++++	Ave		0.1535			10.3		15.0				
Isopropylbenzene	1.3188 1.8261 1.5076	1.3956 1.6704 ++++	1.4832 1.8037	1.5272 1.6795	1.6802 ++++	Ave		1.5892			10.6		15.0				
Bromobenzene	0.7000 0.6806 0.7575	0.6972 0.7139 ++++	0.8364 0.7672	0.7246 0.7598	0.8123 ++++	Ave		0.7449			6.9		15.0				

Note: The m1 coefficient is the same as Ave RRF for an Ave curve type.

FORM VI
GC/MS VOA BY INTERNAL STANDARD - INITIAL CALIBRATION DATA
CURVE EVALUATION

Lab Name: TestAmerica Seattle

Job No.: 580-57365-1

Analy Batch No.: 183987

SDG No.: _____

Instrument ID: SEA015

GC Column: ZB-624short ID: 0.18 (mm)

Heated Purge: (Y/N) N

Calibration Start Date: 03/09/2015 15:32

Calibration End Date: 03/09/2015 20:30

Calibration ID: 19981

ANALYTE	RRF					CURVE TYPE	COEFFICIENT			#	MIN RRF	%RSD	#	MAX %RSD	R^2 OR COD	#	MIN R^2 OR COD
	LVL 1	LVL 2	LVL 3	LVL 4	LVL 5		B	M1	M2								
	LVL 6	LVL 7	LVL 8	LVL 9	LVL 10												
N-Propylbenzene	2.9397	2.5399	3.1708	2.6689	3.0974	Ave		2.9131			8.3		15.0				
	2.8749	2.9769	3.1783	3.1028	++++												
	2.5815	++++															
2-Chlorotoluene	++++	0.6209	0.6223	0.6160	0.7123	Ave		0.6673			6.5		15.0				
	0.6427	0.6621	0.7163	0.7034	++++												
	0.7095	++++															
4-Chlorotoluene	++++	0.5377	0.6781	0.6595	0.7462	Ave		0.6880			9.4		15.0				
	0.6758	0.6894	0.7356	0.7388	++++												
	0.7309	++++															
1,3,5-Trimethylbenzene	1.8527	1.8394	2.0312	2.0578	2.4388	Ave		2.2179			11.5		15.0				
	2.3037	2.3444	2.5280	2.4807	++++												
	2.3028	++++															
tert-Butylbenzene	1.6248	1.6392	1.6683	1.6248	2.0263	Ave		1.8939			12.3		15.0				
	1.8949	2.0245	2.1776	2.1593	++++												
	2.0997	++++															
1,2,4-Trimethylbenzene	2.4305	1.9347	2.1941	2.1868	2.5821	Ave		2.3956			9.5		15.0				
	2.4563	2.4801	2.6617	2.6144	++++												
	2.4155	++++															
sec-Butylbenzene	2.4675	2.2063	2.6151	2.6204	3.0688	Ave		2.7830			11.6		15.0				
	2.8853	2.9629	3.1933	3.1647	++++												
	2.6453	++++															
1,3-Dichlorobenzene	++++	1.5420	1.6129	1.6616	1.6962	Ave		1.5550			5.4		15.0				
	1.4759	1.4523	1.5425	1.5232	++++												
	1.4883	++++															
1,4-Dichlorobenzene	++++	1.8691	1.8498	1.7992	1.7729	Ave		1.6457			10.7		15.0				
	1.5000	1.5089	1.5878	1.5218	++++												
	1.4020	++++															
4-Isopropyltoluene	++++	2.9249	2.8400	2.8789	3.0107	Ave		2.7890			5.7		15.0				
	2.6737	2.6804	2.8406	2.7728	++++												
	2.4787	++++															
1,2-Dichlorobenzene	1.2974	1.4498	1.5412	1.6181	1.5505	Ave		1.4797			6.3		15.0				
	1.3987	1.4058	1.5386	1.5113	++++												
	1.4855	++++															
n-Butylbenzene	0.7236	0.5117	0.5666	0.5543	0.6188	Ave		0.6287			11.5		15.0				
	0.6046	0.6185	0.6923	0.7040	++++												
	0.6924	++++															
1,2-Dibromo-3-Chloropropane	++++	++++	0.1075	0.0966	0.1038	Ave		0.1049			12.2		15.0				
	0.0934	0.0990	0.1289	++++	++++												
	++++	++++															

Note: The m1 coefficient is the same as Ave RRF for an Ave curve type.

FORM VI
GC/MS VOA BY INTERNAL STANDARD - INITIAL CALIBRATION DATA
CURVE EVALUATION

Lab Name: TestAmerica Seattle Job No.: 580-57365-1 Analy Batch No.: 183987

SDG No.: _____

Instrument ID: SEA015 GC Column: ZB-624short ID: 0.18 (mm) Heated Purge: (Y/N) N

Calibration Start Date: 03/09/2015 15:32 Calibration End Date: 03/09/2015 20:30 Calibration ID: 19981

ANALYTE	RRF					CURVE TYPE	COEFFICIENT			#	MIN RRF	%RSD	#	MAX %RSD	R^2 OR COD	#	MIN R^2 OR COD
	LVL 1	LVL 2	LVL 3	LVL 4	LVL 5		B	M1	M2								
	LVL 6	LVL 7	LVL 8	LVL 9	LVL 10												
1,3,5-Trichlorobenzene	0.9494 1.0403 1.2315	1.0382 1.1130 ++++	1.1664 1.1048	1.0617 1.2303	1.1067 ++++	Ave		1.1042			8.0		15.0				
1,2,4-Trichlorobenzene	0.9074 0.7651 1.1015	0.8870 0.8912 ++++	0.8996 0.9211	0.8502 1.0866	0.8689 ++++	Ave		0.9179			11.2		15.0				
Naphthalene	++++ 1.3197 ++++	++++ 1.6155 ++++	++++ 1.7906	1.3987 ++++	1.4293 ++++	Ave		1.5108			12.6		15.0				
Hexachlorobutadiene	++++ 0.3407 0.4579	0.4438 0.3688 ++++	0.3704 0.3656	0.4075 0.4395	0.3859 ++++	Ave		0.3978			10.4		15.0				
1,2,3-Trichlorobenzene	++++ 0.6075 0.9658	0.7626 0.7324 ++++	0.7607 0.7420	0.7523 0.9323	0.7316 ++++	Ave		0.7764			14.0		15.0				
Dibromofluoromethane (Surr)	0.2948 0.3237 0.2677	0.3085 0.2922 ++++	0.2954 0.2889	0.3185 0.2759	0.2980 ++++	Ave		0.2964			5.9		15.0				
1,2-Dichloroethane-d4 (Surr)	0.3550 0.3385 0.2741	0.3515 0.3235 ++++	0.3488 0.3169	0.3480 0.2943	0.3522 ++++	Ave		0.3303			8.4		15.0				
Trifluorotoluene (Surr)	0.9298 0.8815 0.9180	0.8911 0.9277 ++++	0.9442 0.9192	0.8804 0.9075	0.9174 ++++	Ave		0.9117			2.3		15.0				
Toluene-d8 (Surr)	1.0931 1.0852 1.0308	1.0817 1.0841 ++++	1.0902 1.0690	1.0836 1.0344	1.0792 ++++	Ave		1.0731			2.1		15.0				
4-Bromofluorobenzene (Surr)	0.4694 0.5119 0.4594	0.4914 0.4783 ++++	0.4695 0.4719	0.5063 0.4577	0.4833 ++++	Ave		0.4799			3.8		15.0				

Note: The m1 coefficient is the same as Ave RRF for an Ave curve type.

FORM VI
GC/MS VOA BY INTERNAL STANDARD - INITIAL CALIBRATION DATA
RESPONSE AND CONCENTRATION

Lab Name: TestAmerica Seattle Job No.: 580-57365-1 Analy Batch No.: 183987

SDG No.: _____

Instrument ID: SEA015 GC Column: ZB-624short ID: 0.18 (mm) Heated Purge: (Y/N) N

Calibration Start Date: 03/09/2015 15:32 Calibration End Date: 03/09/2015 20:30 Calibration ID: 19981

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	STD0.02	I0346375.D
Level 2	STD0.1	I0346376.D
Level 3	STD0.2	I0346377.D
Level 4	STD0.4	I0346378.D
Level 5	STD001 580-183987/7	I0346379.D
Level 6	STD005 580-183987/8	I0346380.D
Level 7	ICIS 580-183987/9	I0346381.D
Level 8	STD025 580-183987/10	I0346382.D
Level 9	STD050 580-183987/11	I0346383.D
Level 10	STD050 580-183987/12	I0346384.D
Level 11	STD080 580-183987/13	I0346385.D
Level 12	STD080 580-183987/14	I0346386.D

ANALYTE	IS REF	CURVE TYPE	RESPONSE					CONCENTRATION (UG/L)				
			LVL 1	LVL 2	LVL 3	LVL 4	LVL 5	LVL 1	LVL 2	LVL 3	LVL 4	LVL 5
			LVL 6	LVL 7	LVL 8	LVL 9	LVL 10	LVL 6	LVL 7	LVL 8	LVL 9	LVL 10
Dichlorodifluoromethane	FB	Ave	+++++	3754	5249	12444	35318	+++++	0.100	0.200	0.400	1.00
			180402	355733	1042499	+++++	2343637	5.00	10.0	25.0	+++++	50.0
			+++++	3742475				+++++	80.0			
Chloromethane	FB	Lin2	+++++	+++++	6993	9099	25918	+++++	+++++	0.200	0.400	1.000
			109026	228857	650064	+++++	1633028	5.00	10.00	25.0	+++++	50.0
			+++++	2770431				+++++	80.0			
Vinyl chloride	FB	Ave	568	3119	5700	10736	29056	0.0200	0.100	0.200	0.400	1.00
			131840	262416	758862	+++++	1846459	5.00	10.0	25.0	+++++	50.0
			+++++	2517942				+++++	80.0			
Bromomethane	FB	Ave	+++++	+++++	+++++	7482	21841	+++++	+++++	+++++	0.400	1.00
			90808	173580	480959	+++++	1170514	5.00	10.0	25.0	+++++	50.0
			+++++	1972500				+++++	80.0			
Chloroethane	FB	Lin2	+++++	+++++	+++++	3753	7473	+++++	+++++	+++++	0.400	1.00
			30831	59316	171013	+++++	445456	5.00	10.0	25.0	+++++	50.0
			+++++	790509				+++++	80.0			
Acrolein	FB	Ave	+++++	953	2341	3154	10212	+++++	0.593	1.19	2.37	5.93
			36826	115412	320785	732567	+++++	29.7	59.3	148	297	+++++
			1257889	+++++				474	+++++			
Trichlorofluoromethane	FB	Ave	+++++	4632	6756	17082	38514	+++++	0.1000	0.200	0.400	1.000
			233265	407824	1241613	+++++	3140891	5.00	10.00	25.0	+++++	50.0
			+++++	4964820				+++++	80.0			
Acetone	FB	Lin2	+++++	11655	13961	16140	30109	+++++	0.400	0.800	1.60	4.00
			96768	196133	571153	1214213	+++++	20.0	40.0	100	200	+++++
			2026464	+++++				320	+++++			

FORM VI
GC/MS VOA BY INTERNAL STANDARD - INITIAL CALIBRATION DATA
RESPONSE AND CONCENTRATION

Lab Name: TestAmerica Seattle Job No.: 580-57365-1 Analy Batch No.: 183987

SDG No.: _____

Instrument ID: SEA015 GC Column: ZB-624short ID: 0.18 (mm) Heated Purge: (Y/N) N

Calibration Start Date: 03/09/2015 15:32 Calibration End Date: 03/09/2015 20:30 Calibration ID: 19981

ANALYTE	IS REF	CURVE TYPE	RESPONSE					CONCENTRATION (UG/L)				
			LVL 1	LVL 2	LVL 3	LVL 4	LVL 5	LVL 1	LVL 2	LVL 3	LVL 4	LVL 5
			LVL 6	LVL 7	LVL 8	LVL 9	LVL 10	LVL 6	LVL 7	LVL 8	LVL 9	LVL 10
1,1-Dichloroethene	FB	Ave	++++ 105950 2720985	3050 237107 ++++	5401 674257	9169 1558514	24939 ++++	++++ 5.00 80.0	0.100 10.0 ++++	0.200 25.0	0.400 50.0	1.00 ++++
2-Methyl-2-propanol	FB	Ave	++++ 74432 1797307	++++ 164419 ++++	++++ 507814	7430 1118198	19133 ++++	++++ 50.0 800	++++ 100 ++++	++++ 250	4.00 500	10.0 ++++
Acrylonitrile	FB	Ave	995 224904 5284755	4697 484550 ++++	10865 1472810	18938 3137707	52700 ++++	0.200 50.0 800	1.00 100 ++++	2.00 250	4.00 500	10.0 ++++
Iodomethane	FB	Ave	++++ 221853 5264827	4614 474986 ++++	9832 1345856	18280 2988523	49108 ++++	++++ 5.00 80.0	0.100 10.0 ++++	0.200 25.0	0.400 50.0	1.00 ++++
Methylene Chloride	FB	Ave	++++ 125974 2793056	++++ 257156 ++++	++++ 719341	11567 1562339	30412 ++++	++++ 5.00 80.0	++++ 10.0 ++++	++++ 25.0	0.400 50.0	1.00 ++++
1,1,2-Trichloro-1,2,2-trifluoroethane	FB	Ave	424 118242 2711743	2733 249652 ++++	4869 731424	9513 1612768	28214 ++++	0.0200 5.00 80.0	0.1000 10.00 ++++	0.200 25.0	0.400 50.0	1.000 ++++
Carbon disulfide	FB	Ave	++++ 353160 9532945	7169 772320 ++++	12520 2284977	25779 5262434	70147 ++++	++++ 5.00 80.0	0.100 10.0 ++++	0.200 25.0	0.400 50.0	1.00 ++++
trans-1,2-Dichloroethene	FB	Ave	++++ 111956 2791738	2729 241678 ++++	5578 686243	8598 1537745	22946 ++++	++++ 5.00 80.0	0.100 10.0 ++++	0.200 25.0	0.400 50.0	1.00 ++++
Methyl tert-butyl ether	FB	Ave	1117 268969 6801403	5612 590148 ++++	11607 1783150	21012 3851032	55648 ++++	0.0200 5.00 80.0	0.100 10.0 ++++	0.200 25.0	0.400 50.0	1.00 ++++
1,1-Dichloroethane	FB	Ave	++++ 208270 4874621	4699 440226 ++++	8820 1251920	17960 2719705	46547 ++++	++++ 5.00 80.0	0.100 10.0 ++++	0.200 25.0	0.400 50.0	1.00 ++++
Vinyl acetate	FB	Lin1	++++ 22815 744893	++++ 66233 ++++	++++ 205831	1516 487670	5317 ++++	++++ 12.5 200	++++ 25.0 ++++	++++ 62.5	1.00 125	2.50 ++++
n-Hexane	FB	Ave	588 124921 3190111	2435 289268 ++++	5392 862540	9001 1948546	29319 ++++	0.0200 5.00 80.0	0.100 10.0 ++++	0.200 25.0	0.400 50.0	1.00 ++++
2-Butanone	FB	Ave	++++ 27573 762803	++++ 68778 ++++	1177 203319	2186 459081	7395 ++++	++++ 20.0 320	++++ 40.0 ++++	0.800 100	1.60 200	4.00 ++++

FORM VI
GC/MS VOA BY INTERNAL STANDARD - INITIAL CALIBRATION DATA
RESPONSE AND CONCENTRATION

Lab Name: TestAmerica Seattle

Job No.: 580-57365-1

Analy Batch No.: 183987

SDG No.: _____

Instrument ID: SEA015

GC Column: ZB-624short ID: 0.18 (mm)

Heated Purge: (Y/N) N

Calibration Start Date: 03/09/2015 15:32

Calibration End Date: 03/09/2015 20:30

Calibration ID: 19981

ANALYTE	IS REF	CURVE TYPE	RESPONSE					CONCENTRATION (UG/L)				
			LVL 1	LVL 2	LVL 3	LVL 4	LVL 5	LVL 1	LVL 2	LVL 3	LVL 4	LVL 5
			LVL 6	LVL 7	LVL 8	LVL 9	LVL 10	LVL 6	LVL 7	LVL 8	LVL 9	LVL 10
cis-1,2-Dichloroethene	FB	Ave	665	2846	5440	10996	26614	0.0200	0.100	0.200	0.400	1.00
			122998	267259	768100	1680705	+++++	5.00	10.0	25.0	50.0	+++++
			3033651	+++++				80.0	+++++			
Chlorobromomethane	FB	Ave	+++++	1582	3424	6691	17801	+++++	0.100	0.200	0.400	1.00
			79543	171546	501139	1100258	+++++	5.00	10.0	25.0	50.0	+++++
			1947458	+++++				80.0	+++++			
Chloroform	FB	Ave	1263	5812	10216	20583	51658	0.0200	0.100	0.200	0.400	1.00
			234416	501172	1419365	3013936	+++++	5.00	10.0	25.0	50.0	+++++
			5247154	+++++				80.0	+++++			
Tert-butyl ethyl ether	FB	Ave	+++++	2874	5759	11284	31247	+++++	0.100	0.200	0.400	1.00
			159850	349977	1000708	2128652	+++++	5.00	10.0	25.0	50.0	+++++
			3805503	+++++				80.0	+++++			
2,2-Dichloropropane	FB	Ave	+++++	3185	5375	11347	27194	+++++	0.100	0.200	0.400	1.00
			151858	277298	829224	1635213	+++++	5.00	10.0	25.0	50.0	+++++
			2735453	+++++				80.0	+++++			
1,2-Dichloroethane	FB	Ave	+++++	3793	8002	13854	39159	+++++	0.100	0.200	0.400	1.00
			151995	358745	996688	2121690	+++++	5.00	10.0	25.0	50.0	+++++
			3619829	+++++				80.0	+++++			
1,1,1-Trichloroethane	FB	Ave	+++++	4409	8302	17305	43812	+++++	0.100	0.200	0.400	1.00
			216907	450784	1255582	2607968	+++++	5.00	10.0	25.0	50.0	+++++
			4546462	+++++				80.0	+++++			
1,1-Dichloropropene	FB	Ave	+++++	3023	6063	11529	31206	+++++	0.100	0.200	0.400	1.00
			150836	335502	975029	2206699	+++++	5.00	10.0	25.0	50.0	+++++
			3902170	+++++				80.0	+++++			
Carbon tetrachloride	FB	Ave	+++++	3641	8034	15008	40447	+++++	0.100	0.200	0.400	1.00
			197296	419845	1195196	2626532	+++++	5.00	10.0	25.0	50.0	+++++
			4486362	+++++				80.0	+++++			
Benzene	FB	Ave	+++++	9800	20113	34961	97892	+++++	0.100	0.200	0.400	1.00
			411194	957685	2740818	6209472	+++++	5.00	10.0	25.0	50.0	+++++
			11107461	+++++				80.0	+++++			
Tert-amyl methyl ether	FB	Ave	+++++	4767	10551	18534	54303	+++++	0.100	0.200	0.400	1.00
			278988	625360	1836198	4048856	+++++	5.00	10.0	25.0	50.0	+++++
			7533725	+++++				80.0	+++++			
Dibromomethane	FB	Ave	+++++	1387	3339	5655	16042	+++++	0.100	0.200	0.400	1.00
			65072	162210	471907	1065628	+++++	5.00	10.0	25.0	50.0	+++++
			1859592	+++++				80.0	+++++			
1,2-Dichloropropane	FB	Ave	+++++	1991	4677	7677	23144	+++++	0.100	0.200	0.400	1.00
			91687	229371	633390	1457622	+++++	5.00	10.0	25.0	50.0	+++++
			2638682	+++++				80.0	+++++			

FORM VI
GC/MS VOA BY INTERNAL STANDARD - INITIAL CALIBRATION DATA
RESPONSE AND CONCENTRATION

Lab Name: TestAmerica Seattle

Job No.: 580-57365-1

Analy Batch No.: 183987

SDG No.: _____

Instrument ID: SEA015

GC Column: ZB-624short ID: 0.18 (mm)

Heated Purge: (Y/N) N

Calibration Start Date: 03/09/2015 15:32

Calibration End Date: 03/09/2015 20:30

Calibration ID: 19981

ANALYTE	IS REF	CURVE TYPE	RESPONSE					CONCENTRATION (UG/L)				
			LVL 1	LVL 2	LVL 3	LVL 4	LVL 5	LVL 1	LVL 2	LVL 3	LVL 4	LVL 5
			LVL 6	LVL 7	LVL 8	LVL 9	LVL 10	LVL 6	LVL 7	LVL 8	LVL 9	LVL 10
Trichloroethene	FB	Ave	++++ 126737 3305804	2569 290400 ++++	5633 815394	10341 1833139	28532 ++++	++++ 5.00 80.0	0.100 10.0 ++++	0.200 25.0	0.400 50.0	1.00 ++++
Dichlorobromomethane	FB	Ave	739 157149 4353487	2996 399248 ++++	6798 1113686	12241 2507307	36652 ++++	0.0200 5.00 80.0	0.100 10.0 ++++	0.200 25.0	0.400 50.0	1.00 ++++
2-Chloroethyl vinyl ether	CBZ	Ave	++++ 31221 1391457	++++ 110621 ++++	++++ 307750	++++ 775123	8548 ++++	++++ 5.00 80.0	++++ 10.0 ++++	++++ 25.0	++++ 50.0	1.00 ++++
cis-1,3-Dichloropropene	CBZ	Ave	++++ 130741 4703086	2337 382817 ++++	6536 1108835	8957 2623233	31516 ++++	++++ 5.00 80.0	0.100 10.0 ++++	0.200 25.0	0.400 50.0	1.00 ++++
4-Methyl-2-pentanone	CBZ	Ave	++++ 89984 2781998	++++ 241229 ++++	3604 705942	6670 1625988	21283 ++++	++++ 20.0 320	++++ 40.0 ++++	0.800 100	1.60 200	4.00 ++++
trans-1,3-Dichloropropene	CBZ	Lin1	++++ 102101 3926049	1771 323130 ++++	5044 921538	7306 2227407	27607 ++++	++++ 5.00 80.0	0.100 10.0 ++++	0.200 25.0	0.400 50.0	1.00 ++++
1,1,2-Trichloroethane	CBZ	Ave	++++ 68576 2216568	1546 192458 ++++	4057 532197	6282 1264327	18889 ++++	++++ 5.00 80.0	0.100 10.0 ++++	0.200 25.0	0.400 50.0	1.00 ++++
Toluene	CBZ	Ave	++++ 401754 11795933	9297 1055374 ++++	21961 2893491	34842 6678255	101666 ++++	++++ 5.00 80.0	0.100 10.0 ++++	0.200 25.0	0.400 50.0	1.00 ++++
1,3-Dichloropropane	CBZ	Ave	++++ 120510 3863751	2796 338574 ++++	7135 923050	10020 2189914	33583 ++++	++++ 5.00 80.0	0.100 10.0 ++++	0.200 25.0	0.400 50.0	1.00 ++++
2-Hexanone	CBZ	Ave	++++ 78222 2676778	++++ 236233 ++++	3019 657573	5500 1582543	21665 ++++	++++ 20.0 320	++++ 40.0 ++++	0.800 100	1.60 200	4.00 ++++
Chlorodibromomethane	CBZ	Ave	++++ 94596 3198720	1665 262019 ++++	4286 770135	6737 1807598	22242 ++++	++++ 5.00 80.0	0.100 10.0 ++++	0.200 25.0	0.400 50.0	1.00 ++++
1,2-Dibromoethane	CBZ	Ave	++++ 76766 2548540	1642 215829 ++++	3808 613117	6349 1443811	20710 ++++	++++ 5.00 80.0	0.100 10.0 ++++	0.200 25.0	0.400 50.0	1.00 ++++
Tetrachloroethene	CBZ	Ave	++++ 98431 2855334	++++ 247200 ++++	5581 683387	8424 1591739	24614 ++++	++++ 5.00 80.0	++++ 10.0 ++++	0.200 25.0	0.400 50.0	1.00 ++++

FORM VI
GC/MS VOA BY INTERNAL STANDARD - INITIAL CALIBRATION DATA
RESPONSE AND CONCENTRATION

Lab Name: TestAmerica Seattle

Job No.: 580-57365-1

Analy Batch No.: 183987

SDG No.: _____

Instrument ID: SEA015

GC Column: ZB-624short ID: 0.18 (mm)

Heated Purge: (Y/N) N

Calibration Start Date: 03/09/2015 15:32

Calibration End Date: 03/09/2015 20:30

Calibration ID: 19981

ANALYTE	IS REF	CURVE TYPE	RESPONSE					CONCENTRATION (UG/L)				
			LVL 1	LVL 2	LVL 3	LVL 4	LVL 5	LVL 1	LVL 2	LVL 3	LVL 4	LVL 5
			LVL 6	LVL 7	LVL 8	LVL 9	LVL 10	LVL 6	LVL 7	LVL 8	LVL 9	LVL 10
			LVL 11	LVL 12				LVL 11	LVL 12			
1,1,1,2-Tetrachloroethane	CBZ	Ave	++++ 129296 3554376	2612 300802 ++++	5270 875767	9971 1987997	27961 ++++	++++ 5.00 80.0	0.100 10.0 ++++	0.200 25.0	0.400 50.0	1.00 ++++
Chlorobenzene	CBZ	Ave	++++ 302905 9222402	7395 794793 ++++	17299 2159628	26976 5133880	78779 ++++	++++ 5.00 80.0	0.100 10.0 ++++	0.200 25.0	0.400 50.0	1.00 ++++
Ethylbenzene	CBZ	Ave	2420 498001 14558437	9774 1285157 ++++	27678 3587470	39136 8315777	116997 ++++	0.0200 5.00 80.0	0.100 10.0 ++++	0.200 25.0	0.400 50.0	1.00 ++++
m-Xylene & p-Xylene	CBZ	Ave	++++ 399860 11827576	7816 1024336 ++++	18348 2836522	29760 6632331	89599 ++++	++++ 5.00 80.0	0.100 10.0 ++++	0.200 25.0	0.400 50.0	1.00 ++++
Bromoform	CBZ	Ave	++++ 57089 2155432	1632 157134 ++++	3070 491134	4750 1202831	13511 ++++	++++ 5.00 80.0	0.100 10.0 ++++	0.200 25.0	0.400 50.0	1.00 ++++
Styrene	CBZ	Ave	++++ 302795 10001256	4499 821188 ++++	11043 2347504	19782 5556245	62839 ++++	++++ 5.00 80.0	0.100 10.0 ++++	0.200 25.0	0.400 50.0	1.00 ++++
1,1,2,2-Tetrachloroethane	DCB	Ave	++++ 107414 2795773	2343 251521 ++++	4953 733999	9993 1673768	25694 ++++	++++ 5.00 80.0	0.100 10.0 ++++	0.200 25.0	0.400 50.0	1.00 ++++
o-Xylene	CBZ	Ave	1935 471616 12148189	8311 1128260 ++++	17688 3090460	34014 7001083	102341 ++++	0.0200 5.00 80.0	0.100 10.0 ++++	0.200 25.0	0.400 50.0	1.00 ++++
trans-1,4-Dichloro-2-butene	DCB	Ave	++++ 27032 827135	++++ 66477 ++++	1236 213715	2053 489658	6088 ++++	++++ 5.00 80.0	++++ 10.0 ++++	0.200 25.0	0.400 50.0	1.00 ++++
1,2,3-Trichloropropane	DCB	Ave	++++ 33887 910854	597 83077 ++++	1413 237443	2832 533850	8504 ++++	++++ 5.00 80.0	0.100 10.0 ++++	0.200 25.0	0.400 50.0	1.00 ++++
Isopropylbenzene	CBZ	Ave	1995 593462 15233658	9497 1429167 ++++	21722 4030904	39079 9234016	122881 ++++	0.0200 5.00 80.0	0.100 10.0 ++++	0.200 25.0	0.400 50.0	1.00 ++++
Bromobenzene	DCB	Ave	682 159575 4563023	3357 391809 ++++	7873 1089123	13497 2556659	37921 ++++	0.0200 5.00 80.0	0.100 10.0 ++++	0.200 25.0	0.400 50.0	1.00 ++++
N-Propylbenzene	DCB	Ave	2864 674074 15550985	12230 1633892 ++++	29848 4511655	49713 10440999	144605 ++++	0.0200 5.00 80.0	0.100 10.0 ++++	0.200 25.0	0.400 50.0	1.00 ++++

FORM VI
GC/MS VOA BY INTERNAL STANDARD - INITIAL CALIBRATION DATA
RESPONSE AND CONCENTRATION

Lab Name: TestAmerica Seattle

Job No.: 580-57365-1

Analy Batch No.: 183987

SDG No.: _____

Instrument ID: SEA015

GC Column: ZB-624short ID: 0.18 (mm)

Heated Purge: (Y/N) N

Calibration Start Date: 03/09/2015 15:32

Calibration End Date: 03/09/2015 20:30

Calibration ID: 19981

ANALYTE	IS REF	CURVE TYPE	RESPONSE					CONCENTRATION (UG/L)				
			LVL 1	LVL 2	LVL 3	LVL 4	LVL 5	LVL 1	LVL 2	LVL 3	LVL 4	LVL 5
			LVL 6	LVL 7	LVL 8	LVL 9	LVL 10	LVL 6	LVL 7	LVL 8	LVL 9	LVL 10
2-Chlorotoluene	DCB	Ave	++++	2990	5858	11473	33256	++++	0.100	0.200	0.400	1.00
			150699	363399	1016776	2366840	++++	5.00	10.0	25.0	50.0	++++
			4273875	++++				80.0	++++			
4-Chlorotoluene	DCB	Ave	++++	2589	6383	12284	34838	++++	0.100	0.200	0.400	1.00
			158463	378398	1044177	2486203	++++	5.00	10.0	25.0	50.0	++++
			4402627	++++				80.0	++++			
1,3,5-Trimethylbenzene	DCB	Ave	1805	8857	19120	38329	113860	0.0200	0.100	0.200	0.400	1.00
			540151	1286715	3588597	8347406	++++	5.00	10.0	25.0	50.0	++++
			13872120	++++				80.0	++++			
tert-Butylbenzene	DCB	Ave	1583	7893	15704	30264	94598	0.0200	0.100	0.200	0.400	1.00
			444300	1111169	3091234	7266064	++++	5.00	10.0	25.0	50.0	++++
			12648141	++++				80.0	++++			
1,2,4-Trimethylbenzene	DCB	Ave	2368	9316	20654	40732	120549	0.0200	0.100	0.200	0.400	1.00
			575929	1361229	3778380	8797340	++++	5.00	10.0	25.0	50.0	++++
			14550959	++++				80.0	++++			
sec-Butylbenzene	DCB	Ave	2404	10624	24617	48809	143270	0.0200	0.100	0.200	0.400	1.00
			676527	1626204	4533000	10649362	++++	5.00	10.0	25.0	50.0	++++
			15935126	++++				80.0	++++			
1,3-Dichlorobenzene	DCB	Ave	++++	7425	15183	30949	79187	++++	0.100	0.200	0.400	1.00
			346055	797096	2189585	5125440	++++	5.00	10.0	25.0	50.0	++++
			8965121	++++				80.0	++++			
1,4-Dichlorobenzene	DCB	Ave	++++	9000	17413	33513	82770	++++	0.100	0.200	0.400	1.00
			351713	828145	2253984	5120967	++++	5.00	10.0	25.0	50.0	++++
			8445456	++++				80.0	++++			
4-Isopropyltoluene	DCB	Ave	++++	14084	26734	53623	140556	++++	0.100	0.200	0.400	1.00
			626903	1471136	4032324	9330494	++++	5.00	10.0	25.0	50.0	++++
			14931207	++++				80.0	++++			
1,2-Dichlorobenzene	DCB	Ave	1264	6981	14508	30139	72387	0.0200	0.100	0.200	0.400	1.00
			327947	771580	2184106	5085473	++++	5.00	10.0	25.0	50.0	++++
			8948683	++++				80.0	++++			
n-Butylbenzene	DCB	Ave	705	2464	5334	10324	28888	0.0200	0.100	0.200	0.400	1.00
			141764	339469	982771	2369062	++++	5.00	10.0	25.0	50.0	++++
			4171046	++++				80.0	++++			
1,2-Dibromo-3-Chloropropane	DCB	Ave	++++	++++	1012	1800	4845	++++	++++	0.200	0.400	1.00
			21903	54316	183026	++++	++++	5.00	10.0	25.0	++++	++++
			++++	++++				++++	++++			
1,3,5-Trichlorobenzene	DCB	Ave	925	4999	10980	19776	51666	0.0200	0.100	0.200	0.400	1.00
			243916	610881	1568256	4140027	++++	5.00	10.0	25.0	50.0	++++
			7418230	++++				80.0	++++			

FORM VI
GC/MS VOA BY INTERNAL STANDARD - INITIAL CALIBRATION DATA
RESPONSE AND CONCENTRATION

Lab Name: TestAmerica Seattle Job No.: 580-57365-1 Analy Batch No.: 183987

SDG No.: _____

Instrument ID: SEA015 GC Column: ZB-624short ID: 0.18 (mm) Heated Purge: (Y/N) N

Calibration Start Date: 03/09/2015 15:32 Calibration End Date: 03/09/2015 20:30 Calibration ID: 19981

ANALYTE	IS REF	CURVE TYPE	RESPONSE					CONCENTRATION (UG/L)				
			LVL 1	LVL 2	LVL 3	LVL 4	LVL 5	LVL 1	LVL 2	LVL 3	LVL 4	LVL 5
			LVL 6	LVL 7	LVL 8	LVL 9	LVL 10	LVL 6	LVL 7	LVL 8	LVL 9	LVL 10
1,2,4-Trichlorobenzene	DCB	Ave	884 179395 6635239	4271 489137 +++++	8468 1307515	15836 3656465	40567 +++++	0.0200 5.00 80.0	0.100 10.0 +++++	0.200 25.0	0.400 50.0	1.00 +++++
Naphthalene	DCB	Ave	+++++ 309427 +++++	+++++ 886687 +++++	+++++ 2541875	26053 +++++	66727 +++++	+++++ 5.00 +++++	+++++ 10.0 +++++	+++++ 25.0	0.400 +++++	1.00 +++++
Hexachlorobutadiene	DCB	Ave	+++++ 79894 2758301	2137 202441 +++++	3487 518920	7591 1478784	18017 +++++	+++++ 5.00 80.0	0.100 10.0 +++++	0.200 25.0	0.400 50.0	1.00 +++++
1,2,3-Trichlorobenzene	DCB	Ave	+++++ 142436 5817667	3672 401996 +++++	7161 1053295	14012 3137279	34157 +++++	+++++ 5.00 80.0	0.100 10.0 +++++	0.200 25.0	0.400 50.0	1.00 +++++
Dibromofluoromethane (Surr)	FB	Ave	386748 381703 534436	385681 412867 +++++	375056 439377	376999 482579	369713 +++++	15.0 15.0 15.0	15.0 15.0 +++++	15.0 15.0	15.0 15.0	15.0 +++++
1,2-Dichloroethane-d4 (Surr)	FB	Ave	466413 399725 547947	440023 457750 +++++	443352 482667	412427 515463	437601 +++++	15.1 15.1 15.1	15.1 15.1 +++++	15.1 15.1	15.1 15.1	15.1 +++++
Trifluorotoluene (Surr)	DCB	Ave	181111 165290 276383	171561 203594 +++++	177696 208695	163915 244200	171255 +++++	4.00 4.00 4.00	4.00 4.00 +++++	4.00 4.00	4.00 4.00	4.00 +++++
Toluene-d8 (Surr)	CBZ	Ave	1240176 1057974 1953051	1104143 1391266 +++++	1197468 1433443	1039819 1706132	1183874 +++++	15.0 15.0 15.0	15.0 15.0 +++++	15.0 15.0	15.0 15.0	15.0 +++++
4-Bromofluorobenzene (Surr)	CBZ	Ave	533300 499760 871605	502275 614603 +++++	516394 633557	486520 755997	530931 +++++	15.0 15.0 15.0	15.0 15.0 +++++	15.0 15.0	15.0 15.0	15.0 +++++

Curve Type Legend:

Ave = Average ISTD
Lin1 = Linear 1/conc ISTD
Lin2 = Linear 1/conc^2 ISTD

FORM VI
GC/MS VOA BY INTERNAL STANDARD - INITIAL CALIBRATION DATA
CURVE EVALUATION

Lab Name: TestAmerica Seattle Job No.: 580-57365-1 Analy Batch No.: 192575

SDG No.: _____

Instrument ID: SEA015 GC Column: ZB-624short ID: 0.18 (mm) Heated Purge: (Y/N) N

Calibration Start Date: 06/18/2015 17:29 Calibration End Date: 06/18/2015 19:15 Calibration ID: 20552

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	IC 580-192575/2	I0347765.D
Level 2	IC 580-192575/3	I0347766.D
Level 3	ICIS 580-192575/4	I0347767.D
Level 4	IC 580-192575/5	I0347768.D
Level 5	IC 580-192575/6	I0347769.D

ANALYTE	RRF					CURVE TYPE	COEFFICIENT			#	MIN RRF	%RSD	#	MAX %RSD	R^2 OR COD	#	MIN R^2 OR COD
	LVL 1	LVL 2	LVL 3	LVL 4	LVL 5		B	M1	M2								
Dibromofluoromethane (Surr)	0.3338	0.3279	0.3346	0.3410	0.3406	Ave		0.3356			1.6	15.0					
1,2-Dichloroethane-d4 (Surr)	0.3895	0.3880	0.3888	0.4005	0.3964	Ave		0.3927			1.4	15.0					
Trifluorotoluene (Surr)	0.9953	1.0076	1.0024	1.0026	1.0278	Ave		1.0071			1.2	15.0					
Toluene-d8 (Surr)	1.0692	1.0872	1.0766	1.0937	1.0709	Ave		1.0795			1.0	15.0					
4-Bromofluorobenzene (Surr)	0.5130	0.5091	0.5103	0.5065	0.5098	Ave		0.5097			0.5	15.0					

Note: The m1 coefficient is the same as Ave RRF for an Ave curve type.

FORM VI
GC/MS VOA BY INTERNAL STANDARD - INITIAL CALIBRATION DATA
RESPONSE AND CONCENTRATION

Lab Name: TestAmerica Seattle Job No.: 580-57365-1 Analy Batch No.: 192575

SDG No.: _____

Instrument ID: SEA015 GC Column: ZB-624short ID: 0.18 (mm) Heated Purge: (Y/N) N

Calibration Start Date: 06/18/2015 17:29 Calibration End Date: 06/18/2015 19:15 Calibration ID: 20552

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	IC 580-192575/2	I0347765.D
Level 2	IC 580-192575/3	I0347766.D
Level 3	ICIS 580-192575/4	I0347767.D
Level 4	IC 580-192575/5	I0347768.D
Level 5	IC 580-192575/6	I0347769.D

ANALYTE	IS REF	CURVE TYPE	RESPONSE					CONCENTRATION (UG/L)				
			LVL 1	LVL 2	LVL 3	LVL 4	LVL 5	LVL 1	LVL 2	LVL 3	LVL 4	LVL 5
Dibromofluoromethane (Surr)	FB	Ave	309401	305479	307944	305742	305945	15.0	15.0	15.0	15.0	15.0
1,2-Dichloroethane-d4 (Surr)	FB	Ave	360545	360963	357360	358597	355595	15.0	15.0	15.0	15.0	15.0
Trifluorotoluene (Surr)	DCB	Ave	144924	145527	146673	139784	145331	3.98	3.98	3.98	3.98	3.98
Toluene-d8 (Surr)	CBZ	Ave	876588	904962	887898	857283	865152	15.0	15.0	15.0	15.0	15.0
4-Bromofluorobenzene (Surr)	CBZ	Ave	420049	423171	420265	396453	411277	15.0	15.0	15.0	15.0	15.0

Curve Type Legend:

Ave = Average ISTD

FORM VII
GC/MS VOA CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Seattle Job No.: 580-57365-1
 SDG No.: _____
 Lab Sample ID: ICV 580-183987/17 Calibration Date: 03/09/2015 21:51
 Instrument ID: SEA015 Calib Start Date: 03/09/2015 15:32
 GC Column: ZB-624short ID: 0.18 (mm) Calib End Date: 03/09/2015 20:30
 Lab File ID: I0346389.D Conc. Units: ug/L Heated Purge: (Y/N) N

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Dichlorodifluoromethane	Ave	0.3994	0.3095		7.75	10.0	-22.5	25.0
Chloromethane	Lin2		0.2213	0.1000	8.34	10.0	-16.6	25.0
Vinyl chloride	Ave	0.3204	0.2509		7.83	10.0	-21.7	25.0
Bromomethane	Ave	0.2139	0.1721		8.05	10.0	-19.5	25.0
Chloroethane	Lin2		0.0659		9.03	10.0	-9.7	25.0
Acrolein	Ave	0.0200	0.0205		60.4	58.8	2.8	40.0
Trichlorofluoromethane	Ave	0.4998	0.4277		8.56	10.0	-14.4	25.0
Vinyl acetate	Lin1	0.0272	0.0291		24.4	25.0	-2.4	40.0
Tert-butyl ethyl ether	Ave	0.3694	0.3560		9.69	10.1	-3.6	40.0
Tert-amyl methyl ether	Ave	0.6616	0.6396		9.72	10.1	-3.3	40.0
1,3,5-Trichlorobenzene	Ave	1.104	1.124		10.2	10.0	1.8	25.0
Dibromofluoromethane (Surr)	Ave	0.2964	0.2837		14.4	15.0	-4.3	25.0
1,2-Dichloroethane-d4 (Surr)	Ave	0.3303	0.2982		13.6	15.1	-9.7	25.0
Trifluorotoluene (Surr)	Ave	0.9117	0.9266		4.06	4.00	1.6	25.0
Toluene-d8 (Surr)	Ave	1.073	1.062		14.8	15.0	-1.0	25.0
4-Bromofluorobenzene (Surr)	Ave	0.4799	0.4645		14.5	15.0	-3.2	25.0

FORM VII
GC/MS VOA CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Seattle Job No.: 580-57365-1
 SDG No.: _____
 Lab Sample ID: ICV 580-183987/20 Calibration Date: 03/10/2015 11:00
 Instrument ID: SEA015 Calib Start Date: 03/09/2015 15:32
 GC Column: ZB-624short ID: 0.18 (mm) Calib End Date: 03/09/2015 20:30
 Lab File ID: I0346392.D Conc. Units: ug/L Heated Purge: (Y/N) N

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Acetone	Lin2	0.1163	0.0515		36.3	40.0	-9.4	25.0
1,1-Dichloroethene	Ave	0.2882	0.2683		9.31	10.0	-6.9	25.0
2-Methyl-2-propanol	Ave	0.0199	0.0205		103	100	3.1	40.0
Acrylonitrile	Ave	0.0573	0.0629		110	100	9.9	40.0
Iodomethane	Ave	0.5474	0.5564		10.2	10.0	1.6	40.0
Methylene Chloride	Ave	0.3068	0.3091		10.1	10.0	0.7	25.0
1,1,2-Trichloro-1,2,2-trifluoroethane	Ave	0.2894	0.2877		9.94	10.0	-0.6	40.0
Carbon disulfide	Ave	0.8559	0.9062		10.6	10.0	5.9	25.0
trans-1,2-Dichloroethene	Ave	0.2835	0.2893		10.2	10.0	2.0	25.0
Methyl tert-butyl ether	Ave	0.6667	0.7104		10.7	10.0	6.6	25.0
1,1-Dichloroethane	Ave	0.5160	0.5231	0.1000	10.1	10.0	1.4	25.0
2-Butanone	Ave	0.0189	0.0189		40.1	40.0	0.1	25.0
n-Hexane	Ave	0.3194	0.3548		11.1	10.0	11.1	40.0
cis-1,2-Dichloroethene	Ave	0.3194	0.3173		9.93	10.0	-0.7	25.0
Chlorobromomethane	Ave	0.1975	0.2024		10.2	10.0	2.5	25.0
Chloroform	Ave	0.6013	0.5651		9.40	10.0	-6.0	25.0
2,2-Dichloropropane	Ave	0.3268	0.3244		9.93	10.0	-0.7	25.0
1,2-Dichloroethane	Ave	0.4127	0.3884		9.41	10.0	-5.9	25.0
1,1,1-Trichloroethane	Ave	0.5010	0.4947		9.87	10.0	-1.3	25.0
1,1-Dichloropropene	Ave	0.3713	0.4223		11.4	10.0	13.7	25.0
Carbon tetrachloride	Ave	0.4642	0.4728		10.2	10.0	1.8	25.0
Benzene	Ave	1.104	1.124		10.2	10.0	1.8	25.0
Dibromomethane	Ave	0.1803	0.1892		10.5	10.0	5.0	25.0
1,2-Dichloropropane	Ave	0.2521	0.2629		10.4	10.0	4.3	25.0
Trichloroethene	Ave	0.3221	0.3358		10.4	10.0	4.3	25.0
Dichlorobromomethane	Ave	0.4127	0.4186		10.1	10.0	1.4	25.0
2-Chloroethyl vinyl ether	Ave	0.1264	0.1325		10.5	10.0	4.8	40.0
cis-1,3-Dichloropropene	Ave	0.4288	0.5020		11.7	10.0	17.1	25.0
4-Methyl-2-pentanone	Ave	0.0701	0.0788		44.9	40.0	12.4	25.0
trans-1,3-Dichloropropene	Lin1	0.3517	0.4430		11.3	10.0	12.8	25.0
1,1,2-Trichloroethane	Ave	0.2368	0.2447		10.3	10.0	3.3	25.0
Toluene	Ave	1.307	1.356		10.4	10.0	3.8	25.0
1,3-Dichloropropane	Ave	0.4121	0.4251		10.3	10.0	3.1	25.0
2-Hexanone	Ave	0.0650	0.0713		43.9	40.0	9.7	25.0
Chlorodibromomethane	Ave	0.2991	0.3302		11.0	10.0	10.4	25.0
1,2-Dibromoethane	Ave	0.2567	0.2746		10.7	10.0	7.0	25.0
Tetrachloroethene	Ave	0.3146	0.3148		10.0	10.0	0.0	25.0
1,1,1,2-Tetrachloroethane	Ave	0.3745	0.3930		10.5	10.0	4.9	25.0
Chlorobenzene	Ave	1.008	1.013	0.3000	10.1	10.0	0.5	25.0
Ethylbenzene	Ave	1.565	1.651		10.6	10.0	5.5	25.0

FORM VII
GC/MS VOA CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Seattle Job No.: 580-57365-1
 SDG No.: _____
 Lab Sample ID: ICV 580-183987/20 Calibration Date: 03/10/2015 11:00
 Instrument ID: SEA015 Calib Start Date: 03/09/2015 15:32
 GC Column: ZB-624short ID: 0.18 (mm) Calib End Date: 03/09/2015 20:30
 Lab File ID: I0346392.D Conc. Units: ug/L Heated Purge: (Y/N) N

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
m-Xylene & p-Xylene	Ave	1.207	1.307		10.8	10.0	8.3	25.0
Bromoform	Ave	0.2034	0.2029	0.1000	9.97	10.0	-0.3	25.0
Styrene	Ave	0.8877	1.028		11.6	10.0	15.8	25.0
1,1,2,2-Tetrachloroethane	Ave	0.4994	0.5280	0.3000	10.6	10.0	5.7	25.0
o-Xylene	Ave	1.307	1.440		11.0	10.0	10.2	25.0
trans-1,4-Dichloro-2-butene	Ave	0.1302	0.1451		11.1	10.0	11.5	40.0
1,2,3-Trichloropropane	Ave	0.1535	0.1670		10.9	10.0	8.8	25.0
Isopropylbenzene	Ave	1.589	1.859		11.7	10.0	17.0	25.0
Bromobenzene	Ave	0.7449	0.7803		10.5	10.0	4.7	25.0
N-Propylbenzene	Ave	2.913	3.262		11.2	10.0	12.0	25.0
2-Chlorotoluene	Ave	0.6673	0.7309		11.0	10.0	9.5	25.0
4-Chlorotoluene	Ave	0.6880	0.7547		11.0	10.0	9.7	25.0
1,3,5-Trimethylbenzene	Ave	2.218	2.575		11.6	10.0	16.1	25.0
tert-Butylbenzene	Ave	1.894	2.230		11.8	10.0	17.7	25.0
1,2,4-Trimethylbenzene	Ave	2.396	2.698		11.3	10.0	12.6	25.0
sec-Butylbenzene	Ave	2.783	3.293		11.8	10.0	18.3	25.0
1,3-Dichlorobenzene	Ave	1.555	1.636		10.5	10.0	5.2	25.0
1,4-Dichlorobenzene	Ave	1.646	1.648		10.0	10.0	0.1	25.0
4-Isopropyltoluene	Ave	2.789	2.902		10.4	10.0	4.0	25.0
1,2-Dichlorobenzene	Ave	1.480	1.575		10.6	10.0	6.4	25.0
n-Butylbenzene	Ave	0.6287	0.7001		11.1	10.0	11.4	25.0
1,2-Dibromo-3-Chloropropane	Ave	0.1049	0.1195		11.4	10.0	13.9	25.0
1,2,4-Trichlorobenzene	Ave	0.9179	1.016		11.1	10.0	10.7	25.0
Naphthalene	Ave	1.511	1.876		12.4	10.0	24.2	25.0
Hexachlorobutadiene	Ave	0.3978	0.4096		10.3	10.0	3.0	25.0
1,2,3-Trichlorobenzene	Ave	0.7764	0.8305		10.7	10.0	7.0	25.0
Dibromofluoromethane (Surr)	Ave	0.2964	0.2849		14.5	15.0	-3.9	25.0
1,2-Dichloroethane-d4 (Surr)	Ave	0.3303	0.3074		14.0	15.1	-6.9	25.0
Trifluorotoluene (Surr)	Ave	0.9117	0.9009		3.95	4.00	-1.2	25.0
Toluene-d8 (Surr)	Ave	1.073	1.076		15.0	15.0	0.3	25.0
4-Bromofluorobenzene (Surr)	Ave	0.4799	0.4829		15.1	15.0	0.6	25.0

FORM VII
GC/MS VOA CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Seattle Job No.: 580-57365-1
 SDG No.: _____
 Lab Sample ID: CCVIS 580-211854/2 Calibration Date: 02/24/2016 08:53
 Instrument ID: SEA015 Calib Start Date: 03/09/2015 15:32
 GC Column: ZB-624short ID: 0.18 (mm) Calib End Date: 03/09/2015 20:30
 Lab File ID: B242028.D Conc. Units: ug/L Heated Purge: (Y/N) N

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Dichlorodifluoromethane	Ave	0.3994	0.3074		7.71	10.0	-23.0	50.0
Chloromethane	Lin2		0.3242	0.1000	12.3	10.0	22.6	50.0
Vinyl chloride	Ave	0.3204	0.3247		10.2	10.1	1.3	20.0
Bromomethane	Ave	0.2139	0.1894		8.87	10.0	-11.4	50.0
Chloroethane	Lin2		0.0673		9.27	10.0	-7.6	50.0
Acrolein	Ave	0.0200	0.0243		72.9	60.0	21.6	50.0
Trichlorofluoromethane	Ave	0.4998	0.5281		10.6	10.0	5.7	50.0
Acetone	Lin2	0.1163	0.0561		39.7	40.0	-0.9	50.0
2-Methyl-2-propanol	Ave	0.0199	0.0183		91.8	100	-8.2	50.0
1,1-Dichloroethene	Ave	0.2882	0.2662		9.31	10.1	-7.7	20.0
Acrylonitrile	Ave	0.0573	0.0617		108	100	7.7	50.0
Iodomethane	Ave	0.5474	0.5224		9.58	10.0	-4.6	50.0
Methylene Chloride	Ave	0.3068	0.2880		9.43	10.0	-6.1	40.0
1,1,2-Trichloro-1,2,2-trifluoroethane	Ave	0.2894	0.2668		9.30	10.1	-7.8	50.0
Carbon disulfide	Ave	0.8559	0.8444		9.91	10.0	-1.3	50.0
trans-1,2-Dichloroethene	Ave	0.2835	0.2757		9.74	10.0	-2.8	30.0
Methyl tert-butyl ether	Ave	0.6667	0.7737		11.6	10.0	16.0	30.0
1,1-Dichloroethane	Ave	0.5160	0.5091	0.1000	9.86	10.0	-1.3	30.0
Vinyl acetate	Lin1	0.0272	0.0364		30.4	25.0	21.7	50.0
2-Butanone	Ave	0.0189	0.0230		48.9	40.0	22.1	50.0
n-Hexane	Ave	0.3194	0.3513		11.1	10.0	10.0	40.0
cis-1,2-Dichloroethene	Ave	0.3194	0.3015		9.45	10.0	-5.6	30.0
Chlorobromomethane	Ave	0.1975	0.2005		10.2	10.0	1.5	40.0
Chloroform	Ave	0.6013	0.5791		9.64	10.0	-3.7	20.0
Tert-butyl ethyl ether	Ave	0.3694	0.3996		13.5	12.5	8.2	30.0
2,2-Dichloropropane	Ave	0.3268	0.3306		10.1	10.0	1.2	40.0
1,2-Dichloroethane	Ave	0.4127	0.4406		10.7	10.0	6.8	30.0
1,1,1-Trichloroethane	Ave	0.5010	0.5313		10.6	10.0	6.0	30.0
1,1-Dichloropropene	Ave	0.3713	0.4054		10.9	10.0	9.2	30.0
Carbon tetrachloride	Ave	0.4642	0.4879		10.5	10.0	5.1	30.0
Benzene	Ave	1.104	1.035		9.41	10.0	-6.3	30.0
Tert-amyl methyl ether	Ave	0.6616	0.7555		14.3	12.5	14.2	40.0
Dibromomethane	Ave	0.1803	0.1950		10.9	10.0	8.2	30.0
1,2-Dichloropropane	Ave	0.2521	0.2449		9.73	10.0	-2.8	20.0
Trichloroethene	Ave	0.3221	0.3153		9.81	10.0	-2.1	30.0
Dichlorobromomethane	Ave	0.4127	0.4527		11.0	10.0	9.7	30.0
2-Chloroethyl vinyl ether	Ave	0.1264	0.1283		10.2	10.0	1.5	50.0
cis-1,3-Dichloropropene	Ave	0.4288	0.5258		12.3	10.0	22.6	30.0
4-Methyl-2-pentanone	Ave	0.0701	0.0949		54.2	40.0	35.4	50.0
trans-1,3-Dichloropropene	Lin1	0.3517	0.4833		12.3	10.0	23.0	30.0

FORM VII
GC/MS VOA CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Seattle Job No.: 580-57365-1
 SDG No.: _____
 Lab Sample ID: CCVIS 580-211854/2 Calibration Date: 02/24/2016 08:53
 Instrument ID: SEA015 Calib Start Date: 03/09/2015 15:32
 GC Column: ZB-624short ID: 0.18 (mm) Calib End Date: 03/09/2015 20:30
 Lab File ID: B242028.D Conc. Units: ug/L Heated Purge: (Y/N) N

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
1,1,2-Trichloroethane	Ave	0.2368	0.2475		10.5	10.0	4.5	30.0
Toluene	Ave	1.307	1.307		10.0	10.0	0.0	20.0
1,3-Dichloropropane	Ave	0.4121	0.4246		10.3	10.0	3.0	30.0
2-Hexanone	Ave	0.0650	0.0936		57.5	40.0	43.9	50.0
Chlorodibromomethane	Ave	0.2991	0.3582		12.0	10.0	19.7	40.0
1,2-Dibromoethane	Ave	0.2567	0.2810		11.0	10.0	9.5	30.0
Tetrachloroethene	Ave	0.3146	0.3105		9.90	10.0	-1.3	40.0
1,1,1,2-Tetrachloroethane	Ave	0.3745	0.3958		10.6	10.0	5.7	30.0
Chlorobenzene	Ave	1.008	0.9257	0.3000	9.22	10.0	-8.2	30.0
Ethylbenzene	Ave	1.565	1.597		10.2	10.0	2.0	20.0
m-Xylene & p-Xylene	Ave	1.207	1.300		10.8	10.0	7.7	30.0
Bromoform	Ave	0.2034	0.2084	0.1000	10.3	10.0	2.5	40.0
Styrene	Ave	0.8877	0.9753		11.0	10.0	9.9	30.0
1,1,2,2-Tetrachloroethane	Ave	0.4994	0.5174	0.3000	10.4	10.0	3.6	30.0
o-Xylene	Ave	1.307	1.394		10.7	10.0	6.7	30.0
trans-1,4-Dichloro-2-butene	Ave	0.1302	0.1539		11.8	10.0	18.2	50.0
1,2,3-Trichloropropane	Ave	0.1535	0.1797		11.7	10.0	17.1	30.0
Isopropylbenzene	Ave	1.589	1.705		10.7	10.0	7.3	30.0
Bromobenzene	Ave	0.7449	0.7304		9.81	10.0	-1.9	30.0
N-Propylbenzene	Ave	2.913	3.159		10.8	10.0	8.4	30.0
2-Chlorotoluene	Ave	0.6673	0.6914		10.4	10.0	3.6	30.0
4-Chlorotoluene	Ave	0.6880	0.7198		10.5	10.0	4.6	30.0
1,3,5-Trimethylbenzene	Ave	2.218	2.482		11.2	10.0	11.9	30.0
tert-Butylbenzene	Ave	1.894	2.168		11.4	10.0	14.5	30.0
1,2,4-Trimethylbenzene	Ave	2.396	2.602		10.9	10.0	8.6	30.0
sec-Butylbenzene	Ave	2.783	3.016		10.9	10.0	8.4	30.0
1,3-Dichlorobenzene	Ave	1.555	1.460		9.41	10.0	-6.1	30.0
1,4-Dichlorobenzene	Ave	1.646	1.464		8.92	10.0	-11.0	30.0
4-Isopropyltoluene	Ave	2.789	2.765		9.92	10.0	-0.9	30.0
1,2-Dichlorobenzene	Ave	1.480	1.404		9.49	10.0	-5.1	30.0
n-Butylbenzene	Ave	0.6287	0.6413		10.2	10.0	2.0	30.0
1,2-Dibromo-3-Chloropropane	Ave	0.1049	0.1223		11.7	10.0	16.6	50.0
1,3,5-Trichlorobenzene	Ave	1.104	1.152		10.5	10.0	4.4	30.0
1,2,4-Trichlorobenzene	Ave	0.9179	1.001		10.9	10.0	9.0	40.0
Naphthalene	Ave	1.511	1.818		12.0	10.0	20.3	40.0
Hexachlorobutadiene	Ave	0.3978	0.4410		11.1	10.0	10.9	40.0
1,2,3-Trichlorobenzene	Ave	0.7764	0.8182		10.6	10.0	5.4	40.0

FORM VII
GC/MS VOA CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Seattle Job No.: 580-57365-1
 SDG No.: _____
 Lab Sample ID: CCVIS 580-211854/2 Calibration Date: 02/24/2016 08:53
 Instrument ID: SEA015 Calib Start Date: 06/18/2015 17:29
 GC Column: ZB-624short ID: 0.18 (mm) Calib End Date: 06/18/2015 19:15
 Lab File ID: B242028.D Conc. Units: ug/L Heated Purge: (Y/N) N

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Dibromofluoromethane (Surr)	Ave	0.3356	0.2986		13.3	15.0	-11.0	
1,2-Dichloroethane-d4 (Surr)	Ave	0.3927	0.3621		13.8	15.0	-7.8	
Trifluorotoluene (Surr)	Ave	1.007	0.9434		3.73	3.98	-6.3	
Toluene-d8 (Surr)	Ave	1.080	1.105		15.4	15.0	2.4	
4-Bromofluorobenzene (Surr)	Ave	0.5097	0.4678		13.8	15.0	-8.2	

FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Seattle Job No.: 580-57365-1
 SDG No.: _____
 Client Sample ID: _____ Lab Sample ID: MB 580-211854/4
 Matrix: Water Lab File ID: B242030.D
 Analysis Method: 8260B Date Collected: _____
 Sample wt/vol: 10 (mL) Date Analyzed: 02/24/2016 09:49
 Soil Aliquot Vol: _____ Dilution Factor: 1
 Soil Extract Vol.: _____ GC Column: ZB-624short ID: 0.18 (mm)
 % Moisture: _____ Level: (low/med) Low
 Analysis Batch No.: 211854 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	RL
156-59-2	cis-1,2-Dichloroethene	ND		0.20	0.20
75-35-4	1,1-Dichloroethene	ND		0.10	0.10
127-18-4	Tetrachloroethene	ND		0.50	0.50
156-60-5	trans-1,2-Dichloroethene	ND		0.20	0.20
79-01-6	Trichloroethene	ND		0.20	0.20
75-01-4	Vinyl chloride	ND		0.020	0.020

CAS NO.	SURROGATE	%REC	Q	LIMITS
460-00-4	4-Bromofluorobenzene (Surr)	93		75-120
98-08-8	Trifluorotoluene (Surr)	97		80-127
2037-26-5	Toluene-d8 (Surr)	104		75-125
1868-53-7	Dibromofluoromethane (Surr)	91		85-115
17060-07-0	1,2-Dichloroethane-d4 (Surr)	95		70-128

FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Seattle Job No.: 580-57365-1
 SDG No.: _____
 Client Sample ID: _____ Lab Sample ID: LCS 580-211854/5
 Matrix: Water Lab File ID: B242031.D
 Analysis Method: 8260B Date Collected: _____
 Sample wt/vol: 10 (mL) Date Analyzed: 02/24/2016 10:17
 Soil Aliquot Vol: _____ Dilution Factor: 1
 Soil Extract Vol.: _____ GC Column: ZB-624short ID: 0.18 (mm)
 % Moisture: _____ Level: (low/med) Low
 Analysis Batch No.: 211854 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	RL
156-59-2	cis-1,2-Dichloroethene	4.68		0.20	0.20
75-35-4	1,1-Dichloroethene	4.55		0.10	0.10
127-18-4	Tetrachloroethene	4.64		0.50	0.50
156-60-5	trans-1,2-Dichloroethene	4.67		0.20	0.20
79-01-6	Trichloroethene	4.65		0.20	0.20
75-01-4	Vinyl chloride	4.49		0.020	0.020

CAS NO.	SURROGATE	%REC	Q	LIMITS
460-00-4	4-Bromofluorobenzene (Surr)	90		75-120
98-08-8	Trifluorotoluene (Surr)	94		80-127
2037-26-5	Toluene-d8 (Surr)	102		75-125
1868-53-7	Dibromofluoromethane (Surr)	92		85-115
17060-07-0	1,2-Dichloroethane-d4 (Surr)	97		70-128

FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Seattle Job No.: 580-57365-1
 SDG No.: _____
 Client Sample ID: _____ Lab Sample ID: LCSD 580-211854/6
 Matrix: Water Lab File ID: B242032.D
 Analysis Method: 8260B Date Collected: _____
 Sample wt/vol: 10 (mL) Date Analyzed: 02/24/2016 10:44
 Soil Aliquot Vol: _____ Dilution Factor: 1
 Soil Extract Vol.: _____ GC Column: ZB-624short ID: 0.18 (mm)
 % Moisture: _____ Level: (low/med) Low
 Analysis Batch No.: 211854 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	RL
156-59-2	cis-1,2-Dichloroethene	4.72		0.20	0.20
75-35-4	1,1-Dichloroethene	4.64		0.10	0.10
127-18-4	Tetrachloroethene	4.82		0.50	0.50
156-60-5	trans-1,2-Dichloroethene	4.76		0.20	0.20
79-01-6	Trichloroethene	4.70		0.20	0.20
75-01-4	Vinyl chloride	4.67		0.020	0.020

CAS NO.	SURROGATE	%REC	Q	LIMITS
460-00-4	4-Bromofluorobenzene (Surr)	92		75-120
98-08-8	Trifluorotoluene (Surr)	98		80-127
2037-26-5	Toluene-d8 (Surr)	104		75-125
1868-53-7	Dibromofluoromethane (Surr)	92		85-115
17060-07-0	1,2-Dichloroethane-d4 (Surr)	97		70-128

FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Seattle Job No.: 580-57365-1
 SDG No.: _____
 Client Sample ID: MW18-160217-W MS Lab Sample ID: 580-57365-3 MS
 Matrix: Water Lab File ID: B242038.D
 Analysis Method: 8260B Date Collected: 02/17/2016 13:35
 Sample wt/vol: 10 (mL) Date Analyzed: 02/24/2016 13:26
 Soil Aliquot Vol: _____ Dilution Factor: 1
 Soil Extract Vol.: _____ GC Column: ZB-624short ID: 0.18 (mm)
 % Moisture: _____ Level: (low/med) Low
 Analysis Batch No.: 211854 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	RL
156-59-2	cis-1,2-Dichloroethene	5.21		0.20	0.20
75-35-4	1,1-Dichloroethene	4.74		0.10	0.10
127-18-4	Tetrachloroethene	5.34		0.50	0.50
156-60-5	trans-1,2-Dichloroethene	5.36		0.20	0.20
79-01-6	Trichloroethene	5.53		0.20	0.20
75-01-4	Vinyl chloride	6.98		0.020	0.020

CAS NO.	SURROGATE	%REC	Q	LIMITS
460-00-4	4-Bromofluorobenzene (Surr)	93		75-120
98-08-8	Trifluorotoluene (Surr)	96		80-127
2037-26-5	Toluene-d8 (Surr)	104		75-125
1868-53-7	Dibromofluoromethane (Surr)	95		85-115
17060-07-0	1,2-Dichloroethane-d4 (Surr)	101		70-128

FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Seattle Job No.: 580-57365-1
 SDG No.: _____
 Client Sample ID: MW18-160217-W MSD Lab Sample ID: 580-57365-3 MSD
 Matrix: Water Lab File ID: B242039.D
 Analysis Method: 8260B Date Collected: 02/17/2016 13:35
 Sample wt/vol: 10 (mL) Date Analyzed: 02/24/2016 13:53
 Soil Aliquot Vol: _____ Dilution Factor: 1
 Soil Extract Vol.: _____ GC Column: ZB-624short ID: 0.18 (mm)
 % Moisture: _____ Level: (low/med) Low
 Analysis Batch No.: 211854 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	RL
156-59-2	cis-1,2-Dichloroethene	5.25		0.20	0.20
75-35-4	1,1-Dichloroethene	5.28		0.10	0.10
127-18-4	Tetrachloroethene	5.45		0.50	0.50
156-60-5	trans-1,2-Dichloroethene	5.50		0.20	0.20
79-01-6	Trichloroethene	5.86		0.20	0.20
75-01-4	Vinyl chloride	7.06		0.020	0.020

CAS NO.	SURROGATE	%REC	Q	LIMITS
460-00-4	4-Bromofluorobenzene (Surr)	91		75-120
98-08-8	Trifluorotoluene (Surr)	99		80-127
2037-26-5	Toluene-d8 (Surr)	103		75-125
1868-53-7	Dibromofluoromethane (Surr)	91		85-115
17060-07-0	1,2-Dichloroethane-d4 (Surr)	98		70-128

GC/MS VOA ANALYSIS RUN LOG

Lab Name: TestAmerica Seattle Job No.: 580-57365-1

SDG No.: _____

Instrument ID: SEA015 Start Date: 03/09/2015 15:05

Analysis Batch Number: 183987 End Date: 03/10/2015 11:00

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
BFB 580-183987/2		03/09/2015 15:05	1	I0346374.D	ZB-624short 0.18 (mm)
STD0.02 IC		03/09/2015 15:32	1	I0346375.D	ZB-624short 0.18 (mm)
STD0.1 IC		03/09/2015 15:59	1	I0346376.D	ZB-624short 0.18 (mm)
STD0.2 IC		03/09/2015 16:26	1	I0346377.D	ZB-624short 0.18 (mm)
STD0.4 IC		03/09/2015 16:53	1	I0346378.D	ZB-624short 0.18 (mm)
STD001 580-183987/7 IC		03/09/2015 17:20	1	I0346379.D	ZB-624short 0.18 (mm)
STD005 580-183987/8 IC		03/09/2015 17:47	1	I0346380.D	ZB-624short 0.18 (mm)
ICIS 580-183987/9		03/09/2015 18:14	1	I0346381.D	ZB-624short 0.18 (mm)
STD025 580-183987/10 IC		03/09/2015 18:41	1	I0346382.D	ZB-624short 0.18 (mm)
STD050 580-183987/11 IC		03/09/2015 19:09	1	I0346383.D	ZB-624short 0.18 (mm)
STD050 580-183987/12 IC		03/09/2015 19:35	1	I0346384.D	ZB-624short 0.18 (mm)
STD080 580-183987/13 IC		03/09/2015 20:03	1	I0346385.D	ZB-624short 0.18 (mm)
STD080 580-183987/14 IC		03/09/2015 20:30	1	I0346386.D	ZB-624short 0.18 (mm)
ZZZZZ		03/09/2015 20:57	1		ZB-624short 0.18 (mm)
RINSE 580-183987/16		03/09/2015 21:24	1		ZB-624short 0.18 (mm)
ICV 580-183987/17		03/09/2015 21:51	1	I0346389.D	ZB-624short 0.18 (mm)
ZZZZZ		03/10/2015 10:05	1		ZB-624short 0.18 (mm)
BFB 580-183987/19		03/10/2015 10:32	1	I0346391.D	ZB-624short 0.18 (mm)
ICV 580-183987/20		03/10/2015 11:00	1	I0346392.D	ZB-624short 0.18 (mm)

GC/MS VOA ANALYSIS RUN LOG

Lab Name: TestAmerica Seattle Job No.: 580-57365-1

SDG No.: _____

Instrument ID: SEA015 Start Date: 06/18/2015 17:03Analysis Batch Number: 192575 End Date: 06/18/2015 19:41

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
BFB 580-192575/1		06/18/2015 17:03	1	I0347764.D	ZB-624short 0.18 (mm)
IC 580-192575/2		06/18/2015 17:29	1	I0347765.D	ZB-624short 0.18 (mm)
IC 580-192575/3		06/18/2015 17:56	1	I0347766.D	ZB-624short 0.18 (mm)
ICIS 580-192575/4		06/18/2015 18:22	1	I0347767.D	ZB-624short 0.18 (mm)
IC 580-192575/5		06/18/2015 18:48	1	I0347768.D	ZB-624short 0.18 (mm)
IC 580-192575/6		06/18/2015 19:15	1	I0347769.D	ZB-624short 0.18 (mm)
ICV 580-192575/7		06/18/2015 19:41	1		ZB-624short 0.18 (mm)

GC/MS VOA ANALYSIS RUN LOG

Lab Name: TestAmerica Seattle Job No.: 580-57365-1

SDG No.: _____

Instrument ID: SEA015 Start Date: 02/24/2016 08:25

Analysis Batch Number: 211854 End Date: 02/24/2016 19:21

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
BFB 580-211854/1		02/24/2016 08:25	1	B242027.D	ZB-624short 0.18 (mm)
CCVIS 580-211854/2		02/24/2016 08:53	1	B242028.D	ZB-624short 0.18 (mm)
CCVL 580-211854/3		02/24/2016 09:20	1		ZB-624short 0.18 (mm)
MB 580-211854/4		02/24/2016 09:49	1	B242030.D	ZB-624short 0.18 (mm)
LCS 580-211854/5		02/24/2016 10:17	1	B242031.D	ZB-624short 0.18 (mm)
LCSD 580-211854/6		02/24/2016 10:44	1	B242032.D	ZB-624short 0.18 (mm)
ZZZZZ		02/24/2016 11:11	1		ZB-624short 0.18 (mm)
ZZZZZ		02/24/2016 12:05	1		ZB-624short 0.18 (mm)
580-57365-6		02/24/2016 12:32	1	B242036.D	ZB-624short 0.18 (mm)
580-57365-3		02/24/2016 12:59	1	B242037.D	ZB-624short 0.18 (mm)
580-57365-3 MS		02/24/2016 13:26	1	B242038.D	ZB-624short 0.18 (mm)
580-57365-3 MSD		02/24/2016 13:53	1	B242039.D	ZB-624short 0.18 (mm)
580-57365-1		02/24/2016 14:24	1	B242040.D	ZB-624short 0.18 (mm)
580-57365-2		02/24/2016 14:51	1	B242041.D	ZB-624short 0.18 (mm)
580-57365-4		02/24/2016 15:17	1	B242042.D	ZB-624short 0.18 (mm)
580-57365-5		02/24/2016 15:44	1	B242043.D	ZB-624short 0.18 (mm)
ZZZZZ		02/24/2016 16:11	1		ZB-624short 0.18 (mm)
ZZZZZ		02/24/2016 16:38	1		ZB-624short 0.18 (mm)
ZZZZZ		02/24/2016 17:06	1		ZB-624short 0.18 (mm)
ZZZZZ		02/24/2016 17:33	1		ZB-624short 0.18 (mm)
ZZZZZ		02/24/2016 18:00	1		ZB-624short 0.18 (mm)
ZZZZZ		02/24/2016 18:27	1		ZB-624short 0.18 (mm)
ZZZZZ		02/24/2016 18:54	1		ZB-624short 0.18 (mm)
ZZZZZ		02/24/2016 19:21	1		ZB-624short 0.18 (mm)

300_ORGEM_28D

Anions, Ion Chromatography

FORM III
HPLC/IC LAB CONTROL SAMPLE RECOVERY

Lab Name: TestAmerica Spokane Job No.: 580-57365-1

SDG No.: _____

Matrix: Water Level: Low Lab File ID: 022216_012-LCS.d

Lab ID: LCS 590-5496/1012 Client ID: _____

COMPOUND	SPIKE ADDED (mg/L)	LCS CONCENTRATION (mg/L)	LCS % REC	QC LIMITS REC	#
Sulfate	12.5	12.7	101	90-110	

Column to be used to flag recovery and RPD values

FORM III
HPLC/IC MATRIX SPIKE RECOVERY

Lab Name: TestAmerica Spokane Job No.: 580-57365-1
 SDG No.: _____
 Matrix: Water Level: Low Lab File ID: 022216_006.d
 Lab ID: 580-57365-3 MS Client ID: MW18-160217-W MS

COMPOUND	SPIKE ADDED (mg/L)	SAMPLE CONCENTRATION (mg/L)	MS CONCENTRATION (mg/L)	MS % REC	QC LIMITS REC	#
Sulfate	11.4	6.7	18.6	104	80-120	

Column to be used to flag recovery and RPD values

FORM III
HPLC/IC MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: TestAmerica Spokane Job No.: 580-57365-1

SDG No.: _____

Matrix: Water Level: Low Lab File ID: 022216_009.d

Lab ID: 580-57365-3 MSD Client ID: MW18-160217-W MSD

COMPOUND	SPIKE ADDED (mg/L)	MSD CONCENTRATION (mg/L)	MSD % REC	% RPD	QC LIMITS		#
					RPD	REC	
Sulfate	11.4	18.6	104	0	10	80-120	

Column to be used to flag recovery and RPD values

FORM IV
HPLC/IC METHOD BLANK SUMMARY

Lab Name: TestAmerica Spokane Job No.: 580-57365-1
 SDG No.: _____
 Lab File ID: 022216_013-MB.d Lab Sample ID: MB 590-5496/1013
 Matrix: Water Date Extracted: _____
 Instrument ID: IC Date Analyzed: 02/22/2016 16:19
 Level: (Low/Med) Low

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES:

CLIENT SAMPLE ID	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
	CCB 590-5496/2	022216_002.d	02/22/2016 13:22
MW3-160217-W	580-57365-1	022216_004.d	02/22/2016 13:51
MW16-160217-W	580-57365-2	022216_005.d	02/22/2016 14:08
MW18-160217-W MS	580-57365-3 MS	022216_006.d	02/22/2016 14:24
MW18-160217-W	580-57365-3	022216_007.d	02/22/2016 14:41
MW18-160217-W DU	580-57365-3 DU	022216_008.d	02/22/2016 14:57
MW18-160217-W MSD	580-57365-3 MSD	022216_009.d	02/22/2016 15:13
MW19-160217-W	580-57365-4	022216_010.d	02/22/2016 15:29
DUP1-160217-W	580-57365-5	022216_011.d	02/22/2016 15:46
	LCS 590-5496/1012	022216_012-LCS.d	02/22/2016 16:02
	CCB 590-5496/13	022216_013.d	02/22/2016 16:19

FORM I
HPLC/IC ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Spokane Job No.: 580-57365-1
 SDG No.: _____
 Client Sample ID: MW3-160217-W Lab Sample ID: 580-57365-1
 Matrix: Water Lab File ID: 022216_004.d
 Analysis Method: 300.0 Date Collected: 02/17/2016 14:30
 Extraction Method: _____ Date Extracted: _____
 Sample wt/vol: 5 (mL) Date Analyzed: 02/22/2016 13:51
 Con. Extract Vol.: _____ Dilution Factor: 1
 Injection Volume: 5 (mL) GC Column: _____ ID: _____
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 5496 Units: mg/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
14808-79-8	Sulfate	12		1.2	0.13

FORM I
HPLC/IC ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Spokane Job No.: 580-57365-1
 SDG No.: _____
 Client Sample ID: MW16-160217-W Lab Sample ID: 580-57365-2
 Matrix: Water Lab File ID: 022216_005.d
 Analysis Method: 300.0 Date Collected: 02/17/2016 12:20
 Extraction Method: _____ Date Extracted: _____
 Sample wt/vol: 5 (mL) Date Analyzed: 02/22/2016 14:08
 Con. Extract Vol.: _____ Dilution Factor: 1
 Injection Volume: 5 (mL) GC Column: _____ ID: _____
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 5496 Units: mg/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
14808-79-8	Sulfate	8.5		1.2	0.13

FORM I
HPLC/IC ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Spokane Job No.: 580-57365-1
 SDG No.: _____
 Client Sample ID: MW18-160217-W Lab Sample ID: 580-57365-3
 Matrix: Water Lab File ID: 022216_007.d
 Analysis Method: 300.0 Date Collected: 02/17/2016 13:35
 Extraction Method: _____ Date Extracted: _____
 Sample wt/vol: 5 (mL) Date Analyzed: 02/22/2016 14:41
 Con. Extract Vol.: _____ Dilution Factor: 1
 Injection Volume: 5 (mL) GC Column: _____ ID: _____
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 5496 Units: mg/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
14808-79-8	Sulfate	6.7		1.2	0.13

FORM I
HPLC/IC ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Spokane Job No.: 580-57365-1
 SDG No.: _____
 Client Sample ID: MW19-160217-W Lab Sample ID: 580-57365-4
 Matrix: Water Lab File ID: 022216_010.d
 Analysis Method: 300.0 Date Collected: 02/17/2016 11:20
 Extraction Method: _____ Date Extracted: _____
 Sample wt/vol: 5 (mL) Date Analyzed: 02/22/2016 15:29
 Con. Extract Vol.: _____ Dilution Factor: 1
 Injection Volume: 5 (mL) GC Column: _____ ID: _____
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 5496 Units: mg/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
14808-79-8	Sulfate	8.1		1.2	0.13

FORM I
HPLC/IC ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Spokane Job No.: 580-57365-1
 SDG No.: _____
 Client Sample ID: DUP1-160217-W Lab Sample ID: 580-57365-5
 Matrix: Water Lab File ID: 022216_011.d
 Analysis Method: 300.0 Date Collected: 02/17/2016 13:00
 Extraction Method: _____ Date Extracted: _____
 Sample wt/vol: 5 (mL) Date Analyzed: 02/22/2016 15:46
 Con. Extract Vol.: _____ Dilution Factor: 1
 Injection Volume: 5 (mL) GC Column: _____ ID: _____
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 5496 Units: mg/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
14808-79-8	Sulfate	8.5		1.2	0.13

FORM VI
HPLC/IC BY EXTERNAL STANDARD - INITIAL CALIBRATION DATA
RETENTION TIME SUMMARY

Lab Name: TestAmerica Spokane Job No.: 580-57365-1 Analy Batch No.: 5445

SDG No.: _____

Instrument ID: IC GC Column: _____ ID: _____ Heated Purge: (Y/N) N

Calibration Start Date: 02/17/2016 10:36 Calibration End Date: 02/17/2016 12:25 Calibration ID: 958

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	IC 590-5445/2	021716_002.d
Level 2	IC 590-5445/3	021716_003.d
Level 3	IC 590-5445/4	021716_004.d
Level 4	IC 590-5445/5	021716_005.d
Level 5	IC 590-5445/6	021716_006.d
Level 6	IC 590-5445/7	021716_007.d
Level 7	IC 590-5445/8	021716_008.d
Level 8	IC 590-5445/9	021716_009.d

ANALYTE	LVL 1	LVL 2	LVL 3	LVL 4	LVL 5	LVL 6	LVL 7	LVL 8			RT WINDOW	AVG RT
Fluoride		+++++	2.217	2.183	2.183	2.200	2.217	2.217			1.683 - 2.683	2.203
Chloride		+++++	3.067	3.050	3.067	3.083	3.133	3.167			2.817 - 3.317	3.095
Sulfate		8.167	8.133	8.050	8.017	7.967	7.917	7.817			7.767 - 8.267	8.010

FORM VI
HPLC/IC BY EXTERNAL STANDARD - INITIAL CALIBRATION DATA
CURVE EVALUATION

Lab Name: TestAmerica Spokane Job No.: 580-57365-1 Analy Batch No.: 5445

SDG No.: _____

Instrument ID: IC GC Column: _____ ID: _____ Heated Purge: (Y/N) N

Calibration Start Date: 02/17/2016 10:36 Calibration End Date: 02/17/2016 12:25 Calibration ID: 958

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	IC 590-5445/2	021716_002.d
Level 2	IC 590-5445/3	021716_003.d
Level 3	IC 590-5445/4	021716_004.d
Level 4	IC 590-5445/5	021716_005.d
Level 5	IC 590-5445/6	021716_006.d
Level 6	IC 590-5445/7	021716_007.d
Level 7	IC 590-5445/8	021716_008.d
Level 8	IC 590-5445/9	021716_009.d

ANALYTE	CF				CURVE TYPE	COEFFICIENT			#	MIN CF	%RSD	#	MAX %RSD	R^2 OR COD	#	MIN R^2 OR COD
	LVL 1 LVL 5	LVL 2 LVL 6	LVL 3 LVL 7	LVL 4 LVL 8		B	M1	M2								
Fluoride	33858521	+++++ 38358427	17828845 42353513	28139144 41536327	Qua2	-3435407.9	34377334.2	232434.344						0.9950		0.9950
Chloride	+++++ 37986636	+++++ 41644923	35957016 45021440	31670560 46283478	Qua2	-533880.49	36136453.9	121295.141						0.9950		0.9950
Sulfate	23184474	22565144 25748059	19650522 29026999	19631740 31506270	Qua2	129832.121	21020616.0	119602.192						0.9960		0.9950

Note: The m1 coefficient is the same as Ave CF for an Ave curve type.

FORM VI
HPLC/IC BY EXTERNAL STANDARD - INITIAL CALIBRATION DATA
RESPONSE AND CONCENTRATION

Lab Name: TestAmerica Spokane Job No.: 580-57365-1 Analy Batch No.: 5445

SDG No.: _____

Instrument ID: IC GC Column: _____ ID: _____ Heated Purge: (Y/N) N

Calibration Start Date: 02/17/2016 10:36 Calibration End Date: 02/17/2016 12:25 Calibration ID: 958

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	IC 590-5445/2	021716_002.d
Level 2	IC 590-5445/3	021716_003.d
Level 3	IC 590-5445/4	021716_004.d
Level 4	IC 590-5445/5	021716_005.d
Level 5	IC 590-5445/6	021716_006.d
Level 6	IC 590-5445/7	021716_007.d
Level 7	IC 590-5445/8	021716_008.d
Level 8	IC 590-5445/9	021716_009.d

ANALYTE	CURVE TYPE	RESPONSE					CONCENTRATION (UG/ML)				
		LVL 1	LVL 2	LVL 3	LVL 4	LVL 5	LVL 6	LVL 2	LVL 3	LVL 4	LVL 5
		LVL 6	LVL 7	LVL 8				LVL 7	LVL 8		
Fluoride	Qua2	383584265	847070255	1661453092	28139144	169292606	10.0	20.0	40.0	1.00	5.00
Chloride	Qua2	1041123069	2251071995	4628347764	79176400	474832949	25.0	50.0	100	2.50	12.5
Sulfate	Qua2	643701477	1451349963	3150627023	49079350	289805926	25.0	50.0	100	2.50	12.5

Curve Type Legend:

Qua2 = Quadratic 1/conc^2

FORM VII
HPLC/IC CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Spokane Job No.: 580-57365-1
 SDG No.: _____
 Lab Sample ID: CCV 590-5496/3 Calibration Date: 02/22/2016 13:37
 Instrument ID: IC Calib Start Date: 02/17/2016 10:36
 GC Column: _____ ID: _____ Calib End Date: 02/17/2016 12:25
 Lab File ID: 022216_003.d Conc. Units: mg/L

ANALYTE	CURVE TYPE	AVE CF	CF	MIN CF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Fluoride	Qua2		33360483		4.80	5.00	-4.1	10.0
Chloride	Qua2		37736585		12.5	12.5	0.3	10.0
Sulfate	Qua2		22702296		12.6	12.5	0.7	10.0

FORM VII
HPLC/IC CONTINUING CALIBRATION RETENTION TIME SUMMARY

Lab Name: TestAmerica Spokane Job No.: 580-57365-1
 SDG No.: _____
 Lab Sample ID: CCV 590-5496/3 Calibration Date: 02/22/2016 13:37
 Instrument ID: IC Calib Start Date: 02/17/2016 10:36
 GC Column: _____ ID: _____ Calib End Date: 02/17/2016 12:25
 Lab File ID: 022216_003.d

Analyte	RT	RT WINDOW	
		FROM	TO
Fluoride	2.18	1.68	2.68
Chloride	3.07	2.82	3.32
Sulfate	8.00	7.75	8.25

FORM VII
HPLC/IC CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Spokane Job No.: 580-57365-1
 SDG No.: _____
 Lab Sample ID: CCV 590-5496/12 Calibration Date: 02/22/2016 16:02
 Instrument ID: IC Calib Start Date: 02/17/2016 10:36
 GC Column: _____ ID: _____ Calib End Date: 02/17/2016 12:25
 Lab File ID: 022216_012.d Conc. Units: mg/L

ANALYTE	CURVE TYPE	AVE CF	CF	MIN CF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Fluoride	Qua2		33338179		4.79	5.00	-4.1	10.0
Chloride	Qua2		37214178		12.4	12.5	-1.0	10.0
Sulfate	Qua2		22870266		12.7	12.5	1.4	10.0

FORM VII
HPLC/IC CONTINUING CALIBRATION RETENTION TIME SUMMARY

Lab Name: TestAmerica Spokane Job No.: 580-57365-1
 SDG No.: _____
 Lab Sample ID: CCV 590-5496/12 Calibration Date: 02/22/2016 16:02
 Instrument ID: IC Calib Start Date: 02/17/2016 10:36
 GC Column: _____ ID: _____ Calib End Date: 02/17/2016 12:25
 Lab File ID: 022216_012.d

Analyte	RT	RT WINDOW	
		FROM	TO
Fluoride	2.20	1.70	2.70
Chloride	3.07	2.82	3.32
Sulfate	8.00	7.75	8.25

FORM I
HPLC/IC ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Spokane Job No.: 580-57365-1
 SDG No.: _____
 Client Sample ID: _____ Lab Sample ID: MB 590-5496/1013
 Matrix: Water Lab File ID: 022216_013-MB.d
 Analysis Method: 300.0 Date Collected: _____
 Extraction Method: _____ Date Extracted: _____
 Sample wt/vol: 5 (mL) Date Analyzed: 02/22/2016 16:19
 Con. Extract Vol.: _____ Dilution Factor: 1
 Injection Volume: 5 (mL) GC Column: _____ ID: _____
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 5496 Units: mg/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
14808-79-8	Sulfate	ND		1.2	0.13

FORM I
HPLC/IC ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Spokane Job No.: 580-57365-1
 SDG No.: _____
 Client Sample ID: _____ Lab Sample ID: CCB 590-5496/2
 Matrix: Water Lab File ID: 022216_002.d
 Analysis Method: 300.0 Date Collected: _____
 Extraction Method: _____ Date Extracted: _____
 Sample wt/vol: 5 (mL) Date Analyzed: 02/22/2016 13:22
 Con. Extract Vol.: _____ Dilution Factor: 1
 Injection Volume: 5 (mL) GC Column: _____ ID: _____
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 5496 Units: mg/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
14808-79-8	Sulfate	ND		0.50	0.13

FORM I
HPLC/IC ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Spokane Job No.: 580-57365-1
 SDG No.: _____
 Client Sample ID: _____ Lab Sample ID: CCB 590-5496/13
 Matrix: Water Lab File ID: 022216_013.d
 Analysis Method: 300.0 Date Collected: _____
 Extraction Method: _____ Date Extracted: _____
 Sample wt/vol: 5 (mL) Date Analyzed: 02/22/2016 16:19
 Con. Extract Vol.: _____ Dilution Factor: 1
 Injection Volume: 5 (mL) GC Column: _____ ID: _____
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 5496 Units: mg/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
14808-79-8	Sulfate	ND		0.50	0.13

FORM I
HPLC/IC ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Spokane Job No.: 580-57365-1
 SDG No.: _____
 Client Sample ID: _____ Lab Sample ID: LCS 590-5496/1012
 Matrix: Water Lab File ID: 022216_012-LCS.d
 Analysis Method: 300.0 Date Collected: _____
 Extraction Method: _____ Date Extracted: _____
 Sample wt/vol: 5 (mL) Date Analyzed: 02/22/2016 16:02
 Con. Extract Vol.: _____ Dilution Factor: 1
 Injection Volume: 5 (mL) GC Column: _____ ID: _____
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 5496 Units: mg/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
14808-79-8	Sulfate	12.7		1.2	0.13

FORM I
HPLC/IC ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Spokane Job No.: 580-57365-1
 SDG No.: _____
 Client Sample ID: MW18-160217-W MS Lab Sample ID: 580-57365-3 MS
 Matrix: Water Lab File ID: 022216_006.d
 Analysis Method: 300.0 Date Collected: 02/17/2016 13:35
 Extraction Method: _____ Date Extracted: _____
 Sample wt/vol: 5 (mL) Date Analyzed: 02/22/2016 14:24
 Con. Extract Vol.: _____ Dilution Factor: 1
 Injection Volume: 5 (mL) GC Column: _____ ID: _____
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 5496 Units: mg/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
14808-79-8	Sulfate	18.6		1.2	0.13

FORM I
HPLC/IC ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Spokane Job No.: 580-57365-1
 SDG No.: _____
 Client Sample ID: MW18-160217-W MSD Lab Sample ID: 580-57365-3 MSD
 Matrix: Water Lab File ID: 022216_009.d
 Analysis Method: 300.0 Date Collected: 02/17/2016 13:35
 Extraction Method: _____ Date Extracted: _____
 Sample wt/vol: 5 (mL) Date Analyzed: 02/22/2016 15:13
 Con. Extract Vol.: _____ Dilution Factor: 1
 Injection Volume: 5 (mL) GC Column: _____ ID: _____
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 5496 Units: mg/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
14808-79-8	Sulfate	18.6		1.2	0.13

FORM I
HPLC/IC ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Spokane Job No.: 580-57365-1
 SDG No.: _____
 Client Sample ID: MW18-160217-W DU Lab Sample ID: 580-57365-3 DU
 Matrix: Water Lab File ID: 022216_008.d
 Analysis Method: 300.0 Date Collected: 02/17/2016 13:35
 Extraction Method: _____ Date Extracted: _____
 Sample wt/vol: 5 (mL) Date Analyzed: 02/22/2016 14:57
 Con. Extract Vol.: _____ Dilution Factor: 1
 Injection Volume: 5 (mL) GC Column: _____ ID: _____
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 5496 Units: mg/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
14808-79-8	Sulfate	6.66		1.2	0.13

HPLC/IC ANALYSIS RUN LOG

Lab Name: TestAmerica Spokane Job No.: 580-57365-1

SDG No.: _____

Instrument ID: IC Start Date: 02/17/2016 10:36

Analysis Batch Number: 5445 End Date: 02/17/2016 12:59

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
IC 590-5445/2		02/17/2016 10:36	1	021716_002.d	
IC 590-5445/3		02/17/2016 10:52	1	021716_003.d	
IC 590-5445/4		02/17/2016 11:09	1	021716_004.d	
IC 590-5445/5		02/17/2016 11:24	1	021716_005.d	
IC 590-5445/6		02/17/2016 11:40	1	021716_006.d	
IC 590-5445/7		02/17/2016 11:55	1	021716_007.d	
IC 590-5445/8		02/17/2016 12:10	1	021716_008.d	
IC 590-5445/9		02/17/2016 12:25	1	021716_009.d	
RINSE 590-5445/10		02/17/2016 12:42	1		
ICV 590-5445/11		02/17/2016 12:59	1		

HPLC/IC ANALYSIS RUN LOG

Lab Name: TestAmerica Spokane Job No.: 580-57365-1

SDG No.: _____

Instrument ID: IC Start Date: 02/22/2016 13:22Analysis Batch Number: 5496 End Date: 02/22/2016 16:19

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
CCB 590-5496/2		02/22/2016 13:22	1	022216_002.d	
CCV 590-5496/3		02/22/2016 13:37	1	022216_003.d	
580-57365-1		02/22/2016 13:51	1	022216_004.d	
580-57365-2		02/22/2016 14:08	1	022216_005.d	
580-57365-3 MS		02/22/2016 14:24	1	022216_006.d	
580-57365-3		02/22/2016 14:41	1	022216_007.d	
580-57365-3 DU		02/22/2016 14:57	1	022216_008.d	
580-57365-3 MSD		02/22/2016 15:13	1	022216_009.d	
580-57365-4		02/22/2016 15:29	1	022216_010.d	
580-57365-5		02/22/2016 15:46	1	022216_011.d	
CCV 590-5496/12		02/22/2016 16:02	1	022216_012.d	
LCS 590-5496/1012		02/22/2016 16:02	1	022216_012-LCS.d	
CCB 590-5496/13		02/22/2016 16:19	1	022216_013.d	
MB 590-5496/1013		02/22/2016 16:19	1	022216_013-MB.d	

Subcontract Data

Shipping and Receiving Documents

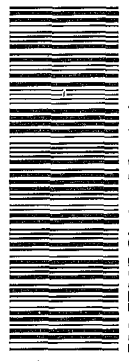
Rush
 Short Hold

Chain of Custody Record

Client: **ECOTechnicians** Client Contact: **Nick Pohrbach** Date: **2/17/16** Chain of Custody Number: **29726**
 Address: **1101 S. FAWCETT AVE #200** Telephone Number (Area Code)/Fax Number: **253-583-4940** Lab Number: **57365** Page: **1** of **1**
 City: **TACOMA** State: _____ Zip Code: _____ Sampler: **PAF** Lab Contact: _____

Sample I.D. and Location/Description (Containers for each sample may be combined on one line)	Date	Time	Matrix						Containers & Preservatives						Analysis (Attach list if more space is needed)	Special Instructions/ Conditions of Receipt
			Air	Aqueous	Sed.	Soil	Unpres.	H2SO4	HNO3	HCl	NaOH	ZnAc/NaOH				
1 MW3-160217-W	2/17	1430	X					X						X	X	Reporting Limits, Analytical list, etc to be achieved
2 MW16-160217-W		1220	X					X						X	X	see table B-1 thru B-4 on monitoring plan
3 MW18-160217-W		1335	X					X						X	X	
4 MW18-160217-MS		1335	X					X						X	X	
5 MW18-160217-MSB		1335	X					X						X	X	
6 MW19-160217-W		1120	X					X						X	X	
7 BOP01-160217-W		1300	X					X						X	X	
8 TRAP BLACK-160217			X					X						X	X	

QC Requirements (Specify):
 Cooler: Yes No Possible Hazard Identification: Non-Hazard Flammable Skin Irritant Poison B Unknown Months: _____
 Turn Around Time Required (business days): **Standard** (48 Hours 5 Days 10 Days 15 Days Other _____
 1. Relinquished By: **Paul Robimette** Date: **2/17/16** Time: **1610** Received By: **Brandon A. Gall** Date: **2/17/16** Time: **16:10**
 2. Relinquished By: _____ Date: _____ Time: _____ Received By: _____ Date: _____ Time: _____
 3. Relinquished By: _____ Date: _____ Time: _____ Received By: _____ Date: _____ Time: _____



TestAmerica Seattle
 8755 8th Street East
 Tacoma, WA 98424
 Phone (253) 922-2310 Fax (253) 922-5047

Chain of Custody Record



TestAmerica
 THE LEADER IN ENVIRONMENTAL TESTING

Client Information (Sub Contract Lab)

Client Contact: _____ Phone: _____
 Shipping/Receiving: _____
 Company: TestAmerica Laboratories, Inc.
 Address: 11922 East 1st Ave, Spokane, WA 99206
 State Zip: WA 99206
 Phone: 509-924-9200 (Tel) 509-924-9290 (Fax)
 Email: _____
 Project Name: 318 State Ave NE (WA)
 Site: _____
 Project #: 58003899
 SSON#: _____

Sampler: _____ Lab File: _____
 Greer, Robert A.
 E-Mail: robert.greer@testamericainc.com
 Carrier Tracking No(s): _____

Due Date Requested: 2/29/2016
 TAT Requested (days): _____
 PO #: _____
 WO #: _____

Analysis Requested: _____
 Job #: 580-57365-1
 COC No: 580-36125.1
 Page: Page 1 of 1

Field Filtered Sample (Yes or No) No
 Perform MS/MSD (Yes or No) No
 300_ORGFM_28D (MOD) Local Method

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (Water, Solid, Cassette, etc.)	Preservation Code	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	300_ORGFM_28D (MOD) Local Method	Total Number of Containers	Special Instructions/Note
MMW3-160217-W (580-57365-1)	2/17/16	14:30	Pacific	Water		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>			
MMW6-160217-W (580-57365-2)	2/17/16	12:20	Pacific	Water		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>			
MMW18-160217-W (580-57365-3)	2/17/16	13:35	Pacific	Water		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>			
MMW18-160217-W (580-57365-3MS)	2/17/16	13:35	Pacific	Water		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>			
MMW16-160217-W (580-57365-3MSD)	2/17/16	13:35	Pacific	Water	MSD	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>			
MMW14-160217-W (580-57365-4)	2/17/16	11:20	Pacific	Water		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>			
DUP1-160217-W (580-57365-5)	2/17/16	13:00	Pacific	Water		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>			

Possible Hazard Identification
 Unconfirmed: _____
 Deliverable Requested: I, II, III, IV, Other (Specify) _____

Empty Kit Relinquished by: _____ Date: _____
 Relinquished by: *R. Varner* Date/Time: 2/19/16
 Relinquished by: _____ Date/Time: _____
 Relinquished by: _____ Date/Time: _____

Company: *TH Svc*
 Received by: *Shelba Spatz*
 Date/Time: 2/22/16
 Received by: _____ Date/Time: _____

Method of Shipment: _____
 Date/Time: _____
 Company: *TH Svc*

Custody Seals Intact: Yes No
 Custody Seal No.: *60251694*
 Cooler Temperature(s) °C and °F: *3.9/3.5°C 100/1*
 Remarks: _____

Login Sample Receipt Checklist

Client: GeoEngineers Inc

Job Number: 580-57365-1

Login Number: 57365
List Number: 1
Creator: Blankinship, Tom X

List Source: TestAmerica Seattle

Question	Answer	Comment
Radioactivity wasn't checked or is <=/ background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	N/A	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	Received same day of collection; chilling process has begun.
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: GeoEngineers Inc

Job Number: 580-57365-1

Login Number: 57365
List Number: 2
Creator: Kratz, Sheila J

List Source: TestAmerica Spokane
List Creation: 02/22/16 10:11 AM

Question	Answer	Comment
Radioactivity wasn't checked or is <=/ background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	N/A	Received project as a subcontract.
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Seattle
5755 8th Street East
Tacoma, WA 98424
Tel: (253)922-2310

TestAmerica Job ID: 580-57365-1

Client Project/Site: 318 State AVE NE (WA)
Revision: 1

For:

GeoEngineers Inc
1101 Fawcett, Suite 200
Tacoma, Washington 98402

Attn: Nick Rohrbach



Authorized for release by:
2/29/2016 8:46:17 AM

Robert Greer, Project Manager II
(253)922-2310
robert.greer@testamericainc.com

LINKS

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results through
TotalAccess

Have a Question?



Visit us at:
www.testamericainc.com

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Case Narrative

Client: GeoEngineers Inc
Project/Site: 318 State AVE NE (WA)

TestAmerica Job ID: 580-57365-1

Job ID: 580-57365-1

Laboratory: TestAmerica Seattle

Narrative

CASE NARRATIVE

Client: GeoEngineers Inc
Project: 318 State AVE NE (WA)
Report Number: 580-57365-1

This case narrative is in the form of an exception report, where only the anomalies related to this report, method specific performance and/or QA/QC issues are discussed. If there are no issues to report, this narrative will include a statement that documents that there are no relevant data issues.

It should be noted that samples with elevated Reporting Limits (RLs) resulting from a dilution may not be able to satisfy customer reporting limits in some cases. Such increases in the RLs are an unavoidable but acceptable consequence of sample dilution that enables quantification of target analytes within the calibration range of the instrument or that reduces the interferences thereby enabling the quantification of target analytes.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

RECEIPT

The samples were received on 02/17/2016; the samples arrived in good condition, properly preserved and on ice. The temperature of the coolers at receipt was 7.3 C. The sample(s) is considered acceptable since it was collected and submitted to the laboratory on the same day and there is evidence that the chilling process has begun.

Note: All samples which require thermal preservation are considered acceptable if the arrival temperature is within 2C of the required temperature or method specified range. For samples with a specified temperature of 4C, samples with a temperature ranging from just above freezing temperature of water to 6C shall be acceptable. Samples that are hand delivered immediately following collection may not meet these criteria, however they will be deemed acceptable according to NELAC standards, if there is evidence that the chilling process has begun, such as arrival on ice, etc.

VOLATILE ORGANIC COMPOUNDS (GC-MS) LOW LEVEL

Samples MW3-160217-W (580-57365-1), MW16-160217-W (580-57365-2), MW18-160217-W (580-57365-3), MW19-160217-W (580-57365-4), DUP1-160217-W (580-57365-5) and Trip Blank-160217 (580-57365-6) were analyzed for volatile organic compounds (GC-MS) low level in accordance with EPA SW-846 8260B. The samples were analyzed on 02/24/2016.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

ANIONS

Samples MW3-160217-W (580-57365-1), MW16-160217-W (580-57365-2), MW18-160217-W (580-57365-3), MW19-160217-W (580-57365-4) and DUP1-160217-W (580-57365-5) were analyzed for anions in accordance with EPA Method 300.0. The samples were analyzed on 02/22/2016.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Definitions/Glossary

Client: GeoEngineers Inc
Project/Site: 318 State AVE NE (WA)

TestAmerica Job ID: 580-57365-1

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Client Sample Results

Client: GeoEngineers Inc
 Project/Site: 318 State AVE NE (WA)

TestAmerica Job ID: 580-57365-1

Client Sample ID: MW3-160217-W

Lab Sample ID: 580-57365-1

Date Collected: 02/17/16 14:30

Matrix: Water

Date Received: 02/17/16 16:10

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
cis-1,2-Dichloroethene	0.41		0.20	0.20	ug/L			02/24/16 14:24	1
1,1-Dichloroethene	ND		0.10	0.10	ug/L			02/24/16 14:24	1
Tetrachloroethene	ND		0.50	0.50	ug/L			02/24/16 14:24	1
trans-1,2-Dichloroethene	ND		0.20	0.20	ug/L			02/24/16 14:24	1
Trichloroethene	4.0		0.20	0.20	ug/L			02/24/16 14:24	1
Vinyl chloride	0.19		0.020	0.020	ug/L			02/24/16 14:24	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	93		75 - 120		02/24/16 14:24	1
Trifluorotoluene (Surr)	101		80 - 127		02/24/16 14:24	1
Toluene-d8 (Surr)	105		75 - 125		02/24/16 14:24	1
Dibromofluoromethane (Surr)	91		85 - 115		02/24/16 14:24	1
1,2-Dichloroethane-d4 (Surr)	99		70 - 128		02/24/16 14:24	1

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	12		1.2	0.13	mg/L			02/22/16 13:51	1

Client Sample Results

Client: GeoEngineers Inc
Project/Site: 318 State AVE NE (WA)

TestAmerica Job ID: 580-57365-1

Client Sample ID: MW16-160217-W

Lab Sample ID: 580-57365-2

Date Collected: 02/17/16 12:20

Matrix: Water

Date Received: 02/17/16 16:10

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
cis-1,2-Dichloroethene	ND		0.20	0.20	ug/L			02/24/16 14:51	1
1,1-Dichloroethene	ND		0.10	0.10	ug/L			02/24/16 14:51	1
Tetrachloroethene	ND		0.50	0.50	ug/L			02/24/16 14:51	1
trans-1,2-Dichloroethene	ND		0.20	0.20	ug/L			02/24/16 14:51	1
Trichloroethene	0.23		0.20	0.20	ug/L			02/24/16 14:51	1
Vinyl chloride	ND		0.020	0.020	ug/L			02/24/16 14:51	1

Surrogate	%Recovery	Qualifier	Limits		Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	93		75 - 120			02/24/16 14:51	1
Trifluorotoluene (Surr)	96		80 - 127			02/24/16 14:51	1
Toluene-d8 (Surr)	104		75 - 125			02/24/16 14:51	1
Dibromofluoromethane (Surr)	92		85 - 115			02/24/16 14:51	1
1,2-Dichloroethane-d4 (Surr)	101		70 - 128			02/24/16 14:51	1

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	8.5		1.2	0.13	mg/L			02/22/16 14:08	1

Client Sample Results

Client: GeoEngineers Inc
Project/Site: 318 State AVE NE (WA)

TestAmerica Job ID: 580-57365-1

Client Sample ID: MW18-160217-W

Lab Sample ID: 580-57365-3

Date Collected: 02/17/16 13:35

Matrix: Water

Date Received: 02/17/16 16:10

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
cis-1,2-Dichloroethene	0.26		0.20	0.20	ug/L			02/24/16 12:59	1
1,1-Dichloroethene	ND		0.10	0.10	ug/L			02/24/16 12:59	1
Tetrachloroethene	ND		0.50	0.50	ug/L			02/24/16 12:59	1
trans-1,2-Dichloroethene	0.26		0.20	0.20	ug/L			02/24/16 12:59	1
Trichloroethene	0.48		0.20	0.20	ug/L			02/24/16 12:59	1
Vinyl chloride	1.5		0.020	0.020	ug/L			02/24/16 12:59	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	93		75 - 120		02/24/16 12:59	1
Trifluorotoluene (Surr)	98		80 - 127		02/24/16 12:59	1
Toluene-d8 (Surr)	103		75 - 125		02/24/16 12:59	1
Dibromofluoromethane (Surr)	91		85 - 115		02/24/16 12:59	1
1,2-Dichloroethane-d4 (Surr)	99		70 - 128		02/24/16 12:59	1

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	6.7		1.2	0.13	mg/L			02/22/16 14:41	1

Client Sample Results

Client: GeoEngineers Inc
Project/Site: 318 State AVE NE (WA)

TestAmerica Job ID: 580-57365-1

Client Sample ID: MW19-160217-W

Lab Sample ID: 580-57365-4

Date Collected: 02/17/16 11:20

Matrix: Water

Date Received: 02/17/16 16:10

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
cis-1,2-Dichloroethene	ND		0.20	0.20	ug/L			02/24/16 15:17	1
1,1-Dichloroethene	ND		0.10	0.10	ug/L			02/24/16 15:17	1
Tetrachloroethene	ND		0.50	0.50	ug/L			02/24/16 15:17	1
trans-1,2-Dichloroethene	ND		0.20	0.20	ug/L			02/24/16 15:17	1
Trichloroethene	1.7		0.20	0.20	ug/L			02/24/16 15:17	1
Vinyl chloride	ND		0.020	0.020	ug/L			02/24/16 15:17	1

Surrogate	%Recovery	Qualifier	Limits		Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	93		75 - 120			02/24/16 15:17	1
Trifluorotoluene (Surr)	100		80 - 127			02/24/16 15:17	1
Toluene-d8 (Surr)	104		75 - 125			02/24/16 15:17	1
Dibromofluoromethane (Surr)	93		85 - 115			02/24/16 15:17	1
1,2-Dichloroethane-d4 (Surr)	99		70 - 128			02/24/16 15:17	1

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	8.1		1.2	0.13	mg/L			02/22/16 15:29	1

Client Sample Results

Client: GeoEngineers Inc
 Project/Site: 318 State AVE NE (WA)

TestAmerica Job ID: 580-57365-1

Client Sample ID: DUP1-160217-W

Lab Sample ID: 580-57365-5

Date Collected: 02/17/16 13:00

Matrix: Water

Date Received: 02/17/16 16:10

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
cis-1,2-Dichloroethene	ND		0.20	0.20	ug/L			02/24/16 15:44	1
1,1-Dichloroethene	ND		0.10	0.10	ug/L			02/24/16 15:44	1
Tetrachloroethene	ND		0.50	0.50	ug/L			02/24/16 15:44	1
trans-1,2-Dichloroethene	ND		0.20	0.20	ug/L			02/24/16 15:44	1
Trichloroethene	0.25		0.20	0.20	ug/L			02/24/16 15:44	1
Vinyl chloride	ND		0.020	0.020	ug/L			02/24/16 15:44	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	91		75 - 120		02/24/16 15:44	1
Trifluorotoluene (Surr)	103		80 - 127		02/24/16 15:44	1
Toluene-d8 (Surr)	105		75 - 125		02/24/16 15:44	1
Dibromofluoromethane (Surr)	94		85 - 115		02/24/16 15:44	1
1,2-Dichloroethane-d4 (Surr)	102		70 - 128		02/24/16 15:44	1

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	8.5		1.2	0.13	mg/L			02/22/16 15:46	1

Client Sample Results

Client: GeoEngineers Inc
 Project/Site: 318 State AVE NE (WA)

TestAmerica Job ID: 580-57365-1

Client Sample ID: Trip Blank-160217

Lab Sample ID: 580-57365-6

Date Collected: 02/17/16 00:01

Matrix: Water

Date Received: 02/17/16 16:10

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
cis-1,2-Dichloroethene	ND		0.20	0.20	ug/L			02/24/16 12:32	1
1,1-Dichloroethene	ND		0.10	0.10	ug/L			02/24/16 12:32	1
Tetrachloroethene	ND		0.50	0.50	ug/L			02/24/16 12:32	1
trans-1,2-Dichloroethene	ND		0.20	0.20	ug/L			02/24/16 12:32	1
Trichloroethene	ND		0.20	0.20	ug/L			02/24/16 12:32	1
Vinyl chloride	ND		0.020	0.020	ug/L			02/24/16 12:32	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	95		75 - 120		02/24/16 12:32	1
Trifluorotoluene (Surr)	94		80 - 127		02/24/16 12:32	1
Toluene-d8 (Surr)	103		75 - 125		02/24/16 12:32	1
Dibromofluoromethane (Surr)	90		85 - 115		02/24/16 12:32	1
1,2-Dichloroethane-d4 (Surr)	98		70 - 128		02/24/16 12:32	1

QC Sample Results

Client: GeoEngineers Inc
Project/Site: 318 State AVE NE (WA)

TestAmerica Job ID: 580-57365-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 580-211854/4
Matrix: Water
Analysis Batch: 211854

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
cis-1,2-Dichloroethene	ND		0.20	0.20	ug/L			02/24/16 09:49	1
1,1-Dichloroethene	ND		0.10	0.10	ug/L			02/24/16 09:49	1
Tetrachloroethene	ND		0.50	0.50	ug/L			02/24/16 09:49	1
trans-1,2-Dichloroethene	ND		0.20	0.20	ug/L			02/24/16 09:49	1
Trichloroethene	ND		0.20	0.20	ug/L			02/24/16 09:49	1
Vinyl chloride	ND		0.020	0.020	ug/L			02/24/16 09:49	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	93		75 - 120		02/24/16 09:49	1
Trifluorotoluene (Surr)	97		80 - 127		02/24/16 09:49	1
Toluene-d8 (Surr)	104		75 - 125		02/24/16 09:49	1
Dibromofluoromethane (Surr)	91		85 - 115		02/24/16 09:49	1
1,2-Dichloroethane-d4 (Surr)	95		70 - 128		02/24/16 09:49	1

Lab Sample ID: LCS 580-211854/5
Matrix: Water
Analysis Batch: 211854

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
cis-1,2-Dichloroethene	5.01	4.68		ug/L		93	80 - 130
1,1-Dichloroethene	5.04	4.55		ug/L		90	70 - 150
Tetrachloroethene	5.01	4.64		ug/L		92	40 - 180
trans-1,2-Dichloroethene	5.01	4.67		ug/L		93	80 - 140
Trichloroethene	5.01	4.65		ug/L		93	80 - 130
Vinyl chloride	5.03	4.49		ug/L		89	65 - 140

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	90		75 - 120
Trifluorotoluene (Surr)	94		80 - 127
Toluene-d8 (Surr)	102		75 - 125
Dibromofluoromethane (Surr)	92		85 - 115
1,2-Dichloroethane-d4 (Surr)	97		70 - 128

Lab Sample ID: LCSD 580-211854/6
Matrix: Water
Analysis Batch: 211854

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
cis-1,2-Dichloroethene	5.01	4.72		ug/L		94	80 - 130	1	20
1,1-Dichloroethene	5.04	4.64		ug/L		92	70 - 150	2	20
Tetrachloroethene	5.01	4.82		ug/L		96	40 - 180	4	20
trans-1,2-Dichloroethene	5.01	4.76		ug/L		95	80 - 140	2	20
Trichloroethene	5.01	4.70		ug/L		94	80 - 130	1	20
Vinyl chloride	5.03	4.67		ug/L		93	65 - 140	4	20

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	92		75 - 120

TestAmerica Seattle

QC Sample Results

Client: GeoEngineers Inc
Project/Site: 318 State AVE NE (WA)

TestAmerica Job ID: 580-57365-1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 580-211854/6
Matrix: Water
Analysis Batch: 211854

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Surrogate	LCSD		Limits
	%Recovery	Qualifier	
Trifluorotoluene (Surr)	98		80 - 127
Toluene-d8 (Surr)	104		75 - 125
Dibromofluoromethane (Surr)	92		85 - 115
1,2-Dichloroethane-d4 (Surr)	97		70 - 128

Lab Sample ID: 580-57365-3 MS
Matrix: Water
Analysis Batch: 211854

Client Sample ID: MW18-160217-W
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS		Unit	D	%Rec	%Rec. Limits
				Result	Qualifier				
cis-1,2-Dichloroethene	0.26		5.01	5.21		ug/L		99	71 - 144
1,1-Dichloroethene	ND		5.04	4.74		ug/L		94	78 - 151
Tetrachloroethene	ND		5.01	5.34		ug/L		107	64 - 161
trans-1,2-Dichloroethene	0.26		5.01	5.36		ug/L		102	73 - 135
Trichloroethene	0.48		5.01	5.53		ug/L		101	79 - 131
Vinyl chloride	1.5		5.03	6.98		ug/L		108	47 - 160

Surrogate	MS		Limits
	%Recovery	Qualifier	
4-Bromofluorobenzene (Surr)	93		75 - 120
Trifluorotoluene (Surr)	96		80 - 127
Toluene-d8 (Surr)	104		75 - 125
Dibromofluoromethane (Surr)	95		85 - 115
1,2-Dichloroethane-d4 (Surr)	101		70 - 128

Lab Sample ID: 580-57365-3 MSD
Matrix: Water
Analysis Batch: 211854

Client Sample ID: MW18-160217-W
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD		Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
				Result	Qualifier						
cis-1,2-Dichloroethene	0.26		5.01	5.25		ug/L		100	71 - 144	1	20
1,1-Dichloroethene	ND		5.04	5.28		ug/L		105	78 - 151	11	30
Tetrachloroethene	ND		5.01	5.45		ug/L		109	64 - 161	2	20
trans-1,2-Dichloroethene	0.26		5.01	5.50		ug/L		105	73 - 135	3	20
Trichloroethene	0.48		5.01	5.86		ug/L		107	79 - 131	6	30
Vinyl chloride	1.5		5.03	7.06		ug/L		110	47 - 160	1	20

Surrogate	MSD		Limits
	%Recovery	Qualifier	
4-Bromofluorobenzene (Surr)	91		75 - 120
Trifluorotoluene (Surr)	99		80 - 127
Toluene-d8 (Surr)	103		75 - 125
Dibromofluoromethane (Surr)	91		85 - 115
1,2-Dichloroethane-d4 (Surr)	98		70 - 128

QC Sample Results

Client: GeoEngineers Inc
Project/Site: 318 State AVE NE (WA)

TestAmerica Job ID: 580-57365-1

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 590-5496/1013
Matrix: Water
Analysis Batch: 5496

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	ND		1.2	0.13	mg/L			02/22/16 16:19	1

Lab Sample ID: LCS 590-5496/1012
Matrix: Water
Analysis Batch: 5496

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfate	12.5	12.7		mg/L		101	90 - 110

Lab Sample ID: 580-57365-3 MS
Matrix: Water
Analysis Batch: 5496

Client Sample ID: MW18-160217-W
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfate	6.7		11.4	18.6		mg/L		104	80 - 120

Lab Sample ID: 580-57365-3 MSD
Matrix: Water
Analysis Batch: 5496

Client Sample ID: MW18-160217-W
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Sulfate	6.7		11.4	18.6		mg/L		104	80 - 120	0	10

Lab Sample ID: 580-57365-3 DU
Matrix: Water
Analysis Batch: 5496

Client Sample ID: MW18-160217-W
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Sulfate	6.7		6.66		mg/L		1	15.7

Lab Chronicle

Client: GeoEngineers Inc
Project/Site: 318 State AVE NE (WA)

TestAmerica Job ID: 580-57365-1

Client Sample ID: MW3-160217-W

Date Collected: 02/17/16 14:30

Date Received: 02/17/16 16:10

Lab Sample ID: 580-57365-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	211854	02/24/16 14:24	CJ	TAL SEA
Total/NA	Analysis	300.0		1	5496	02/22/16 13:51	MRS	TAL SPK

Client Sample ID: MW16-160217-W

Date Collected: 02/17/16 12:20

Date Received: 02/17/16 16:10

Lab Sample ID: 580-57365-2

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	211854	02/24/16 14:51	CJ	TAL SEA
Total/NA	Analysis	300.0		1	5496	02/22/16 14:08	MRS	TAL SPK

Client Sample ID: MW18-160217-W

Date Collected: 02/17/16 13:35

Date Received: 02/17/16 16:10

Lab Sample ID: 580-57365-3

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	211854	02/24/16 12:59	CJ	TAL SEA
Total/NA	Analysis	300.0		1	5496	02/22/16 14:41	MRS	TAL SPK

Client Sample ID: MW19-160217-W

Date Collected: 02/17/16 11:20

Date Received: 02/17/16 16:10

Lab Sample ID: 580-57365-4

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	211854	02/24/16 15:17	CJ	TAL SEA
Total/NA	Analysis	300.0		1	5496	02/22/16 15:29	MRS	TAL SPK

Client Sample ID: DUP1-160217-W

Date Collected: 02/17/16 13:00

Date Received: 02/17/16 16:10

Lab Sample ID: 580-57365-5

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	211854	02/24/16 15:44	CJ	TAL SEA
Total/NA	Analysis	300.0		1	5496	02/22/16 15:46	MRS	TAL SPK

Client Sample ID: Trip Blank-160217

Date Collected: 02/17/16 00:01

Date Received: 02/17/16 16:10

Lab Sample ID: 580-57365-6

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	211854	02/24/16 12:32	CJ	TAL SEA

TestAmerica Seattle

Lab Chronicle

Client: GeoEngineers Inc
Project/Site: 318 State AVE NE (WA)

TestAmerica Job ID: 580-57365-1

Laboratory References:

TAL SEA = TestAmerica Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310

TAL SPK = TestAmerica Spokane, 11922 East 1st Ave, Spokane, WA 99206, TEL (509)924-9200

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Certification Summary

Client: GeoEngineers Inc
Project/Site: 318 State AVE NE (WA)

TestAmerica Job ID: 580-57365-1

Laboratory: TestAmerica Seattle

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Alaska (UST)	State Program	10	UST-022	03-02-16
California	State Program	9	2901	01-31-18
L-A-B	DoD ELAP		L2236	01-19-19
L-A-B	ISO/IEC 17025		L2236	01-19-19
Montana (UST)	State Program	8	N/A	04-30-20
Oregon	NELAP	10	WA100007	11-06-16
US Fish & Wildlife	Federal		LE058448-0	02-28-16
USDA	Federal		P330-14-00126	04-08-17

Laboratory: TestAmerica Spokane

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Alaska (UST)	State Program	10	UST-071	10-31-16
Washington	State Program	10	C569	01-06-17

Sample Summary

Client: GeoEngineers Inc
Project/Site: 318 State AVE NE (WA)

TestAmerica Job ID: 580-57365-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
580-57365-1	MW3-160217-W	Water	02/17/16 14:30	02/17/16 16:10
580-57365-2	MW16-160217-W	Water	02/17/16 12:20	02/17/16 16:10
580-57365-3	MW18-160217-W	Water	02/17/16 13:35	02/17/16 16:10
580-57365-4	MW19-160217-W	Water	02/17/16 11:20	02/17/16 16:10
580-57365-5	DUP1-160217-W	Water	02/17/16 13:00	02/17/16 16:10
580-57365-6	Trip Blank-160217	Water	02/17/16 00:01	02/17/16 16:10

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11

Rush
 Short Hold

Chain of Custody Record

Client ECOLINTEERS		Client Contact Nick Pohrbach		Date 2/17/16	Chain of Custody Number 29726
Address 1101 S. FAWCETT AVE #200		Telephone Number (Area Code)/Fax Number 253-583-4940		Lab Number 57365	Page 1 of 1
City TACOMA	State WA	Zip Code 98404	Sampler POP	Analysis (Attach list if more space is needed)	
Project Name and Location (State) 318 State Ave - Olympia			Billing Contact		
Contract/Purchase Order/Quote No. SEI # 0415-049-06			Special Instructions/ Conditions of Receipt		

Sample I.D. and Location/Description (Containers for each sample may be combined on one line)	Date	Time	Matrix						Containers & Preservatives						Special Instructions/ Conditions of Receipt
			Air	Aqueous	Sed.	Soil	Unpres.	H2SO4	HNO3	HCl	NaOH	ZnAc/NaOH			
-1 MW18-160217-W	2/17	1450	X					X	X	X	X	X	X	X	Reporting Limits, Analytical list, etc to be achieved
-2 MW16-160217-W		1220	X					X	X	X	X	X	X	X	see table B-1 thru B-4 on monitoring plan
-3 MW18-160217-W		1335	X					X	X	X	X	X	X	X	
-4 MW18-160217-M5		1335	X					X	X	X	X	X	X	X	
-5 MW19-160217-W		1120	X					X	X	X	X	X	X	X	
-6 VOP01-160217-W		1300	X					X	X	X	X	X	X	X	
-7 TRIP BLACK-160217			X					X	X	X	X	X	X	X	

Cooler Yes No Cooler Temp: _____
 Possible Hazard Identification: Non-Hazard Flammable Skin Irritant Poison B Unknown Sample Disposal Disposal By Lab
 Turn Around Time Required (business days): **Standard** 24 Hours 48 Hours 5 Days 10 Days 15 Days Other _____
 Return To Client Archive For _____ Months (A fee may be assessed if samples are retained longer than 1 month)

1. Relinquished By Paul Robinson	Signature	Date 2/17/16	Time 1610
2. Relinquished By Brandon A. Gail	Signature	Date 2/17/16	Time 16:10
3. Relinquished By	Signature	Date	Time

Comments
QC Requirements (Specify)
1. Received By Sign/Print: Brandon A. Gail
2. Received By Sign/Print: Brandon A. Gail
3. Received By Sign/Print:



TestAmerica Seattle
 5755 8th Street East
 Tacoma, WA 98424
 Phone (253) 922-2310 Fax (253) 922-5047

Chain of Custody Record



TestAmerica
 580-36125-1
 THE LEADER IN ENVIRONMENTAL TESTING

Client Information (Sub Contract Lab)

Company: TestAmerica Laboratories, Inc
 Address: 11922 East 1st Ave.
 City: Spokane
 State, Zip: WA, 99206
 Phone: 509-924-9200 (Tel) 509-924-9290 (Fax)
 Email:

Lab Dir.: Greer, Robert A
 E-Mail: robert.greer@testamericainc.com

Camera Tracking No(s)

COC No: 580-36125-1
 Page: Page 1 of 1

Client Contact: Shipping/Receiving
 Due Date Requested: 2/29/2016
 TAT Requested (days):
 PO #:
 WOI #:
 Project Name: 318 State AVE NE (WA)
 Project #: 38003899
 SSOV #:

Analysis Requested

Job #: 580-57365-1

Preservation Codes:
 A-HCl
 B-NEOH
 C-Zn Acetate
 D-Nitric Acid
 E-NH4SO4
 F-MOH
 G-Armethor
 H-Ascorbic Acid
 I-Ice
 J-DI Water
 K-EDTA
 L-EDA
 M-Hexane
 N-Nitro
 O-AsVNO2
 P-Na2CO3
 Q-Na2SO3
 R-Na2S2O3
 S-H2SO4
 T-TSP Dodecylhydrate
 U-Acetone
 V-MCA4
 W-pn 4-9
 Z-other (specify)
 Other:

Sample Identification - Client ID (Lab ID)

Sample Date

Sample Time

Sample Type (C=Comp, G=Graph, P=Preservation Code)

Matrix (Water, Soil, Cement, Ash)

Field Filtered Sample (Yes or No)

Return Method (Yes or No)

300_ORGFM_28D/(MOD) Local Method

Total Number of Containers

Special Instructions/Note:

MMW3-160217-W (580-57365-1) 2/17/16 14.30 Pacific Water X

MMW6-160217-W (580-57365-2) 2/17/16 12.20 Pacific Water X

MMW18-160217-W (580-57365-3) 2/17/16 13.35 Pacific Water X

MMW18-160217-W (580-57365-3MS) 2/17/16 13.35 Pacific Water X

MMW18-160217-W (580-57365-4) 2/17/16 11.20 Pacific Water X

DUP1-160217-W (580-57365-5) 2/17/16 13.00 Pacific Water X

Possible Hazard Identification

Unconfirmed

Deliverable Requested: I, II, III, IV, Other (specify)

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

Return To Client

Disposal By Lab

Archive For

Months

Special Instructions/Note:

Empty Kit Relinquished by:

Relinquished by: *B. Vayner*

Date/Time: 2/19/16

Company: *TH Sec*

Received by: *Shonika Spauld*

Date/Time: 2/22/16

Method of Shipment: *1000*

Date/Time: *1000*

Company: *TH Sec*

Relinquished by:

Date/Time:

Company:

Received by:

Date/Time:

Date/Time:

Date/Time:

Company:

Relinquished by:

Date/Time:

Company:

Received by:

Date/Time:

Date/Time:

Date/Time:

Company:

Custody Seals Intact:

Δ Yes Δ No

Custody Seal No.: *102516944*

Cooler Temperature(s) °C and °F: *3.4/38.5*

Remarks: *1000*

Date/Time:

Date/Time:

Date/Time:

Company:

Login Sample Receipt Checklist

Client: GeoEngineers Inc

Job Number: 580-57365-1

Login Number: 57365

List Source: TestAmerica Seattle

List Number: 1

Creator: Blankinship, Tom X

Question	Answer	Comment
Radioactivity wasn't checked or is <=/ background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	N/A	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	Received same day of collection; chilling process has begun.
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



Login Sample Receipt Checklist

Client: GeoEngineers Inc

Job Number: 580-57365-1

Login Number: 57365
List Number: 2
Creator: Kratz, Sheila J

List Source: TestAmerica Spokane
List Creation: 02/22/16 10:11 AM

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	N/A	Received project as a subcontract.
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <math><6\text{mm}</math> (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



APPENDIX B
Data Quality Assessment Summary

Project: City of Olympia – 318 NE State Avenue Site
February 2016 Groundwater Monitoring

GEI File No: 0415-049-07

Date: March 5, 2016

This report documents the results of a United States Environmental Protection Agency (USEPA)-defined Stage 2A data validation (USEPA Document 540-R-08-005; USEPA, 2009) of analytical data from the analyses of groundwater samples collected as part of the February 2016 Semi-Annual Groundwater Monitoring sampling event, and the associated laboratory and field quality control (QC) samples. The samples were obtained from the 318 NE State Avenue Property located in Olympia, Washington.

OBJECTIVE AND QUALITY CONTROL ELEMENTS

GeoEngineers, Inc. (GeoEngineers) completed the data validation consistent with the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (USEPA, 2008) and Inorganic Superfund Data Review (USEPA 2010) (National Functional Guidelines) to determine if the laboratory analytical results meet the project objectives and are usable for their intended purpose. Data usability was assessed by determining if:

- The samples were analyzed using well-defined and acceptable methods that provide reporting limits below applicable regulatory criteria;
- The precision and accuracy of the data are well-defined and sufficient to provide defensible data; and
- The quality assurance/quality control (QA/QC) procedures utilized by the laboratory meet acceptable industry practices and standards.

In accordance with the Quality Assurance Project Plan (QAPP), Appendix B of the Groundwater Compliance Monitoring Plan (GeoEngineers, 2015), the data validation included review of the following QC elements:

- Data Package Completeness
- Chain-of-Custody Documentation
- Holding Times and Sample Preservation
- Surrogate Recoveries
- Method and Trip Blanks
- Matrix Spikes/Matrix Spike Duplicates
- Laboratory Control Samples/Laboratory Control Sample Duplicates
- Laboratory/Field Duplicates

VALIDATED SAMPLE DELIVERY GROUPS

This data validation included review of the sample delivery group (SDG) listed below in Table 1.

TABLE 1. SUMMARY OF VALIDATED SAMPLE DELIVERY GROUPS

Laboratory SDG	Samples Validated
580-57365-1	MW3-160217-W, MW16-160217-W, DUP1-160217-W, MW18-160217-W, MW19-160217-W, Trip Blank-160217

CHEMICAL ANALYSIS PERFORMED

TestAmerica Laboratories, Inc. (TestAmerica), located in Tacoma, Washington, performed laboratory analysis on the groundwater samples using the following methods:

- Volatile Organic Compounds (VOCs) by Method SW8260B; and
- Sulfate Anions by Method EPA300.0.

DATA VALIDATION SUMMARY

The results for each of the QC elements are summarized below.

Data Package Completeness

TestAmerica provided all required deliverables for the data validation according to the National Functional Guidelines. The laboratory followed adequate corrective action processes and all identified anomalies were discussed in the relevant laboratory case narrative.

Chain-of-Custody Documentation

Chain-of-custody (COC) forms were provided with the laboratory analytical reports. The COCs were accurate and complete when submitted to the laboratory.

Holding Times and Sample Preservation

The sample holding time is defined as the time that elapses between sample collection and sample analysis. Maximum holding time criteria exist for each analysis to help ensure that the analyte concentrations found at the time of analysis reflect the concentration present at the time of sample collection. Established holding times were met for all analyses. The sample cooler arrived at the laboratory at a temperature outside of two and six degrees Celsius. The temperature of the cooler is discussed below.

SDG 580-57365-1: The sample cooler temperature recorded at the laboratory was 7.3 degrees Celsius. It was determined through professional judgment that since the samples were received by the laboratory within hours of collection on the same day they were collected, this temperature should not affect the sample analytical results.

Surrogate Recoveries

A surrogate compound is a compound that is chemically similar to the organic analytes of interest, but unlikely to be found in any environmental sample. Surrogates are used for organic analyses and are added to all samples, standards, and blanks to serve as an accuracy and specificity check of each analysis. The surrogates are added to the samples at a known concentration and percent recoveries are calculated following analysis. All surrogate percent recoveries for field samples were within the laboratory control limits.

Method and Trip Blanks

Method blanks are analyzed to ensure that laboratory procedures and reagents do not introduce measurable concentrations of the analytes of interest. A method blank was analyzed with each batch of samples, at a frequency of 1 per 20 samples. For all sample batches, method blanks for all applicable methods were analyzed at the required frequency. None of the analytes of interest were detected above the reporting limits in any of the method blanks.

Trip blanks are analyzed to assess whether field sampling or sample transport processes may have introduced measurable concentrations of volatile analytes of interest into project samples. None of the analytes of interest were detected above the reporting limits in the trip blank.

Matrix Spikes/Matrix Spike Duplicates

Since the actual analyte concentration in an environmental sample is not known, the accuracy of a particular analysis is usually inferred by performing a matrix spike (MS) analysis on one sample from the associated batch, known as the parent sample. One aliquot of the sample is analyzed in the normal manner and then a second aliquot of the sample is spiked with a known amount of analyte concentration and analyzed. From these analyses, a percent recovery is calculated. Matrix spike duplicate (MSD) analyses are generally performed for organic analyses as a precision check and analyzed in the same sequence as a matrix spike. Using the result values from the MS and MSD, the relative percent difference (RPD) is calculated. The percent recovery control limits for MS and MSD analyses are specified in the laboratory documents, as are the RPD control limits for MS/MSD sample sets.

One MS/MSD analysis should be performed for every analytical batch or every 20 field samples, whichever is more frequent. The frequency requirements were met for all analyses and the percent recovery and RPD values were within the proper control limits.

Laboratory Control Samples/Laboratory Control Sample Duplicates

A laboratory control sample (LCS) is a blank sample that is spiked with a known amount of analyte and then analyzed. An LCS is similar to an MS, but without the possibility of matrix interference. Given that matrix interference is not an issue, the LCS/LCSD control limits for accuracy and precision are usually more rigorous than for MS/MSD analyses. Additionally, data qualification based on LCS/LCSD analyses would apply to all samples in the associated batch, instead of just the parent sample. The percent recovery control limits for LCS and LCSD analyses are specified in the laboratory documents, as are the RPD control limits for LCS/LCSD sample sets.

One LCS/LCSD analysis should be performed for every analytical batch or every 20 field samples, whichever is more frequent. The frequency requirements were met for all analyses and the percent recovery and RPD values were within the proper control limits.



Laboratory Duplicates (Sulfate anions only)

Internal laboratory duplicate analyses are performed to monitor the precision of the analyses. Two separate aliquots of a sample are analyzed as distinct samples in the laboratory and the RPD between the two results is calculated. Duplicate analyses should be performed once per analytical batch. If one or more of the samples used has a concentration less than five times the reporting limit for that sample, the absolute difference is used instead of the RPD. The RPD control limits are specified in the laboratory documents. Laboratory duplicates were analyzed at the proper frequency and the specified acceptance criteria were met.

Field Duplicates

In order to assess precision, a field duplicate sample was collected and analyzed along with the reviewed sample batches. The duplicate sample was analyzed for the same parameters as the associated parent sample. Precision is determined by calculating the RPD of sample concentrations between each pair of samples. If one or more of the sample analytes has a concentration greater than five times the reporting limit for that sample, then the absolute difference is used instead of the RPD. The RPD control limit for water samples is 35 percent.

SDG 580-57365-1: One field duplicate sample pair, MW16-160217-W and DUP1-160217-W, was submitted with this SDG. The precision criteria for all target analytes were met for this sample pair.

OVERALL ASSESSMENT

As was determined by this data validation, the laboratory followed the specified analytical methods. Accuracy was acceptable, as demonstrated by the surrogate, LCS/LCSD, and MS/MSD percent recovery values. Precision was acceptable, as demonstrated by the LCS/LCSD, MS/MSD, and laboratory/field duplicate RPD values.

No analytical results were qualified. All data are acceptable for the intended use.

REFERENCES

- U.S. Environmental Protection Agency (USEPA). "Guidance for Labeling Externally Validated Laboratory Analytical Data for Superfund Use," EPA-540-R-08-005. January 2009.
- U.S. Environmental Protection Agency (USEPA). "Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review," EPA-540-R-08-01. June 2008.
- U.S. Environmental Protection Agency (USEPA). "Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review," EPA-540-R-10-011. January 2010.
- GeoEngineers, Inc. "Groundwater Compliance Monitoring Plan," prepared for City of Olympia. October 1, 2015.

