ROBINSON NOBLE

July 31, 2020

Jeff Johnstone
City of Olympia
601 4th Avenue East
Olympia, WA 98507-1967

Subject: 318 State Street post-chemical-injection groundwater monitoring results

Dear Mr. Johnstone

Robinson Noble is pleased to present this letter report documenting the results of our pre- and post-chemical-injection groundwater monitoring at the 318 State Avenue NE property in Olympia, Washington, herein referred to as the site. Figures 1 and 2 respectively present a vicinity map and an aerial of the site. Olympia Development, LLC is the current property owner. Robinson Noble prepared this report as part of an effort to achieve a no-further-action (NFA) determination under the auspices of the Washington State Department of Ecology's (Ecology) Voluntary Cleanup Program (VCP). As described below, groundwater monitoring is being conducted to evaluate the effectiveness of injected chemicals in remediating chlorinated solvent contamination at the site.

Background and Purpose

A number of investigations designed to characterize and delineate the extent of chlorinated solvent contamination below the site were previously completed by GeoEngineers. In 2009 contaminated soil at the site (containing chlorinated solvents, metals, volatile organic compounds (VOCs), and carcinogenic polycyclic aromatic hydrocarbons)(cPAHs), was excavated and removed from the site. Confirmation soil samples collected by GeoEngineers at the boundaries of the excavation revealed that contamination levels in the remaining soils were below the applicable Model Toxics Control Act (MTCA) cleanup levels for unrestricted land uses. Chlorinated solvents however, were still detected in the groundwater at the site, at concentrations above the applicable MTCA Method A cleanup levels.

In 2009, GeoEngineers installed two additional groundwater monitoring wells on the site (designated as MW-17 and MW-18). These were added to a network of sixteen existing wells (designated as MW-1 through MW-16). Monitoring well locations are shown on Figure 2. Quarterly groundwater monitoring conducted by GeoEngineers began in 2010, shortly after the completion of the above mentioned soil remediation. Groundwater monitoring and sampling were conducted quarterly at eight of these wells (MW-3, MW-4, MW-8, MW-9, MW-13, MW-16, MW-17, and MW-18) from May 2010 to February 2011. From May 2011 to February 2012 five wells (MW-3, MW-8, MW-16, MW-17, and MW-18) were monitored after one year of analytical results showed contaminant levels in MW-4, MW-9, and MW-13 were below the applicable MTCA cleanup levels. From August 2012 to August 2013 the monitoring was switched to a semi-annual frequency. From February 2014 to October 2017 three wells (MW-3, MW-16, and MW-18) were monitored after analytical results from MW-8 and MW-17 indicated contaminant levels were below the applicable MTCA Method A cleanup levels. In July 2015, an additional monitoring well (designated as MW-19) was installed and monitored quarterly until July 2016 and then semi-annually along with MW-3, MW-16, and MW-18.

In February 2016 an NFA determination was granted by Ecology for the southeastern portion of the property, where groundwater monitoring results showed no contamination over applicable MTCA Method A cleanup levels.

Groundwater monitoring was conducted by GeoEngineers for monitoring wells MW-3, MW-16, MW-18, and MW19 on July 19, 2018. The laboratory results from this groundwater sampling event showed that vinyl chloride was detected in some of the monitoring wells above the applicable cleanup level.

Considering a number of factors, including the type of contamination, its limited extent, and the fact that the site now has an active apartment complex on the property, GeoEngineers recommended performing *in situ* treatment via chemical injection to try to remediate the remaining groundwater contamination. It was presumed that two injection events would be required.

To date, Robinson Noble has conducted one round of pre-injection groundwater sampling and monitoring (conducted on February 22, 2018), one initial round of chemical injection (conducted between January 8 and 15, 2019), and two post-injection groundwater sampling and monitoring events (conducted on March 7, 2019 and on June 20, 2019) to evaluate the effectiveness of the chemical injection process. Our site activities and findings are discussed in detail below.

Field Activities and Findings

Chemical Injection

In January 2019, Robinson noble was on site to oversee chemical injection. During the injection a Robinson Noble geologist was on site to oversee the process and collect groundwater depth measurements and groundwater quality parameters.

Between January 8th and January 15th, 2019, Robinson Noble was onsite to oversee chemical injection. This involved drilling sixty-four (64) injection points using direct-push drilling methods and then injecting chemical solutions into the ground through the drilling rods while the drilling rods were slowly retracted so that a sufficient volume of the chemical reagent was dispersed over the zone of contamination. All chemical injection was directed and/or completed by personnel from Regenesis Bioremediation Products, Inc. (Regenesis) and all drilling was conducted by Holt Services, Inc. (Holt).

Figure 3 shows the location of each of the injection points, which are numbered 1 through 64. Regenesis personnel applied Chemical Reducing Solution (CRS), 3-D Microemulsion (3DME), and Bio-Dechlor Inoculum Plus (BDI Plus) which are manufactured by Regenesis, at fifty-four (54) injection points on the property. PlumeStop was injected at injection points 1 through 9 along the northern property boundary. Each point was injected with approximately 250 gallons of a product-water mixture at two feet and nine feet below the ground surface. A summary report for the injection procedures, provided by Regenesis, is attached in Appendix A.

Groundwater Monitoring

Prior to the initial chemical injection, Robinson Noble conducted groundwater monitoring to establish pre-injection baseline conditions. Following the completion of the chemical injection, two additional post-injection monitoring events were completed to assess the effectiveness of the process.

On February 22, 2018, prior to the initial chemical injection, Robinson Noble staff conducted groundwater sampling at MW-3, MW-16, and MW-18. MW-19 was buried by gravel and not found during the groundwater sampling event on February 22, and was therefore not sampled.

During each of the three groundwater monitoring events, water levels were measured in each of the monitoring wells and then compared to water levels measured during previous monitoring events. In all cases, the measured water levels were within the generally expected range considering known seasonal fluctuation.

Prior to sample collection, groundwater from each monitoring well was purged. Various field parameters, including pH, temperature, conductivity, total dissolved solids, dissolved oxygen, oxidation-reduction potential, and turbidity were monitoring during the purging process. Groundwater samples were then obtained after the measured field parameters reached stabilization or a minimum of three well volumes had been purged. The field-parameter data measured during each of the monitoring events were recorded in the field book. Our review of the data does not reveal any significant inconsistencies that might affect the quality or reliability of the groundwater samples obtained.

Groundwater samples were collected using Ecology-prescribed low-flow sampling protocols. A bladder pump and disposable tubing were used to sample each well. Samples were collected in appropriate laboratory-supplied containers and immediately placed in a cooler containing Blue Ice and maintained at temperatures below 4 degrees Celsius pending delivery to the laboratory. All samples were delivered to the laboratory and analyzed within prescribed holding times. All groundwater samples from each of the monitoring wells were submitted to Test America for analysis of carbon dioxide, methane, ethane, dissolved iron and manganese, total iron and manganese, sulfate, nitrate, chemical oxygen demand (COD), and biochemical oxygen demand (BOD). Those analytes were analyzed predominantly to gather information necessary for designing the specific suite of chemicals to be injected and were provided to Regenesis for their review and analysis. The samples were also analyzed for PCE and the associated degradation products, which are the contaminants of concern for the site. The methods used are detailed in the laboratory analytical reports located in Appendix B. Pertinent laboratory results are also shown on Figure 4. The results of pertinent analyses are summarized below in Table 1.

Table 1. Analytical Results for Pre-Injection Groundwater Samples (2/22/18)

Well #	Benzene (µg/L)	Toluene (µg/L)	Vinyl Chloride (µg/L)	PCE (µg/L)	Cis-1,2-Dichloroethyle (µg/L)	Trans-1,2-Dichloroethylene (µg/L)	Trichloroethene (TCE)
MW-3	ND	ND	**0.41**	ND	0.20	ND	0.45
MW-16	ND	ND	0.11	ND	ND	ND	ND
MW-18	0.27	ND	**1.2**	ND	0.27	0.27	0.31
MW-19	NT	NT	NT	NT	NT	NT	NT
MTCA Method A (µg/L)	**5**	**1,000**	**0.2**	**5**	**16***	**160***	**5**

Bolded values represent results that exceed the MTCA Method A cleanup level
*- In the absence of a MTCA Method A cleanup level, a MTCA Method B cleanup level is used
NT-Not Tested
ND- not detected above the laboratory detection limit

As shown above in Table 1, vinyl chloride is above the MTCA Method A cleanup level of 0.2 µg/L in samples from MW-3 and MW-18. Vinyl chloride was also detected in the sample from MW-16 at a concentration of 0.11, which is below the cleanup level. Degradation products, cis-1,2-Dichloroethylene (cis-1,2-DCE) was detected in samples from MW-3 and MW-18 at concentrations below the MTCA Method B cleanup level. Trans-1,2-Dichloroethylene (trans-1,2-DCE) was detected in the sample from MW-18 at a concentration of 0.27 µg/L which is well

below the MTCA Method B cleanup level of 160 µg/L. PCE was not detected in any of the groundwater samples above the laboratory detection limit.

Table 2. Comparison of Pre-and Post-Chemical Injection Groundwater Analytical Results

Date	2/22/18 Pre-Injection	3/7/19 Post-Injection	6/20/19 Post-Injection	MTCA Cleanup Level (µg/L)
MW-3				
Benzene	ND	ND	ND	**5**
Toluene	ND	ND	0.31	**1,000**
Vinyl Chloride	**0.41**	**1.3**	0.13	**0.2**
Cis-1,2-Dichloroethylene	0.20	0.32	0.32	**16***
Trans-1,2-Dichloroethylene	ND	ND	ND	**160***
Trichloroethene (TCE)	0.45	0.79	ND	**5**
MW-16				
Benzene	ND	ND	ND	**5**
Toluene	ND	ND	ND	**1,000**
Vinyl Chloride	0.11	**0.30**	**0.55**	**0.2**
Cis-1,2-Dichloroethylene	ND	ND	ND	**16***
Trans-1,2-Dichloroethylene	ND	ND	ND	**160***
Trichloroethene (TCE)	ND	ND	ND	**5**
MW-18				
Benzene	0.27	ND	0.36	**5**
Toluene	ND	ND	ND	**1,000**
Vinyl Chloride	**1.2**	**0.65**	**1.0**	**0.2**
Cis-1,2-Dichloroethylene	0.27	0.20	0.44	**16***
Trans-1,2,Dichloroethylene	0.27	ND	0.35	**160***
Trichloroethene (TCE)	0.31	ND	ND	**5**
MW-19				
Benzene	NT	ND	ND	**5**
Toluene	NT	ND	ND	**1,000**
Vinyl Chloride	NT	ND	**1.4**	**0.2**
Cis-1,2-Dichloroethylene	NT	ND	ND	**16***
Trans-1,2-Dichloroethylene	NT	ND	ND	**160***
Trichloroethene (TCE)	NT	0.20	0.70	**5**

Bolded values represent results that exceed the MTCA Method A groundwater cleanup level
*- In the absence of a MTCA Method A cleanup level, a MTCA Method B cleanup level is used
NT- Not Tested
ND- Not detected above the laboratory detection limit

Following the initial chemical injections, groundwater samples were collected on March 7, 2019 and on June 20, 2019 from MW-3, MW-16, MW-18, and MW-19. As shown above in Table 2, vinyl chloride is the only analyte that remains above the MTCA Method A cleanup level in the groundwater at the site. Vinyl chloride is a breakdown product of PCE and TCE. Therefore, the increase in vinyl chloride can be attributed to the breakdown of PCE and TCE on the site and is common early stages after injection. Vinyl chloride will continue to break down with time. Vinyl chloride concentrations, as shown above in Table 2, have decreased in monitoring well MW-3 to below the cleanup level.

Robinson Noble consulted with Brittain Griffiths with Regenesis regarding analytical results for the chemical constituents and the water quality parameters measured during the above described monitoring events. Regenesis indicated that the bacteria and injection materials

applied to the site should continue to work to break down the vinyl chloride and other chlorinated solvents for a period of approximately two to five years from the time of initial injection.

Table 3 Comparison of Pre- and Post-Injection Water Quality Parameters

Date	2/22/2018 Pre-Injection (µg/L)	3/7/19 Post-Injection (µg/L)	6/20/19 Post-Injection (µg/L)
MW-3			
Carbon Dioxide	7,000	100,000	100,000
Ethane	ND	ND	16
Ethylene	ND	ND	ND
Methane	970	3,500	15,000
Iron (dissolved)	ND	3,100	3,100
Manganese (dissolved)	96	930	610
Nitrate	290	ND	ND
Sulfate	4,600	2,600	ND
Biochemical oxygen Demand (BOD)	3,500	99,000	53,000
Chemical Oxygen Demand (COD)	13,000	1,100,000	80,000
MW-16			
Carbon Dioxide	ND	5,500	8,400
Ethane	ND	ND	ND
Ethylene	ND	ND	ND
Methane	330	2,600	8,800
Iron (dissolved)	ND	ND	ND
Manganese (dissolved)	46	67	150
Nitrate	6,500	360	ND
Sulfate	14,000	2,300	1,900
Biochemical Oxygen Demand (BOD)	ND	48,000	140,000
Chemical Oxygen Demand (COD)	10,000	500,000	200,000
MW-18			
Carbon Dioxide	12,000	22,000	47,000
Ethane	ND	ND	8
Ethylene	5.5	ND	ND
Methane	1,400	1,500	12,000
Iron (dissolved)	ND	ND	ND
Manganese (dissolved)	27	160	310
Nitrate	1,400	ND	ND
Sulfate	40,000	7,200	ND
Biochemical Oxygen Demand (BOD)	2,900	96,000	92,000
Chemical Oxygen Demand (COD)	ND	720,000	340,000
MW-19			
Carbon Dioxide	NT	ND	13,000
Ethane	NT	ND	ND
Ethylene	NT	ND	ND
Methane	NT	180	3,100
Iron (dissolved)	NT	ND	ND
Manganese (dissolved)	NT	5.9	69
Nitrate	NT	6,400	ND
Sulfate	NT	19,000	1,200
Biochemical Oxygen Demand (BOD)	NT	3,700	4,000
Chemical Oxygen Demand (COD)	NT	800,000	ND

Through our consultation with Brittain Griffiths (Regenesis), it was noted that the post-injection water quality parameters, as shown in Table 3 above, show an increase in carbon dioxide, an increase in methane and ethane, and a decrease in nitrate and sulfate. These are all positive indications that the biological injection (bacteria) are thriving and that the groundwater environment is suitable for the continued breakdown of the vinyl chloride.

Continued monitoring of the water quality will be essential to evaluating if the injection chemicals are still working, and for determining if an additional injection may be necessary in the future.

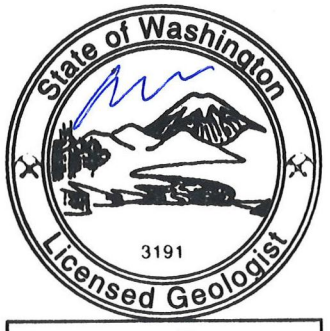
Recommendations

The initial chemical injection in January 2019 appears to be working within what Robinson Noble and Regenesis opine is suitable for this stage after injection. As described above, the injection materials should continue to work in the groundwater to break down the chlorinated solvents and break down products over a minimum period of two to five years after injection. Based on the groundwater data we have collected, we have already seen a decrease in vinyl chloride in monitoring well MW-3, which is very encouraging at this early stage in the process. Based on the biochemical monitoring parameters, degradation is still occurring. We recommend continuing with groundwater monitoring on a semi-annual basis for another year. Robinson Noble will continue to consult with Regenesis on a periodic basis to verify the functionality of the system and if any adjustments to the treatment approach may be warranted.

It is our pleasure to be of continued service on this project. If you have any questions or need any additional information please let me know. I can be reached via email or phone at kthomas@robinson-noble.com, (253) 475-7711 (office), or (541) 915-3452 (cell).

Respectfully submitted,
Robinson Noble, Inc.

Kari A. Thomas, LG, RG
Senior Project Geologist

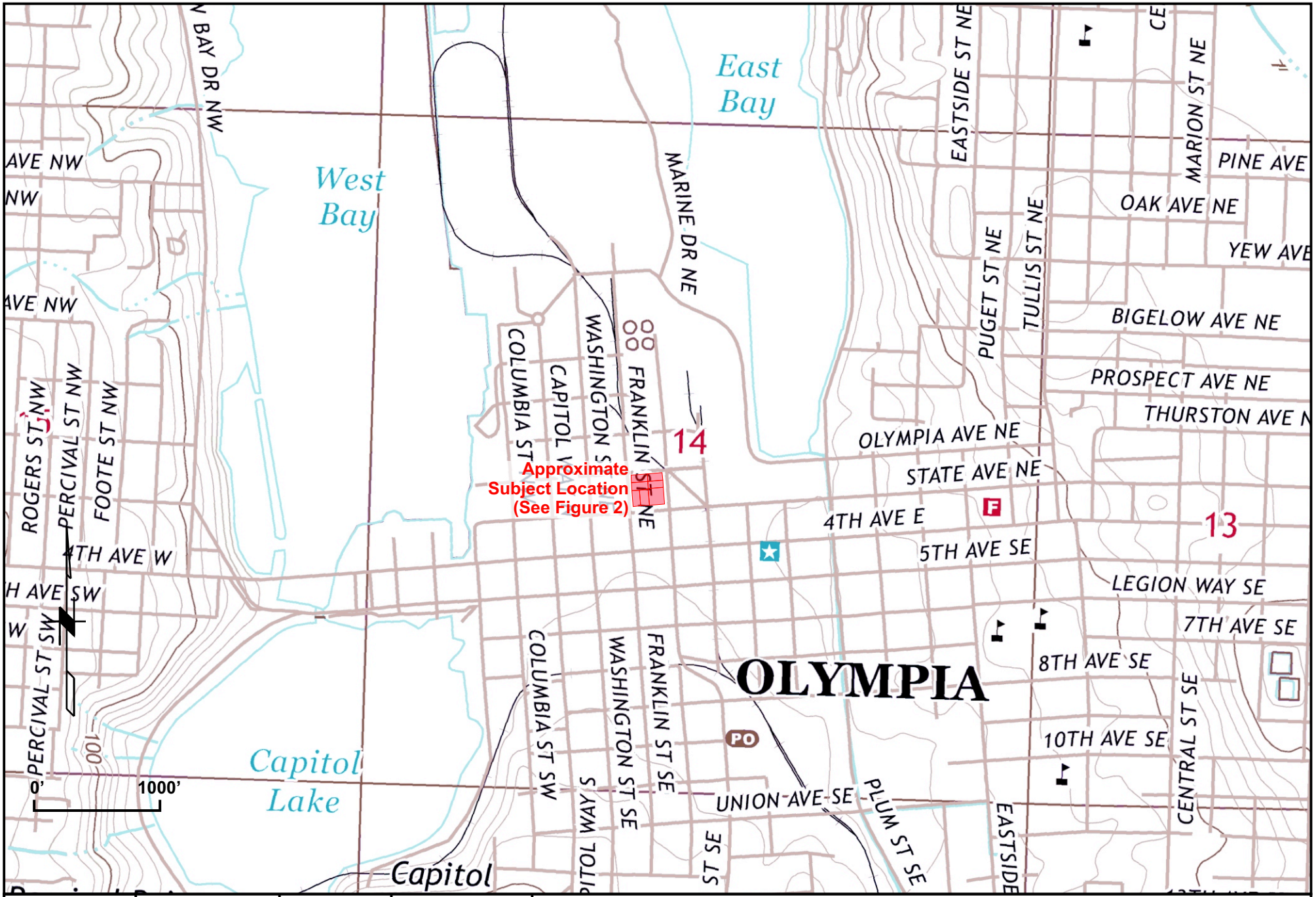


KAT:am

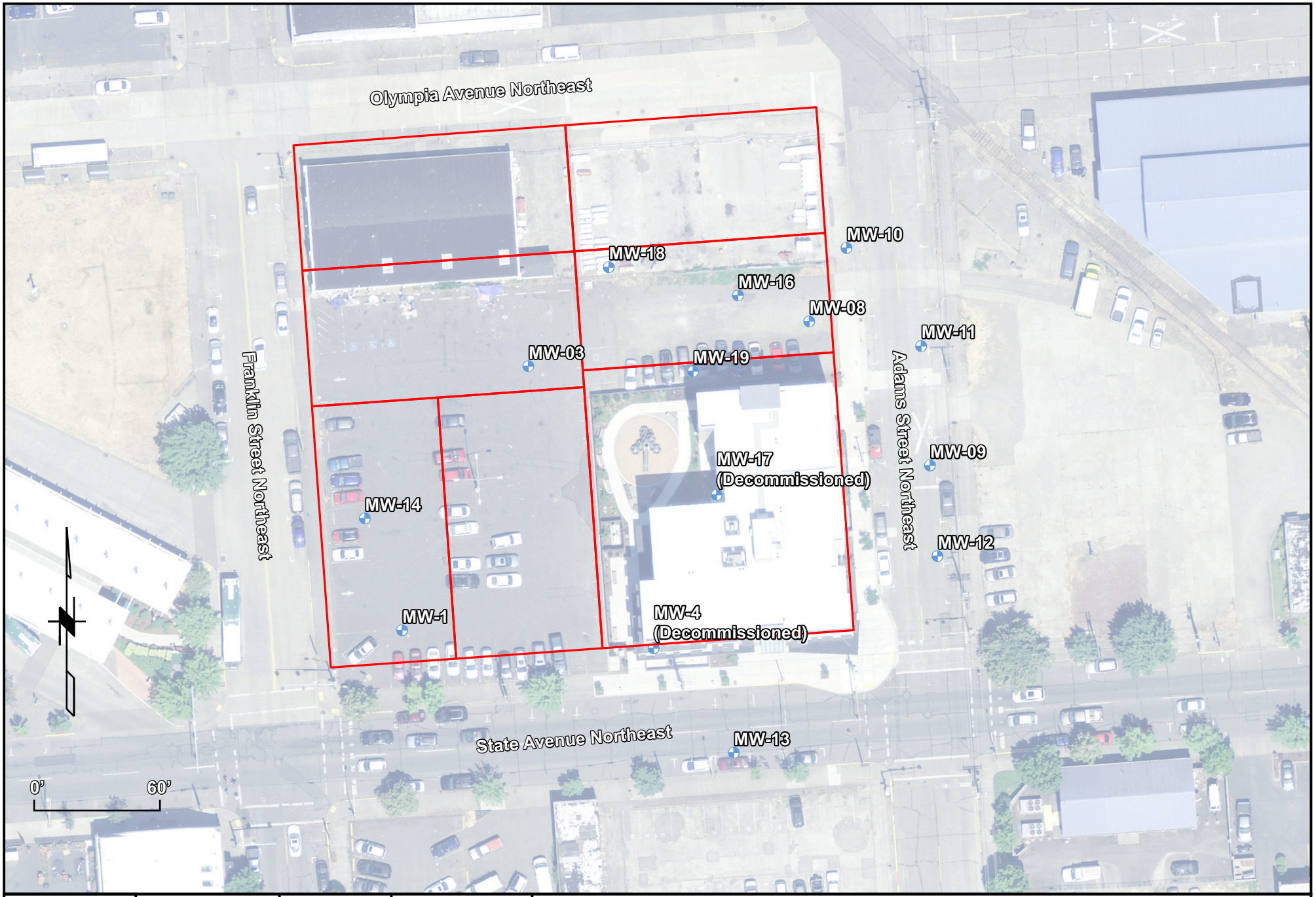
Attachments
Figure 1 – Vicinity Map
Figure 2 – Aerial
Figure 3 – Injection Points Map
Figure 4 – Groundwater Results

Appendix A – Injection Procedures Summary Report
Appendix B – Laboratory Analytical Reports

FIGURES



ROBINSON NOBLE	Note: Basemap taken from USGS Tumwater Quadrangle	PM: JFH June 2020 1682-024A	Thurston County T 18 N/R 02 W - 14 Scale 1" = 1000'	Figure 1 Vicinity Map City of Olympia: 318 State Street RA and Monitoring



ROBINSON NOBLE	Note: Image from Thurston County GIS 2018 Aerials	PM: JFH June 2020 1682-024A	Thurston County T 18 N/R 02 W - 14 Scale 1" = 60'	Figure 2 **Aerial Map of Site** City of Olympia: 318 State Street RA and Monitoring

Figure 3

Remedial and Plume Stop Injection Point Map

City of Olympia: 318 State Street RA and Monitoring

Legend

- Remedian Injection Point
- Plume Stop Injection Point
- Parcel Boundary
- Monitoring Well Location

0’ 30’

Franklin Street Northeast

Adams Street Northeast

State Avenue Northeast

MW-10
MW-18
MW-16
MW-08
MW-11
MW-03
MW-19
MW-09
MW-17 (Decommissioned)
MW-14
MW-12
MW-1
MW-4 (Decommissioned)
MW-13

King County
T 26 N/R 06 E - 29
Scale 1” = 30’

PM: JFH
June 2020
1682-024A

Note: Image from Thurston County GIS 2018 Aerials

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Figure 4
Groundwater Analyical Result Map
City of Olympia: 318 State Street RA and Monitoring

MW3			
	2/22/18	3/7/19	6/20/19
Benzene	ND	ND	ND
Toluene	ND	ND	0.31
Vinyl Chloride	**0.41**	**1.3**	0.13
PCE	ND	ND	ND
cis-1,2-Dichloroethyle	0.20	0.32	0.32
trans-1,2-Dichloroethylene	ND	ND	ND

MW16			
	2/22/18	3/7/19	6/20/19
Benzene	ND	ND	ND
Toluene	ND	ND	ND
Vinyl Chloride	0.11	**0.30**	**0.55**
PCE	ND	ND	ND
cis-1,2-Dichloroethyle	ND	ND	ND
trans-1,2-Dichloroethylene	ND	ND	ND

MW18			
	2/22/18	3/7/19	6/20/19
Benzene	ND	ND	0.36
Toluene	ND	ND	ND
Vinyl Chloride	**1.2**	**0.65**	**1.0**
PCE	ND	ND	ND
cis-1,2-Dichloroethyle	0.27	0.2	0.44
trans-1,2-Dichloroethylene	0.27	ND	0.35

MW19			
	2/28/18	3/7/19	6/20/19
Benzene	NT	ND	ND
Toluene	NT	ND	ND
Vinyl Chloride	NT	ND	**1.4**
PCE	NT	ND	0.70
cis-1,2-Dichloroethyle	NT	ND	ND
trans-1,2-Dichloroethylene	NT	ND	ND

MW-10
MW-18
MW-16
MW-08
MW-11
MW-03
MW-19
MW-09
MW-14
MW-12
MW-1
MW-4
(Decommissioned)
MW-13

Franklin Street Northeast
Adams Street Northeast
State Avenue Northeast

0’ 30’

MTCA Method A Cleanup Levels	
Benzene	5 µg/L
Toluene	1,000 µg/L
Vinyl Chloride	0.2 µg/L
PCE	5 µg/L
cis-1,2-Dichloroethyle	16 µg/L
trans-1,2-Dichloroethylene	160 µg/L

Note:
All Concentrations in µg/L.
Red values indicate concentrations exceeds MTCA Method A Groundwater Cleanup Levels for Total Petroleum Hydrocarbons and VOCs.????

King County
T 26 N/R 06 E - 29
Scale 1” = 30’

PM: JFH
June 2020
1682-024A

Note: Image from Thurston County GIS 2018 Aerials

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APPENDIX A

Global Headquarters
1011 Calle Sombra
San Clemente, CA 92673
Ph: (949) 366-8000
Fax: (949) 366-8090

January 28, 2019

REGENESIS Proposal No. AmC48934

Dale Smith
Holt Services, Inc.
10621 Todd Rd East, Edgewood, WA 98372

SUBJECT: Application Summary Report for Remedial Services at the Olympia Solvent Site

Dear Mr. Dale Smith,

REGENESIS Remediation Services (RRS) has recently completed an *in-situ* injection application of 3-D Microemulsion® (3DME), Bio-Dechlor INOCULUM® Plus (BDI Plus), Chemical Reducing Solution® (CRS), and PlumeStop® (PlumeStop) at the Olympia Solvent Site located at 318 State Ave NE, Olympia, WA 98501. The goal of the remedial application was to remediate chlorinated solvents found in the groundwater and soil of the site. RRS employed the following technologies to meet remediation goals: Enhanced Anaerobic Biodegradation using 3DME, Bioaugmentation using BDI Plus, *In-Situ* Chemical Reduction (ISCR) using CRS, and *In-Situ* Sorption using PlumeStop.

RRS mobilized product, support pickup truck, injection trailer, and personnel to the site to begin work over seven (7) days on January 8th through January 15th, 2019. RRS staffed this project with an experienced Project Supervisor who ensured a safe, successful injection application. RRS applied the remedial solution co-applied with dechlorinating microbes into fifty-four (54) direct push injection points from 2 to 9 feet below ground surface (ft bgs). Additionally, RRS applied an *in-situ* sorption PlumeStop barrier into nine (9) direct push injection points from 2 to 9 ft bgs. Remedial solution was delivered equally to each injection point per design.

Please review the attached application summary page, injection log, and photo log for more detail on the application.

RRS appreciates the opportunity to work at this site with Holt Services, Inc. (Holt). RRS will be available to interpret the field data as it is collected or answer any questions. If you need additional information regarding the application process or attached field notes, please contact Andrea Maben at 949.899.0729 or Andrew Punsoni at 503.504.1399.

Sincerely,

Andrea Maben
West Region Project Manager
REGENESIS Remediation Services

Andrew Punsoni
Pacific Northwest District Manager
REGENESIS Remediation Solutions

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Application Summary Page

OVERVIEW

Client: Holt Services, Inc.
Client PM: Dale Smith
RRS Project Manager: Andrea Maben
RRS Project Supervisor: Dominic Forlini

Project Name: Olympia Solvent Site
Site Address: 318 State Ave NE, Olympia, WA
Project Dates: 1/8/19 to 1/15/19

TREATMENT TECHNOLOGY

RRS used the following products to remediate the treatment area: 3-D Microemulsion® (3DME), Bio-Dechlor INOCULUM® Plus (BDI Plus), Chemical Reducing Solution® (CRS), and PlumeStop® (PlumeStop). Application of these products are designed to anaerobically biodegrade chlorinated volatile organic compounds through reductive dechlorination by altering groundwater chemistry into a reducing environment and augment the microbial population to bioremediate contaminants into harmless byproducts such as ethane, ethane, and methane.

3DME is comprised of a patented molecular structure containing oleic acids (i.e., oil component) and lactates/polylactates, which are molecularly bound to one another. The 3DME molecule contains both a soluble (hydrophilic) and in-soluble (lipophilic) region. These two regions of the molecule are designed to be balanced in size and relative strength. The balanced hydrophilic/lipophilic regions of 3DME result in an electron donor with physical properties allowing it to initially adsorb to the aquifer material in the area of application.

BDI PLUS is an enriched natural consortium containing species of Dehalococcoides sp. (DHC). BDI PLUS has been shown to simulate the rapid and complete dechlorination of chlorinated solvents such as tetrachloroethene (PCE), trichloroethene (TCE), dichloroethene (DCE) and vinyl chloride (VC) to non-toxic end products, ethene, carbon dioxide and water.

CRS is an iron-based reagent that facilitates biogeochemical ISCR of halogenated contaminants such as chlorinated ethenes and ethanes. CRS is a pH neutral, liquid iron solution that is easily mixed with 3DME before injection into a contaminated aquifer. CRS provides a soluble, food-grade source of ferrous iron (Fe^{2+}), designed to precipitate as reduced iron sulfides, oxides, and/or hydroxides. These Fe^{2+} minerals are capable of destroying chlorinated solvents via chemical reduction pathways, thus improving the efficiency of the overall reductive dechlorination process by providing multiple pathways for contaminant degradation in groundwater.

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PlumeStop Liquid Activated Carbon is an innovative groundwater remediation technology designed to rapidly remove and permanently degrade groundwater contaminants. PlumeStop is composed of very fine particles of activated carbon (1-2µm) suspended in water through the use of unique organic polymer dispersion chemistry. Once in the subsurface, the material behaves as a colloidal biomatrix, binding to the aquifer matrix, rapidly removing contaminants from groundwater, and promoting permanent contaminant biodegradation.

RRS employed remediation design specifications as outlined in designs dated August 1st, 2016 (Primary Area).

APPLICATION

RRS applied the REGENESIS technologies by mixing the products in the RRS injection trailer and injecting through direct push technology (DPT) borings drilled with a leading 1.5-inch retractable stainless-steel injection screen (3-foot length) to a 12,150 ft^2 treatment area. Mixing water was provided on-site by a City of Olympia fire hydrant and fitted as a direct source to the RRS injection trailer. RRS used a dual-batch mixing system with 300-gallon tanks and pumped product using a positive displacement electrically powered pump. Approximately 80 grams of sodium bisulfite was mixed with the solution to remove dissolved oxygen (DO) and keep the solution anaerobic. The DO of MW-18 was monitored periodically to gather real-time data and to ensure favorable anaerobic environmental conditions for the dechlorinating inoculum. Initial DO of MW-18 was measured at 5.84 mg/L. After injecting on several nearby DPT locations, the DO of MW-18 dropped to 0.30 mg/L. The REGENESIS supplied BDI Plus keg was pressurized with nitrogen gas and applied though a built-in manifold inlet halfway through the total volume application of the interval. Soil borings were backfilled with sodium bentonite chips after injection to seal the boring. Injection pressures were observed between 0 and 25 pounds per square inch (PSI) and flow rates were maintained between 2.1 and 3.1 gallons per minute (GPM). Injection was completed by pumping on up to four injection points at a time using the RRS injection trailer manifold system. Although pressures were observed under 30 PSI, the RRS trailer is equipped with a pressure bypass valve that will re-route fluids back into the trailer tanks if downhole pressures reach 100 PSI in order to keep pressures at safe levels for field personnel.

No daylighting was observed during application. In the event of a surfacing event, RRS is prepared to minimize product loss by reducing flow rates or vacuuming surfaced product and reinjecting the solution back into the formation.

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TREATMENT AREA – PRIMARY AREA FOOTPRINT (12,150 SQ FT)

Total Amount Applied:

3DME	6,400 lbs
CRS	2,400 lbs
BDI Plus	49 Liters
PlumeStop	4,000 lbs

Amount Applied Per Point:

3DME	118.5 lbs
CRS	44.4 lbs
BDI Plus	0.9 Liters
PlumeStop	444.4 lb

3DME and CRS were mixed and applied to 54 injection points as a compound solution of 6% and 2.25% concentration, respectively. BDI Plus culture was packaged at a 2.6x concentration and was applied inline during each injection interval of the solution. Total concentrated BDI Plus applied per point was 0.348 L. Table 1 calculates BDI Plus as an unconcentrated amount (1.0x) to mirror design calculations at 0.907 L / pt. A total of **13,559 gallons** of 3DME, CRS, and BDI Plus blend was mixed and applied to the treatment area.

PlumeStop was applied as a separate solution of 4.5% concentration to 9 points. MW-18 well monitoring confirmed a radius of influence at 7.6 ft. A total of **4,262 gallons** of PlumeStop solution was applied as an upgradient barrier to MW-18.

Total project solution injected was **17,821 gallons**.

Application Method: Direct push drilling with retractable injection screens (3-foot screens)
Injection Depth: 2 to 9 feet below ground surface
Number of Injection Points: 63

Deviations From Proposal:

1. A portion of the proposed treatment area was inaccessible to DPT injections per physical boundaries. Injection points initially scheduled in this area were moved to best fit project remedial goals – *Please see Injection Point Locations*.

Please see Appendix A – 3DME Injection Log and Appendix B – PlumeStop Injection Log for details on injection flow rates and pressures observed.

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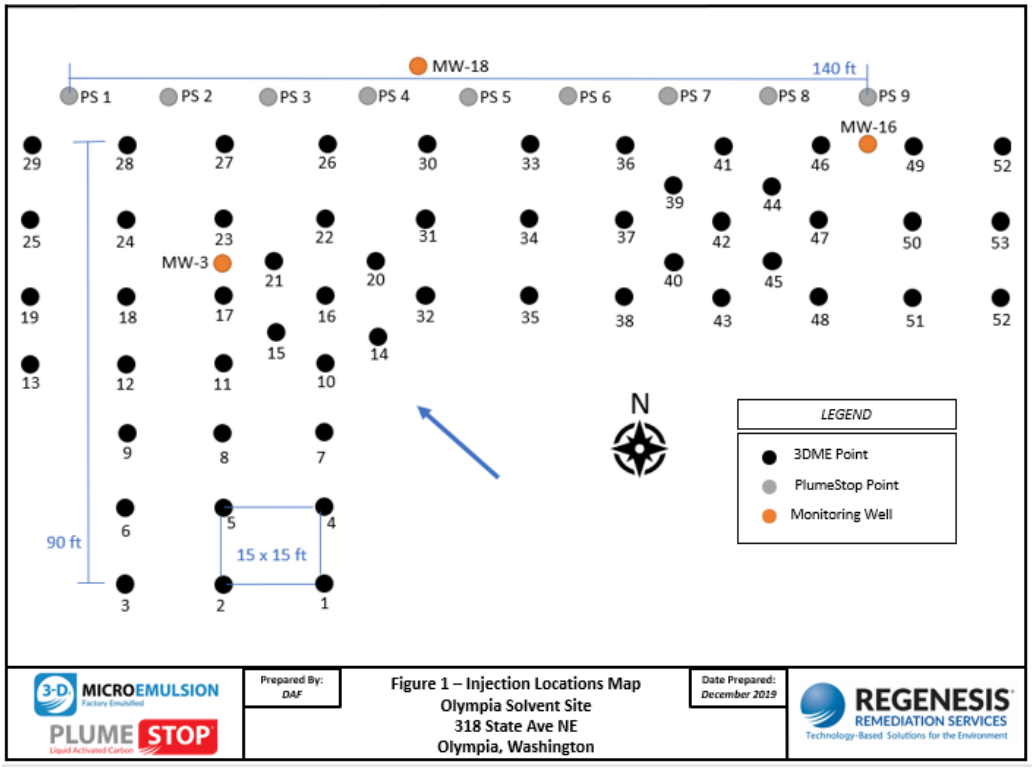
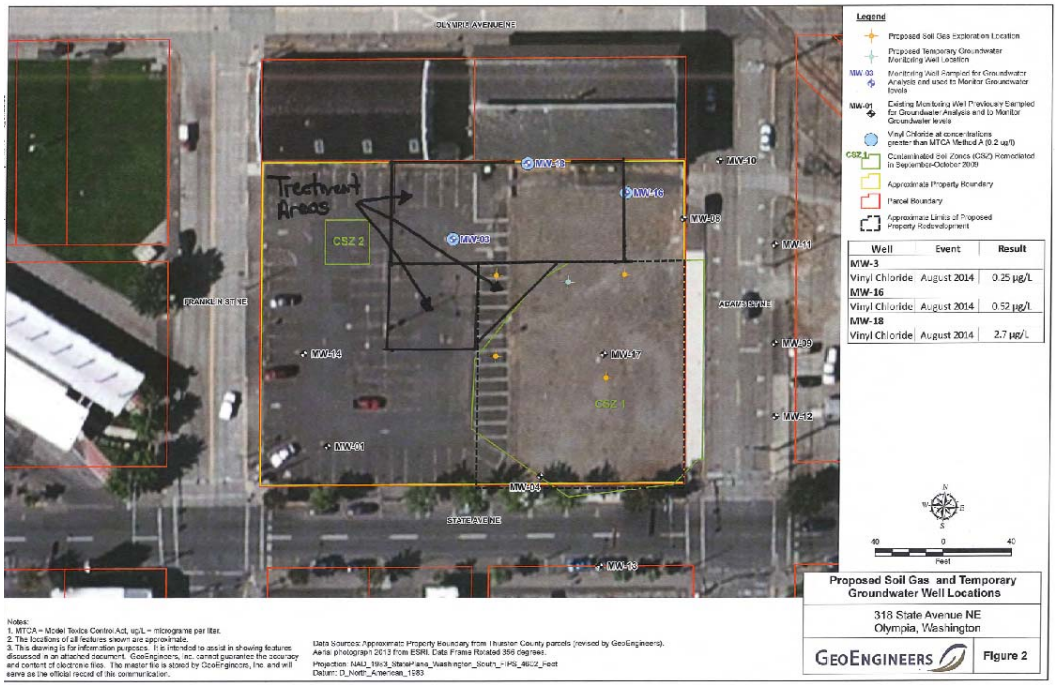
INJECTION POINT LOCATIONS – PRIMARY AREA





Holt Services - Olympia Solvent Site
3DME Injection Summary Log
Event 1 - January 2019
Table 1

Injection Point	Date	Time	Injection Depth (ft)	Injection Pressure (psi)	Flow Rate (gpm)	Volume of 3DME Injected			Gallons Per Location	Pounds of 3DME Per Location	Pounds of CRS Per Location	Litres of BDI Per Location	Comments
						Beginning Flow Meter (gal)	Ending Flow Meter (gal)	Gallons Per Interval					
1	1/9/2019	11:00	6-9	5	2.5	0	104	104	251.1	118.5	44.4	0.9	Start at 10:48 - End at 11:28
		11:52	3-6	3	2.6	104	207	103					Start at 11:43 - End at 12:23
		13:22	2-3	3	2.6	207	251.1	44.1					Start at 12:24 - End at 12:36
2	1/9/2019	13:30	6-9	5	2.8	0	104	104	251.1	118.5	44.4	0.9	Start at 13:14 - End at 13:52
		14:31	3-6	5	2.8	104	207	103					Start at 14:10 - End at 14:48
		15:08	2-3	5	2.8	207	251.1	44.1					Start at 14:52 - End at 15:05
3	1/9/2019	15:45	6-9	5	2.4	0	85	85	251.1	118.5	44.4	0.9	Start at 15:36 - End at 16:15
	1/10/2019	9:57	6-9	5	2.6	85	104	19					Start at 8:15 - End at 8:23
		9:58	3-6	5	2.6	104	207	103					Start at 9:04 - End at 9:51
		10:20	2-3	5	2.6	207	251.1	44.1					Start at 9:52 - End at 10:17
4	1/9/2019	11:00	6-9	5	2.6	0	104	104	251.1	118.5	44.4	0.9	Start at 10:43 - End at 11:30
		11:52	3-6	8	2.7	104	207	103					Start at 11:43 - End at 12:28
		13:25	2-3	5	2.7	207	251.1	44.1					Start at 12:29 - End at 12:41
5	1/9/2019	13:30	6-9	5	2.7	0	104	104	251.1	118.5	44.4	0.9	Start at 13:14 - End at 13:58
		14:31	3-6	5	2.8	104	207	103					Start at 14:10 - End at 14:45
		15:05	2-3	5	2.8	207	251.1	44.1					Start at 14:50 - End at 15:03
6	1/9/2019	15:45	6-9	10	2.6	0	95	95	251.1	118.5	44.4	0.9	Start at 15:31 - End at 16:15
	1/10/2019	10:00	6-9	5	2.6	95	104	9					Start at 8:15 - End at 8:21
		10:00	3-6	5	2.6	104	207	103					Start at 9:04 - End at 9:51
		10:04	2-3	5	2.6	207	251.1	44.1					Start at 9:52 - End at 10:02
7	1/9/2019	11:01	6-9	3	2.8	0	104	104	251.1	118.5	44.4	0.9	Start at 10:39 - End at 11:24
		11:52	3-6	3	2.6	104	207	103					Start at 11:43 - End at 12:24
		13:26	2-3	3	2.6	207	251.1	44.1					Start at 12:26 - End at 12:40
8	1/9/2019	13:31	6-9	5	2.7	0	104	104	251.1	118.5	44.4	0.9	Start at 13:14 - End at 13:54
		14:32	3-6	3	2.7	104	207	103					Start at 14:10 - End at 14:51
		15:12	2-3	3	2.7	207	251.1	44.1					Start at 14:55 - End at 15:07
9	1/9/2019	15:46	6-9	3	2.7	0	91	91	251.1	118.5	44.4	0.9	Start at 15:29 - End at 16:15
	1/10/2019	10:02	6-9	3	2.7	91	104	13					Start at 8:15 - End at 8:23
		10:03	3-6	3	2.7	104	207	103					Start at 9:04 - End at 9:49
		10:03	2-3	3	2.7	207	251.1	44.1					Start at 9:50 - End at 9:59
10	1/8/2019	12:44	6-9	5	2.1	0	52	52	251.1	118.5	44.4	0.9	Start at 11:10
		12:52	6-9	5	2.1	52	104	52					
		14:20	3-6	2	2.2	104	207	103					
		14:50	2-3	2	2.2	207	251.1	44.1					End at 14:53
11	1/9/2019	13:31	6-9	20	2.2	0	104	104	251.1	118.5	44.4	0.9	Start at 13:14 - End at 14:01
		14:32	3-6	15	1.4	104	207	103					Start at 14:10 - End at 15:04
		15:21	2-3	10	2.3	207	251.1	44.1					Start at 15:05 - End at 15:17
12	1/9/2019	15:46	6-9	20	2.5	0	76	76	251.1	118.5	44.4	0.9	Start at 15:25 - End at 16:15
	1/10/2019	10:23	6-9	10	2.5	76	104	28					Start at 8:15 - End at 8:27
		10:23	3-6	10	2.3	104	207	103					Start at 9:04 - End at 9:59
		10:23	2-3	8	2.3	207	251.1	44.1					Start at 10:00 - End at 10:17
13	1/12/2019	15:15	6-9	8	2.5	0	104	104	251.1	118.5	44.4	0.9	Start at 15:15 - End at 15:50
		15:55	3-6	5	2.5	104	207	103					Start at 15:55 - End at 16:40
		16:45	2-3	5	2.5	207	251.1	44.1					Start at 16:45 - End at 17:00
14	1/12/2019	11:29	6-9	5	2.5	0	104	104	251.1	118.5	44.4	0.9	Start at 10:20 - End at 11:05
		11:29	3-6	5	2.4	104	207	103					Start at 11:19 - End at 12:09
		12:11	2-3	5	2.4	207	251.1	44.1					Start at 12:10 - End at 12:22
15	1/11/2019	16:30	6-9	5	2.4	0	104	104	251.1	118.5	44.4	0.9	Start at 16:03 - End at 16:50
	1/12/2019	9:11	3-6	3	2.0	104	207	103					Start at 8:51 - End at 9:39
		10:42	2-3	3	2.2	207	251.1	44.1					Start at 9:40 - End at 10:00

Holt Services - Olympia Solvent Site
3DME Injection Summary Log
Event 1 - January 2019
Table 1

Injection Point	Date	Time	Injection Depth (ft)	Injection Pressure (psi)	Flow Rate (gpm)	Volume of 3DME Injected			Gallons Per Location	Pounds of 3DME Per Location	Pounds of CRS Per Location	Litres of BDI Per Location	Comments
						Beginning Flow Meter (gal)	Ending Flow Meter (gal)	Gallons Per Interval					
16	1/9/2019	11:01	6-9	10	2.2	0	104	104	251.1	118.5	44.4	0.9	Start at 10:37 - End at 11:30
		11:53	3-6	10	2.1	104	207	103					Start at 11:43 - End at 12:32
		13:26	2-3	5	2.1	207	251.1	44.1					Start at 12:34 - End at 12:49
17	1/8/2019	12:42	6-9	5	1.2	0	52	52	251.1	118.5	44.4	0.9	Start at 11:19
		14:20	6-9	5	1.2	52	104	52					
		21:08	3-6	3	1.2	104	207	103					
		21:08	2-3	3	1.2	207	251.1	44.1					End at 15:02
18	1/8/2019	12:44	6-9	5	2.1	0	52	52	251.1	118.5	44.4	0.9	Start at 11:30
		12:54	6-9	5	2.1	52	104	52					
		14:21	3-6	3	2.4	104	207	103					
		14:49	2-3	3	2.4	207	251.1	44.1					End at 14:49
19	1/12/2019	15:15	6-9	8	2.5	0	104	104	251.1	118.5	44.4	0.9	Start at 15:15 - End at 15:50
		15:55	3-6	5	2.5	104	207	103					Start at 15:55 - End at 16:40
		16:45	2-3	5	2.5	207	251.1	44.1					Start at 16:45 - End at 17:00
20	1/11/2019	16:30	6-9	8	2.5	0	104	104	251.1	118.5	44.4	0.9	Start at 16:03 - End at 16:50
	1/12/2019	9:11	3-6	3	2.2	104	207	103					Start at 8:51 - End at 9:39
		10:43	2-3	3	2.2	207	251.1	44.1					Start at 9:41 - End at 10:00
21	1/11/2019	16:30	6-9	10	2.1	0	104	104	251.1	118.5	44.4	0.9	Start at 16:03 - End at 16:50
	1/12/2019	9:11	3-6	10	2.9	104	207	103					Start at 8:51 - End at 9:33
		10:42	2-3	8	2.5	207	251.1	44.1					Start at 9:34 - End at 10:00
22	1/8/2019	15:31	6-9	10	2.4	0	66	66	251.1	118.5	44.4	0.9	Start at 15:18 - End at 15:45
	1/9/2019	9:19	6-9	5	2.4	66	104	38					Start at 8:44
		9:28	3-6	15	2.4	104	207	103					
		10:15	2-3	5	2.4	207	251.1	44.1					End at 10:17
23	1/8/2019	15:45	6-9	8	2.5	0	86	86	251.1	118.5	44.4	0.9	Start at 15:10
	1/9/2019	9:28	6-9	8	2.5	86	104	18					End at 15:45
		9:28	3-6	10	2.5	104	207	103					Start at 8:44
		10:57	2-3	5	2.5	207	251.1	44.1					End at 10:15
24	1/8/2019	15:30	6-9	8	3.1	0	104	104	251.1	118.5	44.4	0.9	Start at 14:56 - End at 15:30
	1/9/2019	9:30	3-6	10	2.2	104	207	103					Start at 9:19
		10:58	2-3	5	2.2	207	251.1	44.1					End at 10:17
25	1/12/2019	13:05	6-9	10	2.5	0	104	104	251.1	118.5	44.4	0.9	Start at 13:05 - End at 13:50
		14:00	3-6	8	2.5	104	207	103					Start at 14:00 - End at 14:45
		14:50	2-3	5	2.5	207	251.1	44.1					Start at 14:50 - End at 15:05
26	1/10/2019	12:49	6-9	20	2.1	0	104	104	251.1	118.5	44.4	0.9	
		12:49	3-6	15	2.1	104	207	103					
		13:32	2-3	20	2.5	207	251.1	44.1					
27	1/8/2019	15:30	6-9	10	2.4	0	93	93	251.1	118.5	44.4	0.9	
	1/9/2019	9:30	6-9	10	2.3	93	104	11					
		9:31	3-6	3	2.3	104	207	103					
		9:40	2-3	3	2.3	207	251.1	44.1					
28	1/8/2019	12:45	6-9	5	1.1	0	52	52	251.1	118.5	44.4	0.9	Start at 11:40
		13:01	6-9	5	1.1	52	104	52					
		14:48	3-9	3	2.5	104	207	103					
		14:48	2-3	3	2.5	207	251.1	44.1					End at 14:48
29	1/12/2019	13:05	6-9	10	2.5	0	104	104	251.1	118.5	44.4	0.9	Start at 13:05 - End at 13:50
		14:00	3-6	8	2.5	104	207	103					Start at 14:00 - End at 14:45
		14:50	2-3	5	2.5	207	251.1	44.1					Start at 14:50 - End at 15:05
30	1/10/2019	12:50	6-9	3	2.7	0	104	104	251.1	118.5	44.4	0.9	
		13:25	3-6	3	2.7	104	207	103					
		13:25	2-3	3	2.7	207	251.1	44.1					

Holt Services - Olympia Solvent Site
3DME Injection Summary Log
Event 1 - January 2019
Table 1

Injection Point	Date	Time	Injection Depth (ft)	Injection Pressure (psi)	Flow Rate (gpm)	Volume of 3DME Injected			Gallons Per Location	Pounds of 3DME Per Location	Pounds of CRS Per Location	Litres of BDI Per Location	Comments
						Beginning Flow Meter (gal)	Ending Flow Meter (gal)	Gallons Per Interval					
31	1/11/2019	16:30	6-9	10	2.0	0	104	104	251.1	118.5	44.4	0.9	Start at 16:03 - End at 16:50
	1/12/2019	9:12	3-6	10	1.6	104	207	103					Start at 8:51 - End at 9:45
		10:44	2-3	8	1.8	207	251.1	44.1					Start at 9:46 - End at 10:00
32	1/11/2019	8:57	6-9	10	2.6	0	104	104	251.1	118.5	44.4	0.9	Start at 8:27 - End at 9:13
		9:39	3-6	20	2.8	104	207	103					Start at 9:26 - End 10:15
		10:15	2-3	15	2.3	207	251.10	44.10					Start at 10:16 - End at 10:27
33	1/10/2019	12:50	6-9	3	2.2	0	104	104	251.1	118.5	44.4	0.9	
		13:26	3-6	3	2.5	104	207	103					
		13:26	2-3	3	2.5	207	251.1	44.1					
34	1/12/2019	11:30	6-9	5	2.5	0	104	104	251.1	118.5	44.4	0.9	Start at 10:20 - End at 11:05
		11:30	3-6	5	2.6	104	207	103					Start at 11:19 - End at 12:02
		12:06	2-3	5	2.4	207	251.1	44.1					Start at 12:04 - End at 12:20
35	1/11/2019	8:57	6-9	5	2.1	0	104	104	251.1	118.5	44.4	0.9	Start at 8:27 - End at 9:16
		9:39	3-6	5	2.2	104	207	103					Start at 9:26 - End at 10:08
		10:09	2-3	5	2.7	207	251.1	44.1					Start at 10:09 - End at 10:19
36	1/10/2019	12:50	6-9	15	2.3	0	104	104	251.1	118.5	44.4	0.9	
		12:50	3-6	5	2.4	104	207	103					
		13:27	2-3	5	2.2	207	251.1	44.1					
37	1/11/2019	13:16	6-9	8	2.6	0	104	104	251.1	118.5	44.4	0.9	Start at 13:12 - End at 14:00
		14:32	3-6	5	2.5	104	207	103					Start at 14:32 - End at 15:13
		15:13	2-3	5	2.4	207	251.1	44.1					Start at 15:14 - End at 15:29
38	1/11/2019	8:57	6-9	10	2.5	0	104	104	251.1	118.5	44.4	0.9	Start at 8:27 - End at 9:13
		9:39	3-6	20	2.0	104	207	103					Start at 9:26 - End at 10:23
		10:24	2-3	15	3.1	207	251.1	44.1					Start at 10:24 - End at 10:35
39	1/12/2019	11:31	6-9	5	2.5	0	104	104	251.1	118.5	44.4	0.9	Start at 10:20 - End at 11:09
		11:31	3-6	5	2.5	104	207	103					Start at 11:19 - End at 12:02
		12:06	2-3	5	2.2	207	251.1	44.1					Start at 12:03 - End at 12:20
40	1/12/2019	13:05	6-9	10	2.5	0	104	104	251.1	118.5	44.4	0.9	Start at 13:05 - End at 13:50
		14:00	3-6	8	2.5	104	207	103					Start at 14:00 - End at 14:45
		14:50	2-3	5	2.5	207	251.1	44.1					Start at 14:50 - End at 15:05
41	1/10/2019	13:57	6-9	20	2.2	0	104	104	251.1	118.5	44.4	0.9	
		15:12	3-6	10	2.0	104	207	103					
		16:00	2-3	8	2.1	207	251.1	44.1					
42	1/11/2019	13:18	6-9	5	2.0	0	104	104	251.1	118.5	44.4	0.9	Start at 13:12 - End at 14:06
		14:33	3-6	3	2.4	104	207	103					Start at 14:32 - End at 15:09
		15:11	2-3	3	2.6	207	251.1	44.1					Start at 15:10 - End at 15:24
43	1/11/2019	8:57	6-9	5	2.6	0	104	104	251.1	118.5	44.4	0.9	Start at 8:27 - End at 9:10
		9:39	3-6	3	1.9	104	207	103					Start at 9:26 - End at 10:09
		10:09	2-3	3	2.5	207	251.1	44.1					Start at 10:10 - End at 10:21
44	1/12/2019	11:31	6-9	10	2.0	0	104	104	251.1	118.5	44.4	0.9	Start at 10:20 - End at 11:08
		11:32	3-6	8	2.0	104	207	103					Start at 11:19 - End at 12:21
		12:24	2-3	8	2.0	207	251.1	44.1					Start at 12:22 - End at 12:45
45	1/12/2019	13:05	6-9	10	2.5	0	104	104	251.1	118.5	44.4	0.9	Start at 13:05 - End at 13:50
		14:00	3-6	8	2.5	104	207	103					Start at 14:00 - End at 14:45
		14:50	2-3	5	2.5	207	251.1	44.1					Start at 14:50 - End at 15:05

Holt Services - Olympia Solvent Site
3DME Injection Summary Log
Event 1 - January 2019
Table 1

Injection Point	Date	Time	Injection Depth (ft)	Injection Pressure (psi)	Flow Rate (gpm)	Volume of 3DME Injected			Gallons Per Location	Pounds of 3DME Per Location	Pounds of CRS Per Location	Litres of BDI Per Location	Comments
						Beginning Flow Meter (gal)	Ending Flow Meter (gal)	Gallons Per Interval					
46	1/10/2019	13:58	6-9	5	2.3	0	104	104	251.1	118.5	44.4	0.9	
		15:13	3-6	5	2.8	104	207	103					
		16:00	2-3	5	2.5	207	251.1	44.1					
47	1/11/2019	13:18	6-9	10	2.2	0	104	104	251.1	118.5	44.4	0.9	Start at 13:12 - End at 14:09
		14:33	3-6	8	2.5	104	207	103					Start at 14:32 - End at 15:09
		15:10	2-3	8	2.7	207	251.1	44.1					Start at 15:10 - End at 15:22
48	1/11/2019	10:58	6-9	10	2.7	0	104	104	251.1	118.5	44.4	0.9	Start at 10:53 - End at 11:36
		11:54	3-6	10	2.6	104	207	103					Start at 11:48 - End at 12:30
		12:32	2-3	10	2.6	207	251.1	44.1					Start at 12:31 - End at 12:45
49	1/10/2019	13:59	6-9	10	2.3	0	104	104	251.1	118.5	44.4	0.9	
		15:13	3-6	5	2.7	104	207	103					
		16:00	2-3	5	2.4	207	251.1	44.1					
50	1/11/2019	13:18	6-9	3	2.1	0	104	104	251.1	118.5	44.4	0.9	Start at 13:12 - End at 14:04
		14:34	3-6	3	2.0	104	207	103					Start at 14:32 - End at 15:19
		15:22	2-3	3	1.8	207	251.1	44.1					Start at 15:20 - End at 15:35
51	1/11/2019	10:59	6-9	5	2.5	0	104	104	251.1	118.5	44.4	0.9	Start at 10:53 - End at 11:37
		11:54	3-6	3	2.6	104	207	103					Start at 11:48 - End at 12:30
		12:32	2-3	3	2.6	207	251.1	44.1					Start at 12:31 - End at 12:45
52	1/10/2019	14:01	6-9	15	2.8	0	104	104	251.1	118.5	44.4	0.9	
		15:14	3-6	10	2.3	104	207	103					
		16:00	2-3	8	2.3	207	251.1	44.1					
53	1/11/2019	10:58	6-9	15	1.8	0	104	104	251.1	118.5	44.4	0.9	Start at 10:53 - End at 11:43
		11:54	3-6	15	1.9	104	207	103					Start at 11:48 - End at 12:37
		12:39	2-3	10	2.4	207	251.1	44.1					Start at 12:38 - End at 12:50
54	1/11/2019	10:59	6-9	8	2.7	0	104	104	251.1	118.5	44.4	0.9	Start at 10:53 - End at 11:37
		11:54	3-6	5	2.6	104	207	103					Start at 11:48 -End at 12:37
		12:40	2-3	5	2.1	207	251.1	44.1					Start at 12:38 - End at 12:50
									Total Gallons:	**Total Pounds of 3DME:**	**Total Pounds of CRS:**	**Total Litres of BDI:**	
									13559.0	6400.0	2400.0	49.0	

Holt Services - Olympia Solvent Site
PlumeStop Injection Summary Log
Event 1 - January 2019
Table 2

Injection Point	Date	Time	Injection Depth (ft)	Injection Pressure (psi)	Flow Rate (gpm)	Volume of PlumeStop Injected			Gallons Per Location	Pounds of PlumeStop Per Location	Comments
						Beginning Flow Meter (gal)	Ending Flow Meter (gal)	Gallons Per Interval			
PS1	1/14/2019	9:45	9-6	15	2.7	0	203	203	473.6	444.4	Start at 8:55 - End at 10:17
		10:50	6-3	25	1.8	203	406	203			Start at 10:25 - End at 11:51
		13:20	2-3	15	2.2	406	473.6	67.6			Start at 11:52 - End at 12:20
PS2	1/14/2019	9:45	9-6	20	2.8	0	203	203	473.6	444.4	Start at 8:55 - End at 10:17
		10:50	6-3	20	2.9	203	406	203			Start at 10:25 - End at 11:51
		13:20	2-3	15	2.7	406	473.6	67.6			Start at 11:52 - End at 12:20
PS3	1/14/2019	9:45	9-6	10	2.4	0	203	203	473.6	444.4	Start at 8:55 - End at 10:17
		10:51	6-3	25	2.2	203	406	203			Start at 10:25 - End at 11:51
		13:20	2-3	15	2.2	406	473.6	67.6			Start at 11:52 - End at 12:20
PS4	1/14/2019	9:45	9-6	10	2.3	0	203	203	473.6	444.4	Start at 8:55 - End at 10:17
		10:51	6-3	5	2.9	203	406	203			Start at 10:25 - End at 11:51
		13:20	2-3	5	2.9	406	473.6	67.6			Start at 11:52 - End at 12:20
PS5	1/14/2019	13:30	6-9	8	2.5	0	203	203	473.6	444.4	Start at 12:45 - End at 14:33
		14:45	3-6	10	2.5	203	406	203			Start at 14:43 - ROI at 15:20 (300 gal) - End at 16:06
		16:45	2-3	8	2.5	406	473.6	67.6			Start at 16:10 - End at 16:45
PS6	1/14/2019	13:31	6-9	8	2.6	0	203	203	473.6	444.4	Start at 12:45 - End at 14:33
		14:45	3-6	10	2.1	203	406	203			Start at 14:43 - ROI at 15:20 (340 gal) - End at 16:06
		16:45	2-3	8	2.2	406	473.6	67.6			Start at 16:10 - End at 16:45
PS7	1/14/2019	13:31	6-9	10	2.1	0	203	203	473.6	444.4	Start at 12:45 - End at 14:33
		14:45	3-6	10	2.1	203	406	203			Start at 14:43 - End at 16:06
		16:45	2-3	8	2.2	406	473.6	67.6			Start at 16:10 - End at 16:45
PS8	1/14/2019	13:31	6-9	8	2.7	0	203	203	473.6	444.4	Start at 12:45 - End at 14:33
		14:45	3-6	10	2.3	203	406	203			Start at 14:43 - End at 16:06
		16:45	2-3	8	2.3	406	473.6	67.6			Start at 16:10 - End at 16:45
PS9	1/15/2019	9:02	6-9	15	2.9	0	203	203	473.6	444.4	Start at 8:23 - End at 9:32
		9:33	3-6	15	2.9	203	406	203			Start at 9:32 - End at 10:43
		10:44	2-3	10	2.8	406	473.6	67.6			Start at 10:43 - End at 11:07
									Total Gallons:	**Total Pounds of PlumeStop:**	
									4262.0	4000.0	

REGENESIS
REMEDIATION SERVICES
Technology-Based Solutions for the Environment

Global Headquarters
1011 Calle Sombra
San Clemente, CA 92673
Ph: (949) 366-8000
Fax: (949) 366-8090

Photo Log - Olympia Solvent Site – January 2019

Photo 1: REGENESIS trailer and product staged on-site

Photo 2: REGENESIS trailer injecting solution into direct push points.

Photo 3: Hose ramps and cones for traffic control around the water hose.

Photo 4: Geoprobe drill rig and injection hoses connected to four direct push points.

Photo 5: PlumeStop well monitoring and YSI meter setup.

Photo 6: Drains blocked so surfacing and product leaks do not enter the sewers.

APPENDIX B

eurofins | Environment Testing TestAmerica

ANALYTICAL REPORT

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

Laboratory Job ID: 580-87079-1
Client Project/Site: 318 State St. Olympia

For:
Robinson and Noble, Inc.
2105 South C Street
Tacoma, Washington 98402

Attn: John Hildenbrand

Kayse Zalmai

Authorized for release by:
7/10/2019 12:28:02 PM

Kayse Zalmai, Project Manager I
(253)922-2310
kayse.zalmai@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.

Table of Contents

Job ID: 580-87079-1

Laboratory: Eurofins TestAmerica, Seattle

Narrative

Job Narrative
580-87079-1

Receipt
The samples were received on 6/21/2019 10:30 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 2 coolers at receipt time were 6.2º C and 7.1º C.

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

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

GC Semi VOA
Method(s) RSK-175: The parent sample did not require dilution; therefore, an E flagged over calibration limit result has been reported for the following matrix spike (MS) for Methane: (490-176176-D-13 MS).

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

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

General Chemistry
Method(s) SM 5210B: The residual D.O. in sample MW18 (580-87079-2) was < 1.0 mg/L in all dilutions tested; they were over depleted. Results were reported, but they may be biased low. No historical data was available.

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

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

Definitions/Glossary

Client: Robinson and Noble, Inc.
Project/Site: 318 State St. Olympia

Job ID: 580-87079-1

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
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 (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Client: Robinson and Noble, Inc.
Project/Site: 318 State St. Olympia

Job ID: 580-87079-1

Client Sample ID: MW3

Date Collected: 06/20/19 10:55
Date Received: 06/21/19 10:30

Lab Sample ID: 580-87079-1

Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		0.20		ug/L			06/28/19 05:07	1
1,1,2,2-Tetrachloroethane	ND		0.20		ug/L			06/28/19 05:07	1
1,1,2-Trichloroethane	ND		0.20		ug/L			06/28/19 05:07	1
1,1-Dichloroethane	ND		0.20		ug/L			06/28/19 05:07	1
1,1-Dichloroethene	ND		0.20		ug/L			06/28/19 05:07	1
Benzene	ND		0.20		ug/L			06/28/19 05:07	1
Chloroethane	ND		0.50		ug/L			06/28/19 05:07	1
cis-1,2-Dichloroethene	**0.32**		0.20		ug/L			06/28/19 05:07	1
Ethylbenzene	ND		0.20		ug/L			06/28/19 05:07	1
Methylene Chloride	ND		5.0		ug/L			06/28/19 05:07	1
m-Xylene & p-Xylene	ND		0.50		ug/L			06/28/19 05:07	1
o-Xylene	ND		0.50		ug/L			06/28/19 05:07	1
Tetrachloroethene	ND		0.50		ug/L			06/28/19 05:07	1
Toluene	**0.31**		0.20		ug/L			06/28/19 05:07	1
trans-1,2-Dichloroethene	ND		0.20		ug/L			06/28/19 05:07	1
Trichloroethene	ND		0.20		ug/L			06/28/19 05:07	1
Vinyl chloride	**0.13**		0.020		ug/L			06/28/19 05:07	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*112*		*80 - 120*		*06/28/19 05:07*	*1*
4-Bromofluorobenzene (Surr)	*99*		*80 - 120*		*06/28/19 05:07*	*1*
Dibromofluoromethane (Surr)	*102*		*80 - 120*		*06/28/19 05:07*	*1*
Toluene-d8 (Surr)	*102*		*80 - 120*		*06/28/19 05:07*	*1*
Trifluorotoluene (Surr)	*100*		*80 - 120*		*06/28/19 05:07*	*1*

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Carbon dioxide	**100000**		5000		ug/L			06/25/19 13:47	1
Ethane	**0.016**		0.0050		mg/L			07/03/19 11:55	1
Ethylene	ND		0.0050		mg/L			07/03/19 11:55	1
Methane	**15**		0.20		mg/L			07/03/19 13:19	40

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Acetylene (Surr)	*98*		*70 - 130*		*07/03/19 11:55*	*1*

Method: 200.8 - Dissolved Metals by ICPMS - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	**3.1**		1.0		mg/L		07/03/19 11:12	07/05/19 16:31	5
Manganese	**0.61**		0.010		mg/L		07/03/19 11:12	07/05/19 16:31	5

Method: 200.8 - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	**5.1**		1.0		mg/L		07/03/19 11:06	07/09/19 14:26	5
Manganese	**0.57**		0.010		mg/L		07/03/19 11:06	07/08/19 21:54	5

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	ND		0.20		mg/L			06/21/19 19:54	1
Sulfate	ND		1.2		mg/L			06/21/19 19:54	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Biochemical Oxygen Demand	**53**		2.0		mg/L			06/21/19 14:11	1

Client: Robinson and Noble, Inc.
Project/Site: 318 State St. Olympia

Job ID: 580-87079-1

Client Sample ID: MW3
Date Collected: 06/20/19 10:55
Date Received: 06/21/19 10:30

Lab Sample ID: 580-87079-1
Matrix: Water

General Chemistry (Continued)

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chemical Oxygen Demand	80		10		mg/L		07/01/19 12:14	07/01/19 12:14	1

Client: Robinson and Noble, Inc.
Project/Site: 318 State St. Olympia

Job ID: 580-87079-1

Client Sample ID: MW18

Date Collected: 06/20/19 12:55
Date Received: 06/21/19 10:30

Lab Sample ID: 580-87079-2

Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		0.20		ug/L			06/28/19 05:33	1
1,1,2,2-Tetrachloroethane	ND		0.20		ug/L			06/28/19 05:33	1
1,1,2-Trichloroethane	ND		0.20		ug/L			06/28/19 05:33	1
1,1-Dichloroethane	ND		0.20		ug/L			06/28/19 05:33	1
1,1-Dichloroethene	ND		0.20		ug/L			06/28/19 05:33	1
Benzene	**0.36**		0.20		ug/L			06/28/19 05:33	1
Chloroethane	ND		0.50		ug/L			06/28/19 05:33	1
cis-1,2-Dichloroethene	**0.44**		0.20		ug/L			06/28/19 05:33	1
Ethylbenzene	ND		0.20		ug/L			06/28/19 05:33	1
Methylene Chloride	ND		5.0		ug/L			06/28/19 05:33	1
m-Xylene & p-Xylene	ND		0.50		ug/L			06/28/19 05:33	1
o-Xylene	ND		0.50		ug/L			06/28/19 05:33	1
Tetrachloroethene	ND		0.50		ug/L			06/28/19 05:33	1
Toluene	ND		0.20		ug/L			06/28/19 05:33	1
trans-1,2-Dichloroethene	**0.35**		0.20		ug/L			06/28/19 05:33	1
Trichloroethene	ND		0.20		ug/L			06/28/19 05:33	1
Vinyl chloride	**1.0**		0.020		ug/L			06/28/19 05:33	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*112*		*80 - 120*		*06/28/19 05:33*	*1*
4-Bromofluorobenzene (Surr)	*100*		*80 - 120*		*06/28/19 05:33*	*1*
Dibromofluoromethane (Surr)	*105*		*80 - 120*		*06/28/19 05:33*	*1*
Toluene-d8 (Surr)	*103*		*80 - 120*		*06/28/19 05:33*	*1*
Trifluorotoluene (Surr)	*97*		*80 - 120*		*06/28/19 05:33*	*1*

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Carbon dioxide	**47000**		5000		ug/L			06/25/19 13:55	1
Ethane	**0.0081**		0.0050		mg/L			07/03/19 11:57	1
Ethylene	ND		0.0050		mg/L			07/03/19 11:57	1
Methane	**12**		0.20		mg/L			07/03/19 13:22	40

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Acetylene (Surr)	*94*		*70 - 130*		*07/03/19 11:57*	*1*

Method: 200.8 - Dissolved Metals by ICPMS - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	ND		1.0		mg/L		07/03/19 11:12	07/05/19 16:57	5
Manganese	**0.31**		0.010		mg/L		07/03/19 11:12	07/05/19 16:57	5

Method: 200.8 - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	**1.0**		1.0		mg/L		07/03/19 11:06	07/09/19 14:30	5
Manganese	**0.28**		0.010		mg/L		07/03/19 11:06	07/08/19 21:58	5

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	ND		0.20		mg/L			06/21/19 20:29	1
Sulfate	ND		1.2		mg/L			06/21/19 20:29	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Biochemical Oxygen Demand	**92**		2.0		mg/L			06/21/19 14:11	1

Eurofins TestAmerica, Seattle

Client: Robinson and Noble, Inc.
Project/Site: 318 State St. Olympia

Job ID: 580-87079-1

Client Sample ID: MW18
Date Collected: 06/20/19 12:55
Date Received: 06/21/19 10:30

Lab Sample ID: 580-87079-2
Matrix: Water

General Chemistry (Continued)

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chemical Oxygen Demand	340		100		mg/L		07/02/19 12:24	07/02/19 12:24	1

Client: Robinson and Noble, Inc.
Project/Site: 318 State St. Olympia

Job ID: 580-87079-1

Client Sample ID: MW16

Date Collected: 06/20/19 14:05
Date Received: 06/21/19 10:30

Lab Sample ID: 580-87079-3

Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		0.20		ug/L			06/28/19 06:00	1
1,1,2,2-Tetrachloroethane	ND		0.20		ug/L			06/28/19 06:00	1
1,1,2-Trichloroethane	ND		0.20		ug/L			06/28/19 06:00	1
1,1-Dichloroethane	ND		0.20		ug/L			06/28/19 06:00	1
1,1-Dichloroethene	ND		0.20		ug/L			06/28/19 06:00	1
Benzene	ND		0.20		ug/L			06/28/19 06:00	1
Chloroethane	ND		0.50		ug/L			06/28/19 06:00	1
cis-1,2-Dichloroethene	ND		0.20		ug/L			06/28/19 06:00	1
Ethylbenzene	ND		0.20		ug/L			06/28/19 06:00	1
Methylene Chloride	ND		5.0		ug/L			06/28/19 06:00	1
m-Xylene & p-Xylene	ND		0.50		ug/L			06/28/19 06:00	1
o-Xylene	ND		0.50		ug/L			06/28/19 06:00	1
Tetrachloroethene	ND		0.50		ug/L			06/28/19 06:00	1
Toluene	ND		0.20		ug/L			06/28/19 06:00	1
trans-1,2-Dichloroethene	ND		0.20		ug/L			06/28/19 06:00	1
Trichloroethene	ND		0.20		ug/L			06/28/19 06:00	1
Vinyl chloride	**0.55**		0.020		ug/L			06/28/19 06:00	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*111*		*80 - 120*		*06/28/19 06:00*	*1*
4-Bromofluorobenzene (Surr)	*100*		*80 - 120*		*06/28/19 06:00*	*1*
Dibromofluoromethane (Surr)	*103*		*80 - 120*		*06/28/19 06:00*	*1*
Toluene-d8 (Surr)	*103*		*80 - 120*		*06/28/19 06:00*	*1*
Trifluorotoluene (Surr)	*99*		*80 - 120*		*06/28/19 06:00*	*1*

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Carbon dioxide	**8400**		5000		ug/L			06/25/19 14:04	1
Ethane	ND		0.0050		mg/L			07/03/19 12:02	1
Ethylene	ND		0.0050		mg/L			07/03/19 12:02	1
Methane	**8.8**		0.20		mg/L			07/03/19 13:25	40

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Acetylene (Surr)	*90*		*70 - 130*		*07/03/19 12:02*	*1*

Method: 200.8 - Dissolved Metals by ICPMS - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	ND		1.0		mg/L		07/03/19 11:12	07/05/19 19:36	5
Manganese	**0.15**		0.010		mg/L		07/03/19 11:12	07/05/19 19:36	5

Method: 200.8 - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	ND		1.0		mg/L		07/03/19 11:06	07/09/19 14:34	5
Manganese	**0.15**		0.010		mg/L		07/03/19 11:06	07/08/19 22:02	5

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	ND		0.20		mg/L			06/21/19 20:41	1
Sulfate	**1.9**		1.2		mg/L			06/21/19 20:41	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Biochemical Oxygen Demand	**140**		2.0		mg/L			06/21/19 14:11	1

Client: Robinson and Noble, Inc.
Project/Site: 318 State St. Olympia

Job ID: 580-87079-1

Client Sample ID: MW16
Date Collected: 06/20/19 14:05
Date Received: 06/21/19 10:30

Lab Sample ID: 580-87079-3
Matrix: Water

General Chemistry (Continued)

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chemical Oxygen Demand	200		100		mg/L		07/02/19 12:24	07/02/19 12:24	1

Client: Robinson and Noble, Inc.
Project/Site: 318 State St. Olympia

Job ID: 580-87079-1

Client Sample ID: MW19

Date Collected: 06/20/19 15:10
Date Received: 06/21/19 10:30

Lab Sample ID: 580-87079-4

Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		0.20		ug/L			06/28/19 06:27	1
1,1,2,2-Tetrachloroethane	ND		0.20		ug/L			06/28/19 06:27	1
1,1,2-Trichloroethane	ND		0.20		ug/L			06/28/19 06:27	1
1,1-Dichloroethane	ND		0.20		ug/L			06/28/19 06:27	1
1,1-Dichloroethene	ND		0.20		ug/L			06/28/19 06:27	1
Benzene	ND		0.20		ug/L			06/28/19 06:27	1
Chloroethane	ND		0.50		ug/L			06/28/19 06:27	1
cis-1,2-Dichloroethene	ND		0.20		ug/L			06/28/19 06:27	1
Ethylbenzene	ND		0.20		ug/L			06/28/19 06:27	1
Methylene Chloride	ND		5.0		ug/L			06/28/19 06:27	1
m-Xylene & p-Xylene	ND		0.50		ug/L			06/28/19 06:27	1
o-Xylene	ND		0.50		ug/L			06/28/19 06:27	1
Tetrachloroethene	ND		0.50		ug/L			06/28/19 06:27	1
Toluene	ND		0.20		ug/L			06/28/19 06:27	1
trans-1,2-Dichloroethene	ND		0.20		ug/L			06/28/19 06:27	1
Trichloroethene	**0.70**		0.20		ug/L			06/28/19 06:27	1
Vinyl chloride	**1.4**		0.020		ug/L			06/28/19 06:27	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*109*		*80 - 120*		*06/28/19 06:27*	*1*
4-Bromofluorobenzene (Surr)	*98*		*80 - 120*		*06/28/19 06:27*	*1*
Dibromofluoromethane (Surr)	*103*		*80 - 120*		*06/28/19 06:27*	*1*
Toluene-d8 (Surr)	*105*		*80 - 120*		*06/28/19 06:27*	*1*
Trifluorotoluene (Surr)	*104*		*80 - 120*		*06/28/19 06:27*	*1*

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Carbon dioxide	**13000**		5000		ug/L			06/25/19 14:12	1
Ethane	ND		0.0050		mg/L			07/03/19 12:07	1
Ethylene	ND		0.0050		mg/L			07/03/19 12:07	1
Methane	**3.1**		0.050		mg/L			07/03/19 13:29	10

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Acetylene (Surr)	*98*		*70 - 130*		*07/03/19 12:07*	*1*

Method: 200.8 - Dissolved Metals by ICPMS - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	ND		1.0		mg/L		07/03/19 11:12	07/05/19 19:41	5
Manganese	**0.069**		0.010		mg/L		07/03/19 11:12	07/05/19 19:41	5

Method: 200.8 - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	ND		1.0		mg/L		07/03/19 11:06	07/09/19 14:39	5
Manganese	**0.072**		0.010		mg/L		07/03/19 11:06	07/08/19 22:07	5

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	ND		0.20		mg/L			06/21/19 20:53	1
Sulfate	**10**		1.2		mg/L			06/21/19 20:53	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Biochemical Oxygen Demand	**4.0**		2.0		mg/L			06/21/19 14:11	1

Client: Robinson and Noble, Inc.
Project/Site: 318 State St. Olympia

Job ID: 580-87079-1

Client Sample ID: MW19
Date Collected: 06/20/19 15:10
Date Received: 06/21/19 10:30

Lab Sample ID: 580-87079-4
Matrix: Water

General Chemistry (Continued)

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chemical Oxygen Demand	ND		10		mg/L		07/01/19 12:14	07/01/19 12:14	1

Client: Robinson and Noble, Inc.
Project/Site: 318 State St. Olympia

Job ID: 580-87079-1

Client Sample ID: Trip Blank

Date Collected: 06/20/19 00:01
Date Received: 06/21/19 10:30

Lab Sample ID: 580-87079-5

Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		0.20		ug/L			06/28/19 00:15	1
1,1,2,2-Tetrachloroethane	ND		0.20		ug/L			06/28/19 00:15	1
1,1,2-Trichloroethane	ND		0.20		ug/L			06/28/19 00:15	1
1,1-Dichloroethane	ND		0.20		ug/L			06/28/19 00:15	1
1,1-Dichloroethene	ND		0.20		ug/L			06/28/19 00:15	1
Benzene	ND		0.20		ug/L			06/28/19 00:15	1
Chloroethane	ND		0.50		ug/L			06/28/19 00:15	1
cis-1,2-Dichloroethene	ND		0.20		ug/L			06/28/19 00:15	1
Ethylbenzene	ND		0.20		ug/L			06/28/19 00:15	1
Methylene Chloride	ND		5.0		ug/L			06/28/19 00:15	1
m-Xylene & p-Xylene	ND		0.50		ug/L			06/28/19 00:15	1
o-Xylene	ND		0.50		ug/L			06/28/19 00:15	1
Tetrachloroethene	ND		0.50		ug/L			06/28/19 00:15	1
Toluene	ND		0.20		ug/L			06/28/19 00:15	1
trans-1,2-Dichloroethene	ND		0.20		ug/L			06/28/19 00:15	1
Trichloroethene	ND		0.20		ug/L			06/28/19 00:15	1
Vinyl chloride	ND		0.020		ug/L			06/28/19 00:15	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*107*		*80 - 120*		*06/28/19 00:15*	*1*
4-Bromofluorobenzene (Surr)	*99*		*80 - 120*		*06/28/19 00:15*	*1*
Dibromofluoromethane (Surr)	*101*		*80 - 120*		*06/28/19 00:15*	*1*
Toluene-d8 (Surr)	*105*		*80 - 120*		*06/28/19 00:15*	*1*
Trifluorotoluene (Surr)	*102*		*80 - 120*		*06/28/19 00:15*	*1*

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

Lab Sample ID: MB 580-304262/7
Matrix: Water
Analysis Batch: 304262

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		0.20		ug/L			06/27/19 23:48	1
1,1,2,2-Tetrachloroethane	ND		0.20		ug/L			06/27/19 23:48	1
1,1,2-Trichloroethane	ND		0.20		ug/L			06/27/19 23:48	1
1,1-Dichloroethane	ND		0.20		ug/L			06/27/19 23:48	1
1,1-Dichloroethene	ND		0.20		ug/L			06/27/19 23:48	1
Benzene	ND		0.20		ug/L			06/27/19 23:48	1
Chloroethane	ND		0.50		ug/L			06/27/19 23:48	1
cis-1,2-Dichloroethene	ND		0.20		ug/L			06/27/19 23:48	1
Ethylbenzene	ND		0.20		ug/L			06/27/19 23:48	1
Methylene Chloride	ND		5.0		ug/L			06/27/19 23:48	1
m-Xylene & p-Xylene	ND		0.50		ug/L			06/27/19 23:48	1
o-Xylene	ND		0.50		ug/L			06/27/19 23:48	1
Tetrachloroethene	ND		0.50		ug/L			06/27/19 23:48	1
Toluene	ND		0.20		ug/L			06/27/19 23:48	1
trans-1,2-Dichloroethene	ND		0.20		ug/L			06/27/19 23:48	1
Trichloroethene	ND		0.20		ug/L			06/27/19 23:48	1
Vinyl chloride	ND		0.020		ug/L			06/27/19 23:48	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*119*		*80 - 120*		*06/27/19 23:48*	*1*
4-Bromofluorobenzene (Surr)	*100*		*80 - 120*		*06/27/19 23:48*	*1*
Dibromofluoromethane (Surr)	*105*		*80 - 120*		*06/27/19 23:48*	*1*
Toluene-d8 (Surr)	*103*		*80 - 120*		*06/27/19 23:48*	*1*
Trifluorotoluene (Surr)	*100*		*80 - 120*		*06/27/19 23:48*	*1*

Lab Sample ID: LCS 580-304262/4
Matrix: Water
Analysis Batch: 304262

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1,1-Trichloroethane	5.00	4.78		ug/L		96	74 - 128
1,1,2,2-Tetrachloroethane	5.00	4.97		ug/L		99	69 - 139
1,1,2-Trichloroethane	5.00	5.15		ug/L		103	80 - 127
1,1-Dichloroethane	5.00	4.81		ug/L		96	74 - 135
1,1-Dichloroethene	5.00	4.64		ug/L		93	71 - 126
Benzene	5.00	4.80		ug/L		96	73 - 133
Chloroethane	5.00	4.91		ug/L		98	49 - 135
cis-1,2-Dichloroethene	5.00	4.86		ug/L		97	72 - 130
Ethylbenzene	5.00	4.62		ug/L		92	80 - 130
Methylene Chloride	5.00	4.71	J	ug/L		94	75 - 134
m-Xylene & p-Xylene	5.00	4.66		ug/L		93	78 - 130
o-Xylene	5.00	4.69		ug/L		94	80 - 139
Tetrachloroethene	5.00	4.80		ug/L		96	75 - 131
Toluene	5.00	4.74		ug/L		95	80 - 126
trans-1,2-Dichloroethene	5.00	4.87		ug/L		97	63 - 133
Trichloroethene	5.00	4.79		ug/L		96	72 - 136
Vinyl chloride	5.00	4.62		ug/L		92	52 - 128

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

Lab Sample ID: LCS 580-304262/4
Matrix: Water
Analysis Batch: 304262

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

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	*100*		*80 - 120*
4-Bromofluorobenzene (Surr)	*100*		*80 - 120*
Dibromofluoromethane (Surr)	*99*		*80 - 120*
Toluene-d8 (Surr)	*101*		*80 - 120*
Trifluorotoluene (Surr)	*102*		*80 - 120*

Lab Sample ID: LCSD 580-304262/5
Matrix: Water
Analysis Batch: 304262

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
1,1,1-Trichloroethane			5.00	5.00		ug/L		100	74 - 128	5	14
1,1,2,2-Tetrachloroethane			5.00	5.04		ug/L		101	69 - 139	1	22
1,1,2-Trichloroethane			5.00	5.28		ug/L		106	80 - 127	2	19
1,1-Dichloroethane			5.00	5.00		ug/L		100	74 - 135	4	20
1,1-Dichloroethene			5.00	4.97		ug/L		99	71 - 126	7	17
Benzene			5.00	4.95		ug/L		99	73 - 133	3	20
Chloroethane			5.00	5.23		ug/L		105	49 - 135	6	27
cis-1,2-Dichloroethene			5.00	5.06		ug/L		101	72 - 130	4	20
Ethylbenzene			5.00	4.68		ug/L		94	80 - 130	1	20
Methylene Chloride			5.00	4.95	J	ug/L		99	75 - 134	5	18
m-Xylene & p-Xylene			5.00	4.74		ug/L		95	78 - 130	2	20
o-Xylene			5.00	4.73		ug/L		95	80 - 139	1	20
Tetrachloroethene			5.00	4.88		ug/L		98	75 - 131	2	20
Toluene			5.00	4.80		ug/L		96	80 - 126	1	20
trans-1,2-Dichloroethene			5.00	5.12		ug/L		102	63 - 133	5	17
Trichloroethene			5.00	4.94		ug/L		99	72 - 136	3	14
Vinyl chloride			5.00	4.68		ug/L		94	52 - 128	1	21

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	*102*		*80 - 120*
4-Bromofluorobenzene (Surr)	*100*		*80 - 120*
Dibromofluoromethane (Surr)	*100*		*80 - 120*
Toluene-d8 (Surr)	*99*		*80 - 120*
Trifluorotoluene (Surr)	*97*		*80 - 120*

Method: RSK-175 - Dissolved Gases (GC)

Lab Sample ID: MB 200-144454/4
Matrix: Water
Analysis Batch: 144454

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Carbon dioxide	ND		5000		ug/L			06/25/19 12:55	1

Method: RSK-175 - Dissolved Gases (GC) (Continued)

Lab Sample ID: LCS 200-144454/2
Matrix: Water
Analysis Batch: 144454

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

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Carbon dioxide			40000	40800		ug/L		102	70 - 130		

Lab Sample ID: LCSD 200-144454/3
Matrix: Water
Analysis Batch: 144454

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
Carbon dioxide			40000	40000		ug/L		100	70 - 130	2	30

Lab Sample ID: MB 490-604916/5
Matrix: Water
Analysis Batch: 604916

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethane	ND		0.0050		mg/L			07/03/19 10:20	1
Ethylene	ND		0.0050		mg/L			07/03/19 10:20	1
Methane	ND		0.0050		mg/L			07/03/19 10:20	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Acetylene (Surr)	*110*		*70 - 130*		*07/03/19 10:20*	*1*

Lab Sample ID: LCS 490-604916/6
Matrix: Water
Analysis Batch: 604916

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

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Ethane			0.527	0.499		mg/L		95	85 - 115		
Ethylene			0.493	0.474		mg/L		96	85 - 115		
Methane			0.287	0.273		mg/L		95	85 - 115		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Acetylene (Surr)	*96*		*70 - 130*

Method: 200.8 - Metals (ICP/MS)

Lab Sample ID: MB 580-304725/14-A
Matrix: Water
Analysis Batch: 305053

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 304725

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Manganese	ND		0.0020		mg/L		07/03/19 11:06	07/08/19 21:06	1

Lab Sample ID: MB 580-304725/14-A
Matrix: Water
Analysis Batch: 305179

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 304725

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	ND		0.20		mg/L		07/03/19 11:06	07/09/19 13:38	1
Manganese	0.00214		0.0020		mg/L		07/03/19 11:06	07/09/19 13:38	1

Method: 200.8 - Metals (ICP/MS)

Lab Sample ID: LCS 580-304725/15-A
Matrix: Water
Analysis Batch: 305053

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 304725

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Manganese	1.00	0.973		mg/L		97	85 - 115

Lab Sample ID: LCS 580-304725/15-A
Matrix: Water
Analysis Batch: 305179

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 304725

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Iron	20.0	21.8		mg/L		109	85 - 115
Manganese	1.00	1.02		mg/L		102	85 - 115

Lab Sample ID: LCSD 580-304725/16-A
Matrix: Water
Analysis Batch: 305053

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 304725

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Manganese	1.00	0.962		mg/L		96	85 - 115	1	20

Lab Sample ID: LCSD 580-304725/16-A
Matrix: Water
Analysis Batch: 305179

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 304725

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Iron	20.0	21.6		mg/L		108	85 - 115	1	20
Manganese	1.00	1.01		mg/L		101	85 - 115	1	20

Method: 200.8 - Dissolved Metals by ICPMS

Lab Sample ID: MB 580-304726/14-A
Matrix: Water
Analysis Batch: 304882

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 304726

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	ND		1.0		mg/L		07/03/19 11:12	07/05/19 16:18	5
Manganese	ND		0.010		mg/L		07/03/19 11:12	07/05/19 16:18	5

Lab Sample ID: LCS 580-304726/15-A
Matrix: Water
Analysis Batch: 304882

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 304726

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Iron	20.0	17.6		mg/L		88	85 - 115
Manganese	1.00	0.882		mg/L		88	85 - 115

Lab Sample ID: LCSD 580-304726/16-A
Matrix: Water
Analysis Batch: 304882

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 304726

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Iron	20.0	18.6		mg/L		93	85 - 115	5	20
Manganese	1.00	0.924		mg/L		92	85 - 115	5	20

Method: 200.8 - Dissolved Metals by ICPMS (Continued)

Lab Sample ID: 580-87079-1 MS
Matrix: Water
Analysis Batch: 304882

Client Sample ID: MW3
Prep Type: Dissolved
Prep Batch: 304726

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Iron	3.1		20.0	21.2		mg/L		90	70 - 130
Manganese	0.61		1.00	1.49		mg/L		88	70 - 130

Lab Sample ID: 580-87079-1 MSD
Matrix: Water
Analysis Batch: 304882

Client Sample ID: MW3
Prep Type: Dissolved
Prep Batch: 304726

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Iron	3.1		20.0	21.1		mg/L		90	70 - 130	0	20
Manganese	0.61		1.00	1.45		mg/L		85	70 - 130	2	20

Lab Sample ID: 580-87079-1 DU
Matrix: Water
Analysis Batch: 304882

Client Sample ID: MW3
Prep Type: Dissolved
Prep Batch: 304726

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Iron	3.1		3.11		mg/L		2	20
Manganese	0.61		0.617		mg/L		2	20

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 580-303779/3
Matrix: Water
Analysis Batch: 303779

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	ND		0.20		mg/L			06/21/19 19:19	1

Lab Sample ID: LCS 580-303779/4
Matrix: Water
Analysis Batch: 303779

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrate as N	5.00	5.04		mg/L		101	90 - 110

Lab Sample ID: LCSD 580-303779/5
Matrix: Water
Analysis Batch: 303779

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
Nitrate as N	5.00	5.05		mg/L		101	90 - 110	0	15

Lab Sample ID: 580-87079-1 MS
Matrix: Water
Analysis Batch: 303779

Client Sample ID: MW3
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrate as N	ND		5.00	5.10		mg/L		102	90 - 110

Method: 300.0 - Anions, Ion Chromatography (Continued)

Lab Sample ID: 580-87079-1 MSD
Matrix: Water
Analysis Batch: 303779

Client Sample ID: MW3
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Nitrate as N	ND		5.00	5.10		mg/L		102	90 - 110	0	15

Lab Sample ID: MB 580-303780/3
Matrix: Water
Analysis Batch: 303780

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		mg/L			06/21/19 19:19	1

Lab Sample ID: LCS 580-303780/4
Matrix: Water
Analysis Batch: 303780

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfate	50.0	50.4		mg/L		101	90 - 110

Lab Sample ID: LCSD 580-303780/5
Matrix: Water
Analysis Batch: 303780

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
Sulfate	50.0	50.4		mg/L		101	90 - 110	0	15

Lab Sample ID: 580-87079-1 MS
Matrix: Water
Analysis Batch: 303780

Client Sample ID: MW3
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfate	ND		50.0	53.9		mg/L		106	90 - 110

Lab Sample ID: 580-87079-1 MSD
Matrix: Water
Analysis Batch: 303780

Client Sample ID: MW3
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Sulfate	ND		50.0	53.8		mg/L		106	90 - 110	0	15

Method: SM 5210B - BOD, 5-Day

Lab Sample ID: USB 580-303742/1
Matrix: Water
Analysis Batch: 303742

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

Analyte	USB Result	USB Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Biochemical Oxygen Demand	ND		2.0		mg/L			06/21/19 14:11	1

Method: SM 5210B - BOD, 5-Day (Continued)

Lab Sample ID: LCS 580-303742/2
Matrix: Water
Analysis Batch: 303742

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Biochemical Oxygen Demand	198	204		mg/L		103	85 - 115

Method: SM 5220C - COD

Lab Sample ID: MB 580-304497/3-A
Matrix: Water
Analysis Batch: 304498

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 304497

Analyte	MB Result	MB Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chemical Oxygen Demand	ND		10		mg/L		07/01/19 12:14	07/01/19 12:14	1

Lab Sample ID: LCS 580-304497/4-A
Matrix: Water
Analysis Batch: 304498

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 304497

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chemical Oxygen Demand	75.0	75.0		mg/L		100	80 - 120

Lab Sample ID: LCSD 580-304497/5-A
Matrix: Water
Analysis Batch: 304498

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 304497

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chemical Oxygen Demand	75.0	76.6		mg/L		102	80 - 120	2	20

Lab Sample ID: 580-87079-1 MS
Matrix: Water
Analysis Batch: 304498

Client Sample ID: MW3
Prep Type: Total/NA
Prep Batch: 304497

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chemical Oxygen Demand	80		25.0	107		mg/L		108	75 - 125

Lab Sample ID: 580-87079-1 DU
Matrix: Water
Analysis Batch: 304498

Client Sample ID: MW3
Prep Type: Total/NA
Prep Batch: 304497

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Chemical Oxygen Demand	80		78.9		mg/L		2	20

Lab Sample ID: MB 580-304624/3-A
Matrix: Water
Analysis Batch: 304625

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 304624

Analyte	MB Result	MB Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chemical Oxygen Demand	ND		10		mg/L		07/02/19 12:24	07/02/19 12:24	1

Method: SM 5220C - COD (Continued)

Lab Sample ID: LCS 580-304624/4-A
Matrix: Water
Analysis Batch: 304625

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 304624

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Chemical Oxygen Demand			75.0	79.9		mg/L		107	80 - 120		

Lab Sample ID: LCSD 580-304624/5-A
Matrix: Water
Analysis Batch: 304625

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 304624

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chemical Oxygen Demand			75.0	76.6		mg/L		102	80 - 120	4	20

Lab Sample ID: 580-87079-2 MS
Matrix: Water
Analysis Batch: 304625

Client Sample ID: MW18
Prep Type: Total/NA
Prep Batch: 304624

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Chemical Oxygen Demand	340		250	642		mg/L		121	75 - 125		

Lab Sample ID: 580-87079-2 DU
Matrix: Water
Analysis Batch: 304625

Client Sample ID: MW18
Prep Type: Total/NA
Prep Batch: 304624

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Chemical Oxygen Demand	340		342		mg/L		0.9	20

Lab Chronicle

Client: Robinson and Noble, Inc.
Project/Site: 318 State St. Olympia

Job ID: 580-87079-1

Client Sample ID: MW3

Date Collected: 06/20/19 10:55
Date Received: 06/21/19 10:30

Lab Sample ID: 580-87079-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	304262	06/28/19 05:07	DSO	TAL SEA
Total/NA	Analysis	RSK-175		1	144454	06/25/19 13:47	MLT	TAL BUR
Total/NA	Analysis	RSK-175		1	604916	07/03/19 11:55	AAB	TAL NSH
Total/NA	Analysis	RSK-175		40	604916	07/03/19 13:19	AAB	TAL NSH
Dissolved	Prep	200.8			304726	07/03/19 11:12	ART	TAL SEA
Dissolved	Analysis	200.8		5	304882	07/05/19 16:31	RM	TAL SEA
Total/NA	Prep	200.8			304725	07/03/19 11:06	T1H	TAL SEA
Total/NA	Analysis	200.8		5	305053	07/08/19 21:54	RM	TAL SEA
Total/NA	Prep	200.8			304725	07/03/19 11:06	T1H	TAL SEA
Total/NA	Analysis	200.8		5	305179	07/09/19 14:26	RM	TAL SEA
Total/NA	Analysis	300.0		1	303779	06/21/19 19:54	EMM	TAL SEA
Total/NA	Analysis	300.0		1	303780	06/21/19 19:54	EMM	TAL SEA
Total/NA	Analysis	SM 5210B		1	303742	06/21/19 14:11	KMS	TAL SEA
Total/NA	Prep	SM 5220			304497	07/01/19 12:14	R1K	TAL SEA
Total/NA	Analysis	SM 5220C		1	304498	07/01/19 12:14	R1K	TAL SEA

Client Sample ID: MW18

Date Collected: 06/20/19 12:55
Date Received: 06/21/19 10:30

Lab Sample ID: 580-87079-2

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	304262	06/28/19 05:33	DSO	TAL SEA
Total/NA	Analysis	RSK-175		1	144454	06/25/19 13:55	MLT	TAL BUR
Total/NA	Analysis	RSK-175		1	604916	07/03/19 11:57	AAB	TAL NSH
Total/NA	Analysis	RSK-175		40	604916	07/03/19 13:22	AAB	TAL NSH
Dissolved	Prep	200.8			304726	07/03/19 11:12	ART	TAL SEA
Dissolved	Analysis	200.8		5	304882	07/05/19 16:57	RM	TAL SEA
Total/NA	Prep	200.8			304725	07/03/19 11:06	T1H	TAL SEA
Total/NA	Analysis	200.8		5	305053	07/08/19 21:58	RM	TAL SEA
Total/NA	Prep	200.8			304725	07/03/19 11:06	T1H	TAL SEA
Total/NA	Analysis	200.8		5	305179	07/09/19 14:30	RM	TAL SEA
Total/NA	Analysis	300.0		1	303779	06/21/19 20:29	EMM	TAL SEA
Total/NA	Analysis	300.0		1	303780	06/21/19 20:29	EMM	TAL SEA
Total/NA	Analysis	SM 5210B		1	303742	06/21/19 14:11	KMS	TAL SEA
Total/NA	Prep	SM 5220			304624	07/02/19 12:24	R1K	TAL SEA
Total/NA	Analysis	SM 5220C		1	304625	07/02/19 12:24	R1K	TAL SEA

Client Sample ID: MW16

Date Collected: 06/20/19 14:05
Date Received: 06/21/19 10:30

Lab Sample ID: 580-87079-3

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	304262	06/28/19 06:00	DSO	TAL SEA

Lab Chronicle

Client: Robinson and Noble, Inc.
Project/Site: 318 State St. Olympia

Job ID: 580-87079-1

Client Sample ID: MW16

Date Collected: 06/20/19 14:05
Date Received: 06/21/19 10:30

Lab Sample ID: 580-87079-3

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	RSK-175		1	144454	06/25/19 14:04	MLT	TAL BUR
Total/NA	Analysis	RSK-175		1	604916	07/03/19 12:02	AAB	TAL NSH
Total/NA	Analysis	RSK-175		40	604916	07/03/19 13:25	AAB	TAL NSH
Dissolved	Prep	200.8			304726	07/03/19 11:12	ART	TAL SEA
Dissolved	Analysis	200.8		5	304883	07/05/19 19:36	RM	TAL SEA
Total/NA	Prep	200.8			304725	07/03/19 11:06	T1H	TAL SEA
Total/NA	Analysis	200.8		5	305053	07/08/19 22:02	RM	TAL SEA
Total/NA	Prep	200.8			304725	07/03/19 11:06	T1H	TAL SEA
Total/NA	Analysis	200.8		5	305179	07/09/19 14:34	RM	TAL SEA
Total/NA	Analysis	300.0		1	303779	06/21/19 20:41	EMM	TAL SEA
Total/NA	Analysis	300.0		1	303780	06/21/19 20:41	EMM	TAL SEA
Total/NA	Analysis	SM 5210B		1	303742	06/21/19 14:11	KMS	TAL SEA
Total/NA	Prep	SM 5220			304624	07/02/19 12:24	R1K	TAL SEA
Total/NA	Analysis	SM 5220C		1	304625	07/02/19 12:24	R1K	TAL SEA

Client Sample ID: MW19

Date Collected: 06/20/19 15:10
Date Received: 06/21/19 10:30

Lab Sample ID: 580-87079-4

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	304262	06/28/19 06:27	DSO	TAL SEA
Total/NA	Analysis	RSK-175		1	144454	06/25/19 14:12	MLT	TAL BUR
Total/NA	Analysis	RSK-175		1	604916	07/03/19 12:07	AAB	TAL NSH
Total/NA	Analysis	RSK-175		10	604916	07/03/19 13:29	AAB	TAL NSH
Dissolved	Prep	200.8			304726	07/03/19 11:12	ART	TAL SEA
Dissolved	Analysis	200.8		5	304883	07/05/19 19:41	RM	TAL SEA
Total/NA	Prep	200.8			304725	07/03/19 11:06	T1H	TAL SEA
Total/NA	Analysis	200.8		5	305053	07/08/19 22:07	RM	TAL SEA
Total/NA	Prep	200.8			304725	07/03/19 11:06	T1H	TAL SEA
Total/NA	Analysis	200.8		5	305179	07/09/19 14:39	RM	TAL SEA
Total/NA	Analysis	300.0		1	303779	06/21/19 20:53	EMM	TAL SEA
Total/NA	Analysis	300.0		1	303780	06/21/19 20:53	EMM	TAL SEA
Total/NA	Analysis	SM 5210B		1	303742	06/21/19 14:11	KMS	TAL SEA
Total/NA	Prep	SM 5220			304497	07/01/19 12:14	R1K	TAL SEA
Total/NA	Analysis	SM 5220C		1	304498	07/01/19 12:14	R1K	TAL SEA

Client Sample ID: Trip Blank

Date Collected: 06/20/19 00:01
Date Received: 06/21/19 10:30

Lab Sample ID: 580-87079-5

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	304262	06/28/19 00:15	DSO	TAL SEA

Lab Chronicle

Client: Robinson and Noble, Inc.
Project/Site: 318 State St. Olympia

Job ID: 580-87079-1

Laboratory References:

TAL BUR = Eurofins TestAmerica, Burlington, 30 Community Drive, Suite 11, South Burlington, VT 05403, TEL (802)660-1990

TAL NSH = Eurofins TestAmerica, Nashville, 2960 Foster Creighton Drive, Nashville, TN 37204, TEL (615)726-0177

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

Accreditation/Certification Summary

Client: Robinson and Noble, Inc.
Project/Site: 318 State St. Olympia

Job ID: 580-87079-1

Laboratory: Eurofins TestAmerica, Seattle

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

Authority	Program	EPA Region	Identification Number	Expiration Date
Alaska (UST)	State Program	10	17-024	01-19-20
ANAB	Dept. of Defense ELAP		L2236	01-19-22
ANAB	DoD		L2236	01-19-22
ANAB	ISO/IEC 17025		L2236	01-19-22
ANAB	ISO/IEC 17025		L2236	01-19-22
California	State Program	9	2901	11-05-19
Montana (UST)	State Program	8	N/A	04-30-20
Oregon	NELAP	10	WA100007	11-05-19
Oregon	NELAP		WA100007	11-05-19
US Fish & Wildlife	Federal		LE058448-0	07-31-19
USDA	Federal		P330-14-00126	02-10-20
Washington	State Program	10	C553	02-17-20

Laboratory: Eurofins TestAmerica, Burlington

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

Authority	Program	EPA Region	Identification Number	Expiration Date
ANAB	Dept. of Defense ELAP		L2336	02-25-20
ANAB	DoD		L2336	02-25-20
Connecticut	State Program	1	PH-0751	09-30-19
DE Haz. Subst. Cleanup Act (HSCA)	State Program	3	NA	02-01-20
Florida	NELAP	4	E87467	06-30-20
Minnesota	NELAP	5	050-999-436	12-31-19
New Hampshire	NELAP	1	2006	12-18-19
New Jersey	NELAP	2	VT972	06-30-20
New York	NELAP	2	10391	04-01-20
Pennsylvania	NELAP	3	68-00489	04-30-20
Pennsylvania	NELAP		68-00489	04-30-20
Rhode Island	State Program	1	LAO00298	12-30-19
US Fish & Wildlife	Federal		LE-058448-0	07-31-19
USDA	Federal		P330-11-00093	07-24-20
Vermont	State Program	1	VT-4000	12-31-19
Virginia	NELAP	3	460209	12-14-19

Accreditation/Certification Summary

Client: Robinson and Noble, Inc.
Project/Site: 318 State St. Olympia

Job ID: 580-87079-1

Laboratory: Eurofins TestAmerica, Nashville

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

Authority	Program	EPA Region	Identification Number	Expiration Date
A2LA	ISO/IEC 17025		0453.07	12-31-19
A2LA	ISO/IEC 17025		0453.07	12-31-19
Alaska (UST)	State Program	10	UST-087	09-30-19
Arizona	State Program	9	AZ0473	05-05-20
Arkansas DEQ	State Program	6	88-0737	04-25-20
California	State Program	9	2938	06-30-19 *
Connecticut	State Program	1	PH-0220	12-31-19
Florida	NELAP	4	E87358	06-30-20
Georgia	State Program	4	E87358(FL)/453.07(A2LA)	06-30-20
Illinois	NELAP	5	200010	12-09-19
Iowa	State Program	7	131	04-01-20
Kansas	NELAP	7	E-10229	10-31-19
Kentucky (UST)	State Program	4	19	06-30-19 *
Kentucky (WW)	State Program	4	90038	12-31-19
Louisiana	NELAP	6	30613	06-30-20
Maine	State Program	1	TN00032	11-03-19
Maryland	State Program	3	316	03-31-20
Massachusetts	State Program	1	M-TN032	06-30-20
Minnesota	NELAP	5	047-999-345	12-31-19
Mississippi	State Program	4	N/A	06-30-19 *
Nevada	State Program	9	TN00032	07-31-19 *
New Hampshire	NELAP	1	2963	10-09-19
New Jersey	NELAP	2	TN965	06-30-20
New York	NELAP	2	11342	03-31-20
North Carolina (WW/SW)	State Program	4	387	12-31-19
North Dakota	State Program	8	R-146	06-30-19 *
Oklahoma	State Program	6	9412	08-31-19 *
Oregon	NELAP	10	TN200001	04-26-20
Pennsylvania	NELAP	3	68-00585	07-31-19 *
Rhode Island	State Program	1	LAO00268	12-30-19
South Carolina	State Program	4	84009 (001)	02-28-19 *
Tennessee	State Program	4	2008	02-23-20
Texas	NELAP	6	T104704077	08-31-19
USDA	Federal		P330-13-00306	04-10-20
Utah	NELAP	8	TN00032	07-31-19
Virginia	NELAP	3	460152	06-14-20
Washington	State Program	10	C789	07-19-19 *
West Virginia DEP	State Program	3	219	02-28-20
Wisconsin	State Program	5	998020430	08-31-19 *
Wyoming (UST)	A2LA	8	453.07	12-31-19

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Sample Summary

Client: Robinson and Noble, Inc.
Project/Site: 318 State St. Olympia

Job ID: 580-87079-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
580-87079-1	MW3	Water	06/20/19 10:55	06/21/19 10:30	
580-87079-2	MW18	Water	06/20/19 12:55	06/21/19 10:30	
580-87079-3	MW16	Water	06/20/19 14:05	06/21/19 10:30	
580-87079-4	MW19	Water	06/20/19 15:10	06/21/19 10:30	
580-87079-5	Trip Blank	Water	06/20/19 00:01	06/21/19 10:30	

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

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

☐ Rush
☐ Short Hold

Chain of Custody Record

Client: Robinson Noble	Client Contact: Kari Thomas	Date:	Chain of Custody Number: 35674
Address: 2105 South C street	Telephone Number (Area Code)/Fax Number: 253-475-7711	Lab Number:	Page ___ of ___
City: Tacoma / State: WA / Zip Code: 98402	Sampler: ATB / Lab Contact:	Analysis (Attach list if more space is needed)	Loc: 580 87079
Project Name and Location (State): 318 state St. Olympia	Billing Contact:		Spe Con
Contract/Purchase Order/Quote No.: 1682-024B			

Sample I.D. and Location/Description (Containers for each sample may be combined on one line)	Date	Time	Air	Aqueous	Sed.	Soil	Unpres.	H2SO4	HNO3	HCl	NaOH	ZnAc/NaOH	carbon dioxide	methane, ethane, ethene	dissolved iron + manganese	total iron + manganese	sulfate	nitrate	COD	PCE + degradation products	BOD	
MW3: 250 ml (4x), 1 liter, 12 VOA	6/20	10:55		X			X	X	X	X			X	X	X	X	X	X	X	X	X	Dissolved iron +
MW18: " "	6/20	12:55		X			X	X	X	X			X	X	X	X	X	X	X	X	X	manganese were
MW16: " "	6/20	14:05		X			X	X	X	X			X	X	X	X	X	X	X	X	X	field filtered
MW19: " "	6/20	15:10		X			X	X	X	X			X	X	X	X	X	X	X	X	X	
Trip blank 6 VOA																				X		

Therm. ID: A2 Cor: 7.1 ° Unc: 7.4 °
Cooler Dsc: LB
Packing: —
Cust. Seal: Yes___ No X
(Blue Ice), Wet, Dry, None
FedEx: ___
UPS: ___
Lab Cour: ___
Other: CD

Therm. ID: A2 Cor: 6.2 ° Unc: 6.5 °
Cooler Dsc: LB
Packing: BB
Cust. Seal: Yes___ No X
(Blue Ice), Wet, Dry, None
FedEx: ___
UPS: ___
Lab Cour: ___
Other: CD

580-87079 Chain of Custody

Cooler: ☐ Yes ☐ No Cooler Temp: ______

Possible Hazard Identification: ☒ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal: ☐ Return To Client ☒ Disposal By Lab ☒ Archive For 1 Months (A fee may be assessed if samples are retained longer than 1 month)

Turn Around Time Required (business days): ☐ 24 Hours ☐ 48 Hours ☐ 5 Days ☐ 10 Days ☐ 15 Days ☒ Other Standard

QC Requirements (Specify):

	Sign/Print	Date	Time		Sign/Print	Date	Time
1. Relinquished By	[signature]	6/21/19	10:30	1. Received By	[signature] Ken Hobbs	6-21-19	1030
2. Relinquished By				2. Received By			
3. Relinquished By				3. Received By			

Comments

DISTRIBUTION: WHITE – Stays with the Samples; CANARY – Returned to Client with Report; PINK – Field Copy

TAL-8274-580 (0210)

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

Chain of Custody Record

580-87079 Chain of Custody

eurofins | Environment Testing TestAmerica

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Zalmai, Kayse 1		COC No: 580-67304.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: kayse.zalmai@testamericainc.com	State of Origin: Washington	Page: Page 1 of 1
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note):		Job #: 580-87079-1
Address: 30 Community Drive, Suite 11,	Due Date Requested: 7/3/2019			
City: South Burlington	TAT Requested (days):			
State, Zip: VT, 05403				
Phone: 802-660-1990(Tel) 802-660-1919(Fax)	PO #:			
Email:	WO #:			
Project Name: 318 State St. Olympia	Project #: 58012168			
Site:	SSOW#:			

Analysis Requested

Preservation Codes:

A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Z - other (specify)

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	RSK_175_CO2/ Carbon Dioxide	Total Number of containers	Special Instructions/Note:
			Preservation Code:					
MW3 (580-87079-1)	6/20/19	10:55 Pacific		Water		X		
MW18 (580-87079-2)	6/20/19	12:55 Pacific		Water		X		
MW16 (580-87079-3)	6/20/19	14:05 Pacific		Water		X		
MW19 (580-87079-4)	6/20/19	15:10 Pacific		Water		X		

Note: Since laboratory accreditations are subject to change, TestAmerica Laboratories, Inc. places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to TestAmerica Laboratories, Inc. attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said complicance to TestAmerica Laboratories, Inc.

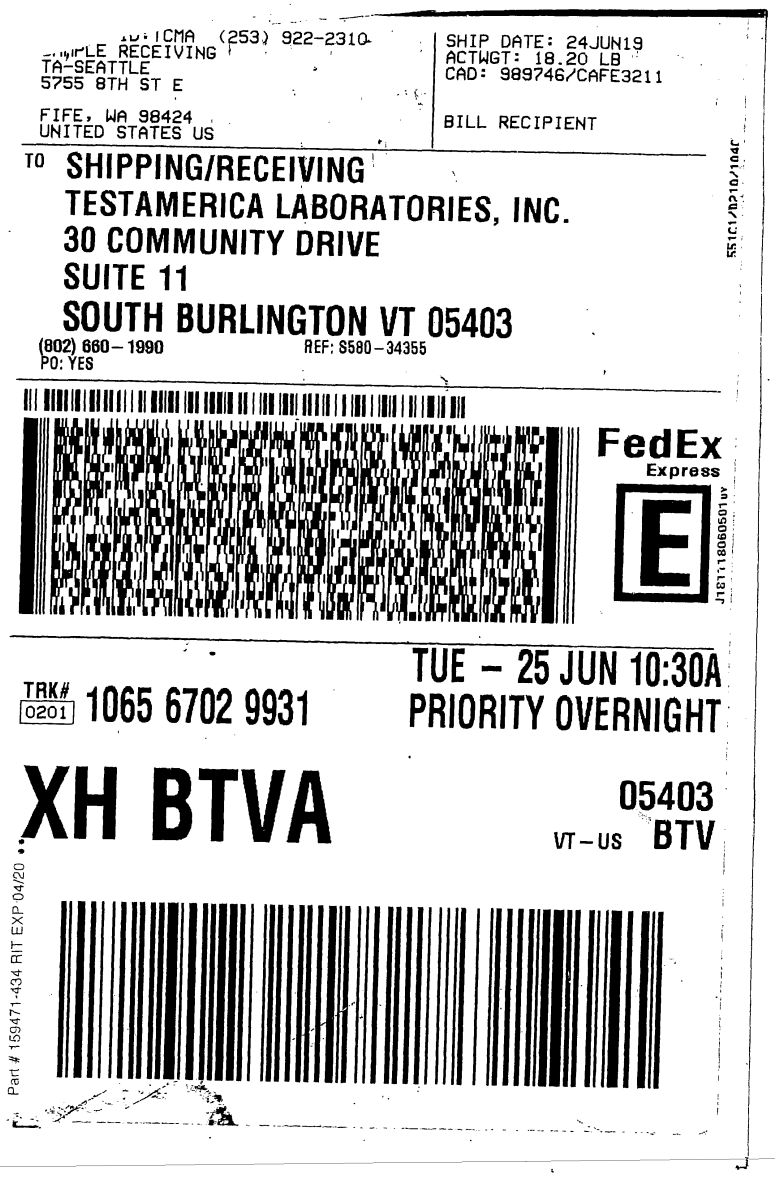
Possible Hazard Identification *Unconfirmed*	***Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)*** ☐ *Return To Client* ☐ *Disposal By Lab* ☐ *Archive For* _____ *Months*
Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2	Special Instructions/QC Requirements:
Empty Kit Relinquished by:	Date: Time: Method of Shipment:

Relinquished by: Tom Blankenship	Date/Time: 6/24/19	Company TA-Sea	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time: 6/25/19 1035	Company TASea

Custody Seals Intact: ☑ Yes ☐ No | Custody Seal No.: 496937 | Cooler Temperature(s) °C and Other Remarks: 0.8

Ver: 01/16/2019

7/10/2019


ID:ICMA (253) 922-2310
SAMPLE RECEIVING
TA-SEATTLE
5755 8TH ST E
FIFE, WA 98424
UNITED STATES US
SHIP DATE: 24JUN19
ACTWGT: 18.20 LB
CAD: 989746/CAFE3211
BILL RECIPIENT
TO SHIPPING/RECEIVING
TESTAMERICA LABORATORIES, INC.
30 COMMUNITY DRIVE
SUITE 11
SOUTH BURLINGTON VT 05403
(802) 660-1990
REF: 8580-34355
PO: YES
FedEx
Express
TRK# 0201 1065 6702 9931
TUE - 25 JUN 10:30A
PRIORITY OVERNIGHT
XH BTVA
05403
VT-US BTV
Part # 159471-434 RIT EXP 04/20

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
Nashville, TN

580-87079 Chain of Custody

COOLER RECEIPT FORM

Cooler Received/Opened On 06-25-2019 @ 09:20 1839

Time Samples Removed From Cooler 1837 Time Samples Placed In Storage _____ (2 Hour Window)

1. Tracking # 9894 (last 4 digits, FedEx) Courier: _FedEx_

IR Gun ID 14740456 pH Strip Lot NA Chlorine Strip Lot NA

2. Temperature of rep. sample or temp blank when opened: 3.1 *Degrees Celsius*

3. If Item #2 temperature is 0°C or less, was the representative sample or temp blank frozen? YES NO NA

4. Were custody seals on outside of cooler? YES...NO...NA

If yes, how many and where: 1 (side)

5. Were the seals intact, signed, and dated correctly? YES...NO...NA

6. Were custody papers inside cooler? YES...NO...NA

I certify that I opened the cooler and answered questions 1-6 (intial) 10

7. Were custody seals on containers: YES NO and Intact YES...NO...NA

Were these signed and dated correctly? YES...NO...NA

8. Packing mat'l used? Bubblewrap Plastic bag Peanuts Vermiculite Foam Insert Paper Other None

9. Cooling process: Ice Ice-pack Ice (direct contact) Dry ice Other None

10. Did all containers arrive in good condition (unbroken)? YES...NO...NA

11. Were all container labels complete (#, date, signed, pres., etc)? YES...NO...NA

12. Did all container labels and tags agree with custody papers? YES...NO...NA

13a. Were VOA vials received? YES...NO...NA

b. Was there any observable headspace present in any VOA vial? YES...NO...NA

● ← Larger than this.

14. Was there a Trip Blank in this cooler? YES...NO...NA If multiple coolers, sequence #_____

I certify that I unloaded the cooler and answered questions 7-14 (intial) GH

15a. On pres'd bottles, did pH test strips suggest preservation reached the correct pH level? YES...NO...NA

b. Did the bottle labels indicate that the correct preservatives were used YES...NO...NA

16. Was residual chlorine present? YES...NO...NA

I certify that I checked for chlorine and pH as per SOP and answered questions 15-16 (intial) GH

17. Were custody papers properly filled out (ink, signed, etc)? YES...NO...NA

18. Did you sign the custody papers in the appropriate place? YES...NO...NA

19. Were correct containers used for the analysis requested? YES...NO...NA

20. Was sufficient amount of sample sent in each container? YES...NO...NA

I certify that I entered this project into LIMS and answered questions 17-20 (intial) GH

I certify that I attached a label with the unique LIMS number to each container (intial) GH

21. Were there Non-Conformance issues at login? YES...NO Was a NCM generated? YES...NO...#_____

BIS = Broken in shipment

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

Chain of Custody Record 580-87079

eurofins | Environment Testing TestAmerica

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Zaimai, Kayse 1		COC No: 580-67296.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: kayse.zalmai@testamericainc.com	State of Origin: Washington	Page: Page 1 of 1
Company: TestAmerica Laboratories, Inc		Accreditations Required (See note):		Job #: 580-87079-1
Address: 2960 Foster Creighton Drive, ,	Due Date Requested: 7/3/2019			
City: Nashville	TAT Requested (days):			
State, Zip: TN, 37204				
Phone: 615-726-0177(Tel) 615-726-3404(Fax)	PO #:			
Email:	WO #:			
Project Name: 318 State St. Olympia	Project #: 58012168			
Site:	SSOW#:			

Analysis Requested

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2O3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - pH 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	RSK_175/ Methane, Ethane, Ethene	Total Number of containers	Special Instructions/Note:
			Preservation Code:						
MW3 (580-87079-1)	6/20/19	10:55 Pacific		Water			X	3	Loc: 580 87079
MW18 (580-87079-2)	6/20/19	12:55 Pacific		Water			X	3	
MW16 (580-87079-3)	6/20/19	14:05 Pacific		Water			X	3	
MW19 (580-87079-4)	6/20/19	15:10 Pacific		Water			X	3	

Note: Since laboratory accreditations are subject to change, TestAmerica Laboratories, Inc. places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to TestAmerica Laboratories, Inc. attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said complicance to TestAmerica Laboratories, Inc.

Possible Hazard Identification *Unconfirmed*	***Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)*** ☐ *Return To Client* ☐ *Disposal By Lab* ☐ *Archive For* _____ *Months*
Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2	Special Instructions/QC Requirements:

Empty Kit Relinquished by:		Date:	Time:	Method of Shipment:			
Relinquished by: Tom Blandy	Date/Time: 6/24/19	Company TA-Sea	Received by:	Date/Time: 6-25-19 0920	Company TA-NAS		
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company		
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company		

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks: 3-1

Ver: 01/16/2019

7/10/2019

Login Sample Receipt Checklist

Client: Robinson and Noble, Inc.

Job Number: 580-87079-1

Login Number: 87079
List Number: 1
Creator: Hobbs, Kenneth F

List Source: Eurofins TestAmerica, Seattle

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.	False	
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.	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	

Login Sample Receipt Checklist

Client: Robinson and Noble, Inc.

Job Number: 580-87079-1

Login Number: 87079
List Number: 2
Creator: Lavigne, Scott M

List Source: Eurofins TestAmerica, Burlington
List Creation: 06/25/19 12:02 PM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	Lab does not accept radioactive samples.
The cooler's custody seal, if present, is intact.	True	Not present
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	2.0ºC
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: 580-84380-1
Client Project/Site: 318 State Ave Olympia

For:
Robinson and Noble, Inc.
2105 South C Street
Tacoma, Washington 98402

Attn: John Hildenbrand

Kayse Zalmai

Authorized for release by:
3/29/2019 2:22:13 PM

Kayse Zalmai, Project Manager I
(253)922-2310
kayse.zalmai@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.

Table of Contents

Case Narrative

Client: Robinson and Noble, Inc.
Project/Site: 318 State Ave Olympia

TestAmerica Job ID: 580-84380-1

Job ID: 580-84380-1

Laboratory: TestAmerica Seattle

Narrative

Job Narrative
580-84380-1

Receipt
The samples were received on 3/7/2019 1:50 PM. The temperature of the cooler at receipt was 7.7º C.

Receipt Exceptions
A trip blank was submitted for analysis with these samples; however, it was not listed on the Chain of Custody (COC).

Dissolved Iron & Manganese container for the following samples was not marked as field filtered: MW-3 (580-84380-1). The cleanest HNO3 preserved was used as the FF container.

GC/MS VOA
Method(s) 8260C: The following analyte(s) recovered outside control limits for the LCSD associated with analytical batch 580-295922: Vinyl chloride. This is not indicative of a systematic control problem because these were random marginal exceedances. Qualified results have been reported.

Method(s) 8260C: The continuing calibration verification (CCV) associated with batch 580-295922 recovered outside acceptance criteria, low biased, for Vinyl Chloride and Chloroethane. A reporting limit (RL) standard was analyzed, and the target analyte was detected. Since the associated samples were non-detect for this analyte, the data have been reported.

Method(s) 8260C: Reanalysis of the following sample was performed outside of the analytical holding time due to QC failures and instrument maintenance required to fix the QC problems : MW-18 (580-84380-3). Both sets of data have been reported.

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

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

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

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

General Chemistry
Method(s) SM 5210B: The residual D.O. in samples MW-3 (580-84380-1), MW-16 (580-84380-2) and MW-18 (580-84380-3) was < 1.0 mg/L in all dilutions tested; they were over depleted. Results were reported, but they may be biased low.

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

Definitions/Glossary

Client: Robinson and Noble, Inc.
Project/Site: 318 State Ave Olympia

TestAmerica Job ID: 580-84380-1

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
*	LCS or LCSD is outside acceptance limits.
H	Sample was prepped or analyzed beyond the specified holding time
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
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 (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Client Sample ID: MW-3

Date Collected: 03/07/19 09:15
Date Received: 03/07/19 13:50

Lab Sample ID: 580-84380-1

Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		0.20		ug/L			03/10/19 20:26	1
1,1,2,2-Tetrachloroethane	ND		0.20		ug/L			03/10/19 20:26	1
1,1,2-Trichloroethane	ND		0.20		ug/L			03/10/19 20:26	1
1,1-Dichloroethane	ND		0.20		ug/L			03/10/19 20:26	1
1,1-Dichloroethene	ND		0.20		ug/L			03/10/19 20:26	1
Benzene	ND		0.20		ug/L			03/10/19 20:26	1
Chloroethane	ND		0.50		ug/L			03/10/19 20:26	1
cis-1,2-Dichloroethene	**0.32**		0.20		ug/L			03/10/19 20:26	1
Ethylbenzene	ND		0.20		ug/L			03/10/19 20:26	1
Methylene Chloride	ND		5.0		ug/L			03/10/19 20:26	1
m-Xylene & p-Xylene	ND		0.50		ug/L			03/10/19 20:26	1
o-Xylene	ND		0.50		ug/L			03/10/19 20:26	1
Tetrachloroethene	ND		0.50		ug/L			03/10/19 20:26	1
Toluene	ND		0.20		ug/L			03/10/19 20:26	1
trans-1,2-Dichloroethene	ND		0.20		ug/L			03/10/19 20:26	1
Trichloroethene	**0.79**		0.20		ug/L			03/10/19 20:26	1
Vinyl chloride	**1.3**	*	0.020		ug/L			03/10/19 20:26	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*102*		*80 - 120*		*03/10/19 20:26*	*1*
4-Bromofluorobenzene (Surr)	*94*		*80 - 120*		*03/10/19 20:26*	*1*
Dibromofluoromethane (Surr)	*97*		*80 - 120*		*03/10/19 20:26*	*1*
Toluene-d8 (Surr)	*98*		*75 - 125*		*03/10/19 20:26*	*1*
Trifluorotoluene (Surr)	*98*		*80 - 120*		*03/10/19 20:26*	*1*

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Carbon dioxide	**100000**		5000		ug/L			03/11/19 15:35	1
Ethane	ND		0.0050		mg/L			03/18/19 12:37	1
Ethylene	ND		0.0050		mg/L			03/18/19 12:37	1
Methane	**3.5**		0.050		mg/L			03/18/19 14:29	10

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Acetylene (Surr)	*90*		*70 - 130*		*03/18/19 12:37*	*1*

Method: 200.8 - Dissolved Metals by ICPMS - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	**3.1**		0.20		mg/L		03/19/19 16:58	03/20/19 11:14	1
Manganese	**0.93**		0.0020		mg/L		03/19/19 16:58	03/20/19 11:14	1

Method: 200.8 - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	**4.4**		0.20		mg/L		03/15/19 14:16	03/18/19 18:57	1
Manganese	**0.95**		0.0020		mg/L		03/15/19 14:16	03/18/19 18:57	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	ND		0.20		mg/L			03/08/19 14:47	1
Sulfate	**2.6**		1.2		mg/L			03/08/19 14:47	1

Client Sample Results

Client: Robinson and Noble, Inc.
Project/Site: 318 State Ave Olympia

TestAmerica Job ID: 580-84380-1

Client Sample ID: MW-3
Date Collected: 03/07/19 09:15
Date Received: 03/07/19 13:50

Lab Sample ID: 580-84380-1
Matrix: Water

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Biochemical Oxygen Demand	99		2.0		mg/L			03/09/19 08:14	1
Chemical Oxygen Demand	1100		200		mg/L		03/15/19 13:59	03/15/19 13:59	1

Client Sample ID: MW-16

Date Collected: 03/07/19 11:20
Date Received: 03/07/19 13:50

Lab Sample ID: 580-84380-2

Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		0.20		ug/L			03/10/19 20:53	1
1,1,2,2-Tetrachloroethane	ND		0.20		ug/L			03/10/19 20:53	1
1,1,2-Trichloroethane	ND		0.20		ug/L			03/10/19 20:53	1
1,1-Dichloroethane	ND		0.20		ug/L			03/10/19 20:53	1
1,1-Dichloroethene	ND		0.20		ug/L			03/10/19 20:53	1
Benzene	ND		0.20		ug/L			03/10/19 20:53	1
Chloroethane	ND		0.50		ug/L			03/10/19 20:53	1
cis-1,2-Dichloroethene	ND		0.20		ug/L			03/10/19 20:53	1
Ethylbenzene	ND		0.20		ug/L			03/10/19 20:53	1
Methylene Chloride	ND		5.0		ug/L			03/10/19 20:53	1
m-Xylene & p-Xylene	ND		0.50		ug/L			03/10/19 20:53	1
o-Xylene	ND		0.50		ug/L			03/10/19 20:53	1
Tetrachloroethene	ND		0.50		ug/L			03/10/19 20:53	1
Toluene	ND		0.20		ug/L			03/10/19 20:53	1
trans-1,2-Dichloroethene	ND		0.20		ug/L			03/10/19 20:53	1
Trichloroethene	ND		0.20		ug/L			03/10/19 20:53	1
Vinyl chloride	**0.30**	*	0.020		ug/L			03/10/19 20:53	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*100*		*80 - 120*		*03/10/19 20:53*	*1*
4-Bromofluorobenzene (Surr)	*94*		*80 - 120*		*03/10/19 20:53*	*1*
Dibromofluoromethane (Surr)	*98*		*80 - 120*		*03/10/19 20:53*	*1*
Toluene-d8 (Surr)	*104*		*75 - 125*		*03/10/19 20:53*	*1*
Trifluorotoluene (Surr)	*109*		*80 - 120*		*03/10/19 20:53*	*1*

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Carbon dioxide	**5500**		5000		ug/L			03/11/19 15:44	1
Ethane	ND		0.0050		mg/L			03/18/19 12:47	1
Ethylene	ND		0.0050		mg/L			03/18/19 12:47	1
Methane	**2.6**		0.050		mg/L			03/18/19 14:33	10

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Acetylene (Surr)	*102*		*70 - 130*		*03/18/19 12:47*	*1*

Method: 200.8 - Dissolved Metals by ICPMS - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	ND		0.20		mg/L		03/19/19 16:58	03/20/19 11:57	1
Manganese	**0.067**		0.0020		mg/L		03/19/19 16:58	03/20/19 11:57	1

Method: 200.8 - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	**0.63**		0.20		mg/L		03/15/19 14:16	03/18/19 19:36	1
Manganese	**0.081**		0.0020		mg/L		03/15/19 14:16	03/18/19 19:36	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	**0.36**		0.20		mg/L			03/08/19 14:58	1
Sulfate	**2.3**		1.2		mg/L			03/08/19 14:58	1

Client Sample Results

Client: Robinson and Noble, Inc.
Project/Site: 318 State Ave Olympia

TestAmerica Job ID: 580-84380-1

Client Sample ID: MW-16
Date Collected: 03/07/19 11:20
Date Received: 03/07/19 13:50

Lab Sample ID: 580-84380-2
Matrix: Water

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Biochemical Oxygen Demand	48		2.0		mg/L			03/09/19 08:14	1
Chemical Oxygen Demand	500		200		mg/L		03/15/19 13:59	03/15/19 13:59	1

Client: Robinson and Noble, Inc.
Project/Site: 318 State Ave Olympia

TestAmerica Job ID: 580-84380-1

Client Sample ID: MW-18
Date Collected: 03/07/19 10:20
Date Received: 03/07/19 13:50

Lab Sample ID: 580-84380-3
Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND	H	0.20		ug/L			03/29/19 02:56	1
1,1,2,2-Tetrachloroethane	ND	H	0.20		ug/L			03/29/19 02:56	1
1,1,2-Trichloroethane	ND	H	0.20		ug/L			03/29/19 02:56	1
1,1-Dichloroethane	ND	H	0.20		ug/L			03/29/19 02:56	1
1,1-Dichloroethene	ND	H	0.20		ug/L			03/29/19 02:56	1
Benzene	ND	H	0.20		ug/L			03/29/19 02:56	1
Chloroethane	ND	H	0.50		ug/L			03/29/19 02:56	1
cis-1,2-Dichloroethene	**0.20**	**H**	0.20		ug/L			03/29/19 02:56	1
Ethylbenzene	ND	H	0.20		ug/L			03/29/19 02:56	1
Methylene Chloride	ND	H	5.0		ug/L			03/29/19 02:56	1
m-Xylene & p-Xylene	ND	H	0.50		ug/L			03/29/19 02:56	1
o-Xylene	ND	H	0.50		ug/L			03/29/19 02:56	1
Tetrachloroethene	ND	H	0.50		ug/L			03/29/19 02:56	1
Toluene	ND	H	0.20		ug/L			03/29/19 02:56	1
trans-1,2-Dichloroethene	ND	H	0.20		ug/L			03/29/19 02:56	1
Trichloroethene	ND	H	0.20		ug/L			03/29/19 02:56	1
Vinyl chloride	**0.65**	**H**	0.020		ug/L			03/29/19 02:56	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*104*		*80 - 120*		*03/29/19 02:56*	*1*
4-Bromofluorobenzene (Surr)	*100*		*80 - 120*		*03/29/19 02:56*	*1*
Dibromofluoromethane (Surr)	*100*		*80 - 120*		*03/29/19 02:56*	*1*
Toluene-d8 (Surr)	*98*		*75 - 125*		*03/29/19 02:56*	*1*
Trifluorotoluene (Surr)	*102*		*80 - 120*		*03/29/19 02:56*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		2.0		ug/L			03/21/19 15:19	10
1,1,2,2-Tetrachloroethane	ND		2.0		ug/L			03/21/19 15:19	10
1,1,2-Trichloroethane	ND		2.0		ug/L			03/21/19 15:19	10
1,1-Dichloroethane	ND		2.0		ug/L			03/21/19 15:19	10
1,1-Dichloroethene	ND		2.0		ug/L			03/21/19 15:19	10
Benzene	ND		2.0		ug/L			03/21/19 15:19	10
Chloroethane	ND		5.0		ug/L			03/21/19 15:19	10
cis-1,2-Dichloroethene	ND		2.0		ug/L			03/21/19 15:19	10
Ethylbenzene	ND		2.0		ug/L			03/21/19 15:19	10
Methylene Chloride	ND		50		ug/L			03/21/19 15:19	10
m-Xylene & p-Xylene	ND		5.0		ug/L			03/21/19 15:19	10
o-Xylene	ND		5.0		ug/L			03/21/19 15:19	10
Tetrachloroethene	ND		5.0		ug/L			03/21/19 15:19	10
Toluene	ND		2.0		ug/L			03/21/19 15:19	10
trans-1,2-Dichloroethene	ND		2.0		ug/L			03/21/19 15:19	10
Trichloroethene	ND		2.0		ug/L			03/21/19 15:19	10
Vinyl chloride	**0.76**		0.20		ug/L			03/21/19 15:19	10

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*104*		*80 - 120*		*03/21/19 15:19*	*10*
4-Bromofluorobenzene (Surr)	*94*		*80 - 120*		*03/21/19 15:19*	*10*
Dibromofluoromethane (Surr)	*90*		*80 - 120*		*03/21/19 15:19*	*10*
Toluene-d8 (Surr)	*104*		*75 - 125*		*03/21/19 15:19*	*10*

Client Sample ID: MW-18
Date Collected: 03/07/19 10:20
Date Received: 03/07/19 13:50

Lab Sample ID: 580-84380-3
Matrix: Water

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

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Trifluorotoluene (Surr)	*108*		*80 - 120*		*03/21/19 15:19*	*10*

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Carbon dioxide	**22000**		5000		ug/L			03/11/19 15:52	1
Ethane	ND		0.0050		mg/L			03/18/19 12:50	1
Ethylene	ND		0.0050		mg/L			03/18/19 12:50	1
Methane	**1.5**		0.025		mg/L			03/18/19 14:39	5

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Acetylene (Surr)	*96*		*70 - 130*		*03/18/19 12:50*	*1*

Method: 200.8 - Dissolved Metals by ICPMS - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	ND		0.20		mg/L		03/19/19 16:58	03/20/19 11:11	1
Manganese	**0.16**		0.0020		mg/L		03/19/19 16:58	03/20/19 11:11	1

Method: 200.8 - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	**0.46**		0.20		mg/L		03/15/19 14:16	03/18/19 19:40	1
Manganese	**0.18**		0.0020		mg/L		03/15/19 14:16	03/18/19 19:40	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	ND		0.20		mg/L			03/08/19 15:10	1
Sulfate	**7.2**		1.2		mg/L			03/08/19 15:10	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Biochemical Oxygen Demand	**96**		2.0		mg/L			03/09/19 08:14	1
Chemical Oxygen Demand	**720**		200		mg/L		03/15/19 13:59	03/15/19 13:59	1

Client Sample ID: MW-19

Date Collected: 03/07/19 12:15
Date Received: 03/07/19 13:50

Lab Sample ID: 580-84380-4

Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		0.20		ug/L			03/10/19 21:46	1
1,1,2,2-Tetrachloroethane	ND		0.20		ug/L			03/10/19 21:46	1
1,1,2-Trichloroethane	ND		0.20		ug/L			03/10/19 21:46	1
1,1-Dichloroethane	ND		0.20		ug/L			03/10/19 21:46	1
1,1-Dichloroethene	ND		0.20		ug/L			03/10/19 21:46	1
Benzene	ND		0.20		ug/L			03/10/19 21:46	1
Chloroethane	ND		0.50		ug/L			03/10/19 21:46	1
cis-1,2-Dichloroethene	ND		0.20		ug/L			03/10/19 21:46	1
Ethylbenzene	ND		0.20		ug/L			03/10/19 21:46	1
Methylene Chloride	ND		5.0		ug/L			03/10/19 21:46	1
m-Xylene & p-Xylene	ND		0.50		ug/L			03/10/19 21:46	1
o-Xylene	ND		0.50		ug/L			03/10/19 21:46	1
Tetrachloroethene	ND		0.50		ug/L			03/10/19 21:46	1
Toluene	ND		0.20		ug/L			03/10/19 21:46	1
trans-1,2-Dichloroethene	ND		0.20		ug/L			03/10/19 21:46	1
Trichloroethene	**0.20**		0.20		ug/L			03/10/19 21:46	1
Vinyl chloride	ND	*	0.020		ug/L			03/10/19 21:46	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*104*		*80 - 120*		*03/10/19 21:46*	*1*
4-Bromofluorobenzene (Surr)	*93*		*80 - 120*		*03/10/19 21:46*	*1*
Dibromofluoromethane (Surr)	*104*		*80 - 120*		*03/10/19 21:46*	*1*
Toluene-d8 (Surr)	*99*		*75 - 125*		*03/10/19 21:46*	*1*
Trifluorotoluene (Surr)	*110*		*80 - 120*		*03/10/19 21:46*	*1*

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Carbon dioxide	ND		5000		ug/L			03/11/19 16:01	1
Ethane	ND		0.0050		mg/L			03/18/19 12:54	1
Ethylene	ND		0.0050		mg/L			03/18/19 12:54	1
Methane	**0.18**		0.0050		mg/L			03/18/19 12:54	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Acetylene (Surr)	*99*		*70 - 130*		*03/18/19 12:54*	*1*

Method: 200.8 - Dissolved Metals by ICPMS - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	ND		0.20		mg/L		03/19/19 16:58	03/20/19 11:53	1
Manganese	**0.0059**		0.0020		mg/L		03/19/19 16:58	03/20/19 11:53	1

Method: 200.8 - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	**4.0**		0.20		mg/L		03/15/19 14:16	03/18/19 19:45	1
Manganese	**0.044**		0.0020		mg/L		03/15/19 14:16	03/18/19 19:45	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	**6.4**		0.20		mg/L			03/08/19 15:22	1
Sulfate	**19**		1.2		mg/L			03/08/19 15:22	1

Client Sample Results

Client: Robinson and Noble, Inc.
Project/Site: 318 State Ave Olympia

TestAmerica Job ID: 580-84380-1

Client Sample ID: MW-19
Date Collected: 03/07/19 12:15
Date Received: 03/07/19 13:50

Lab Sample ID: 580-84380-4
Matrix: Water

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Biochemical Oxygen Demand	3.7		2.0		mg/L			03/09/19 08:14	1
Chemical Oxygen Demand	800		200		mg/L		03/15/19 13:59	03/15/19 13:59	1

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

Lab Sample ID: MB 580-295922/7
Matrix: Water
Analysis Batch: 295922

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		0.20		ug/L			03/10/19 14:39	1
1,1,2,2-Tetrachloroethane	ND		0.20		ug/L			03/10/19 14:39	1
1,1,2-Trichloroethane	ND		0.20		ug/L			03/10/19 14:39	1
1,1-Dichloroethane	ND		0.20		ug/L			03/10/19 14:39	1
1,1-Dichloroethene	ND		0.20		ug/L			03/10/19 14:39	1
Benzene	ND		0.20		ug/L			03/10/19 14:39	1
Chloroethane	ND		0.50		ug/L			03/10/19 14:39	1
cis-1,2-Dichloroethene	ND		0.20		ug/L			03/10/19 14:39	1
Ethylbenzene	ND		0.20		ug/L			03/10/19 14:39	1
Methylene Chloride	ND		5.0		ug/L			03/10/19 14:39	1
m-Xylene & p-Xylene	ND		0.50		ug/L			03/10/19 14:39	1
o-Xylene	ND		0.50		ug/L			03/10/19 14:39	1
Tetrachloroethene	ND		0.50		ug/L			03/10/19 14:39	1
Toluene	ND		0.20		ug/L			03/10/19 14:39	1
trans-1,2-Dichloroethene	ND		0.20		ug/L			03/10/19 14:39	1
Trichloroethene	ND		0.20		ug/L			03/10/19 14:39	1
Vinyl chloride	ND		0.020		ug/L			03/10/19 14:39	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*104*		*80 - 120*		*03/10/19 14:39*	*1*
4-Bromofluorobenzene (Surr)	*105*		*80 - 120*		*03/10/19 14:39*	*1*
Dibromofluoromethane (Surr)	*99*		*80 - 120*		*03/10/19 14:39*	*1*
Toluene-d8 (Surr)	*99*		*75 - 125*		*03/10/19 14:39*	*1*
Trifluorotoluene (Surr)	*107*		*80 - 120*		*03/10/19 14:39*	*1*

Lab Sample ID: LCS 580-295922/4
Matrix: Water
Analysis Batch: 295922

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1,1-Trichloroethane	5.00	5.23		ug/L		105	74 - 137
1,1,2,2-Tetrachloroethane	5.00	5.43		ug/L		109	69 - 147
1,1,2-Trichloroethane	5.00	4.92		ug/L		98	80 - 127
1,1-Dichloroethane	5.00	5.34		ug/L		107	80 - 135
1,1-Dichloroethene	5.00	4.57		ug/L		91	71 - 134
Benzene	5.00	5.03		ug/L		101	73 - 133
Chloroethane	5.00	4.06		ug/L		81	58 - 150
cis-1,2-Dichloroethene	5.00	5.29		ug/L		106	79 - 130
Ethylbenzene	5.00	5.21		ug/L		104	74 - 138
Methylene Chloride	5.00	5.09		ug/L		102	75 - 134
m-Xylene & p-Xylene	5.00	5.25		ug/L		105	73 - 130
o-Xylene	5.00	5.32		ug/L		106	80 - 139
Tetrachloroethene	5.00	5.25		ug/L		105	75 - 131
Toluene	5.00	4.98		ug/L		100	80 - 126
trans-1,2-Dichloroethene	5.00	5.44		ug/L		109	75 - 133
Trichloroethene	5.00	5.37		ug/L		107	72 - 136
Vinyl chloride	5.00	3.27		ug/L		65	59 - 140

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

Lab Sample ID: LCS 580-295922/4
Matrix: Water
Analysis Batch: 295922

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

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*100*		*80 - 120*
4-Bromofluorobenzene (Surr)	*110*		*80 - 120*
Dibromofluoromethane (Surr)	*103*		*80 - 120*
Toluene-d8 (Surr)	*90*		*75 - 125*
Trifluorotoluene (Surr)	*98*		*80 - 120*

Lab Sample ID: LCSD 580-295922/5
Matrix: Water
Analysis Batch: 295922

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
1,1,1-Trichloroethane			5.00	4.92		ug/L		98	74 - 137	6	20
1,1,2,2-Tetrachloroethane			5.00	5.20		ug/L		104	69 - 147	4	16
1,1,2-Trichloroethane			5.00	5.12		ug/L		102	80 - 127	4	19
1,1-Dichloroethane			5.00	4.93		ug/L		99	80 - 135	8	20
1,1-Dichloroethene			5.00	4.19		ug/L		84	71 - 134	9	28
Benzene			5.00	4.84		ug/L		97	73 - 133	4	20
Chloroethane			5.00	3.80		ug/L		76	58 - 150	7	35
cis-1,2-Dichloroethene			5.00	4.91		ug/L		98	79 - 130	7	20
Ethylbenzene			5.00	4.98		ug/L		100	74 - 138	4	20
Methylene Chloride			5.00	4.75	J	ug/L		95	75 - 134	7	29
m-Xylene & p-Xylene			5.00	5.02		ug/L		100	73 - 130	5	20
o-Xylene			5.00	5.04		ug/L		101	80 - 139	5	20
Tetrachloroethene			5.00	5.21		ug/L		104	75 - 131	1	20
Toluene			5.00	4.97		ug/L		99	80 - 126	0	20
trans-1,2-Dichloroethene			5.00	4.94		ug/L		99	75 - 133	10	27
Trichloroethene			5.00	5.15		ug/L		103	72 - 136	4	20
Vinyl chloride			5.00	2.87	*	ug/L		57	59 - 140	13	30

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*100*		*80 - 120*
4-Bromofluorobenzene (Surr)	*109*		*80 - 120*
Dibromofluoromethane (Surr)	*98*		*80 - 120*
Toluene-d8 (Surr)	*93*		*75 - 125*
Trifluorotoluene (Surr)	*96*		*80 - 120*

Lab Sample ID: MB 580-296902/7
Matrix: Water
Analysis Batch: 296902

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		0.20		ug/L			03/21/19 07:59	1
1,1,2,2-Tetrachloroethane	ND		0.20		ug/L			03/21/19 07:59	1
1,1,2-Trichloroethane	ND		0.20		ug/L			03/21/19 07:59	1
1,1-Dichloroethane	ND		0.20		ug/L			03/21/19 07:59	1
1,1-Dichloroethene	ND		0.20		ug/L			03/21/19 07:59	1
Benzene	ND		0.20		ug/L			03/21/19 07:59	1
Chloroethane	ND		0.50		ug/L			03/21/19 07:59	1

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

Lab Sample ID: MB 580-296902/7
Matrix: Water
Analysis Batch: 296902

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
cis-1,2-Dichloroethene	ND		0.20		ug/L			03/21/19 07:59	1
Ethylbenzene	ND		0.20		ug/L			03/21/19 07:59	1
Methylene Chloride	ND		5.0		ug/L			03/21/19 07:59	1
m-Xylene & p-Xylene	ND		0.50		ug/L			03/21/19 07:59	1
o-Xylene	ND		0.50		ug/L			03/21/19 07:59	1
Tetrachloroethene	ND		0.50		ug/L			03/21/19 07:59	1
Toluene	ND		0.20		ug/L			03/21/19 07:59	1
trans-1,2-Dichloroethene	ND		0.20		ug/L			03/21/19 07:59	1
Trichloroethene	ND		0.20		ug/L			03/21/19 07:59	1
Vinyl chloride	ND		0.020		ug/L			03/21/19 07:59	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*105*		*80 - 120*		*03/21/19 07:59*	*1*
4-Bromofluorobenzene (Surr)	*97*		*80 - 120*		*03/21/19 07:59*	*1*
Dibromofluoromethane (Surr)	*94*		*80 - 120*		*03/21/19 07:59*	*1*
Toluene-d8 (Surr)	*103*		*75 - 125*		*03/21/19 07:59*	*1*
Trifluorotoluene (Surr)	*101*		*80 - 120*		*03/21/19 07:59*	*1*

Lab Sample ID: LCS 580-296902/4
Matrix: Water
Analysis Batch: 296902

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1,1-Trichloroethane	5.00	4.83		ug/L		97	74 - 137
1,1,2,2-Tetrachloroethane	5.00	4.40		ug/L		88	69 - 147
1,1,2-Trichloroethane	5.00	4.55		ug/L		91	80 - 127
1,1-Dichloroethane	5.00	4.81		ug/L		96	80 - 135
1,1-Dichloroethene	5.00	5.13		ug/L		103	71 - 134
Benzene	5.00	4.84		ug/L		97	73 - 133
Chloroethane	5.00	4.98		ug/L		100	58 - 150
cis-1,2-Dichloroethene	5.00	4.75		ug/L		95	79 - 130
Ethylbenzene	5.00	5.03		ug/L		101	74 - 138
Methylene Chloride	5.00	4.74	J	ug/L		95	75 - 134
m-Xylene & p-Xylene	5.00	5.19		ug/L		104	73 - 130
o-Xylene	5.00	4.46		ug/L		89	80 - 139
Tetrachloroethene	5.00	4.87		ug/L		97	75 - 131
Toluene	5.00	5.15		ug/L		103	80 - 126
trans-1,2-Dichloroethene	5.00	4.49		ug/L		90	75 - 133
Trichloroethene	5.00	5.02		ug/L		100	72 - 136
Vinyl chloride	5.00	4.14		ug/L		83	59 - 140

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*103*		*80 - 120*
4-Bromofluorobenzene (Surr)	*96*		*80 - 120*
Dibromofluoromethane (Surr)	*94*		*80 - 120*
Toluene-d8 (Surr)	*101*		*75 - 125*
Trifluorotoluene (Surr)	*101*		*80 - 120*

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

Lab Sample ID: LCSD 580-296902/5
Matrix: Water
Analysis Batch: 296902

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
1,1,1-Trichloroethane			5.00	4.35		ug/L		87	74 - 137	11	20
1,1,2,2-Tetrachloroethane			5.00	4.03		ug/L		81	69 - 147	9	16
1,1,2-Trichloroethane			5.00	4.11		ug/L		82	80 - 127	10	19
1,1-Dichloroethane			5.00	4.45		ug/L		89	80 - 135	8	20
1,1-Dichloroethene			5.00	4.68		ug/L		94	71 - 134	9	28
Benzene			5.00	4.41		ug/L		88	73 - 133	9	20
Chloroethane			5.00	4.37		ug/L		87	58 - 150	13	35
cis-1,2-Dichloroethene			5.00	4.36		ug/L		87	79 - 130	9	20
Ethylbenzene			5.00	4.52		ug/L		90	74 - 138	11	20
Methylene Chloride			5.00	4.38	J	ug/L		88	75 - 134	8	29
m-Xylene & p-Xylene			5.00	4.64		ug/L		93	73 - 130	11	20
o-Xylene			5.00	4.08		ug/L		82	80 - 139	9	20
Tetrachloroethene			5.00	4.47		ug/L		89	75 - 131	9	20
Toluene			5.00	4.65		ug/L		93	80 - 126	10	20
trans-1,2-Dichloroethene			5.00	4.15		ug/L		83	75 - 133	8	27
Trichloroethene			5.00	4.59		ug/L		92	72 - 136	9	20
Vinyl chloride			5.00	4.62		ug/L		92	59 - 140	11	30

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*105*		*80 - 120*
4-Bromofluorobenzene (Surr)	*97*		*80 - 120*
Dibromofluoromethane (Surr)	*96*		*80 - 120*
Toluene-d8 (Surr)	*102*		*75 - 125*
Trifluorotoluene (Surr)	*99*		*80 - 120*

Lab Sample ID: MB 580-297443/7
Matrix: Water
Analysis Batch: 297443

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		0.20		ug/L			03/29/19 01:08	1
1,1,2,2-Tetrachloroethane	ND		0.20		ug/L			03/29/19 01:08	1
1,1,2-Trichloroethane	ND		0.20		ug/L			03/29/19 01:08	1
1,1-Dichloroethane	ND		0.20		ug/L			03/29/19 01:08	1
1,1-Dichloroethene	ND		0.20		ug/L			03/29/19 01:08	1
Benzene	ND		0.20		ug/L			03/29/19 01:08	1
Chloroethane	ND		0.50		ug/L			03/29/19 01:08	1
cis-1,2-Dichloroethene	ND		0.20		ug/L			03/29/19 01:08	1
Ethylbenzene	ND		0.20		ug/L			03/29/19 01:08	1
Methylene Chloride	ND		5.0		ug/L			03/29/19 01:08	1
m-Xylene & p-Xylene	ND		0.50		ug/L			03/29/19 01:08	1
o-Xylene	ND		0.50		ug/L			03/29/19 01:08	1
Tetrachloroethene	ND		0.50		ug/L			03/29/19 01:08	1
Toluene	ND		0.20		ug/L			03/29/19 01:08	1
trans-1,2-Dichloroethene	ND		0.20		ug/L			03/29/19 01:08	1
Trichloroethene	ND		0.20		ug/L			03/29/19 01:08	1
Vinyl chloride	ND		0.020		ug/L			03/29/19 01:08	1

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

Lab Sample ID: MB 580-297443/7
Matrix: Water
Analysis Batch: 297443

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

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	105		80 - 120		03/29/19 01:08	1
4-Bromofluorobenzene (Surr)	103		80 - 120		03/29/19 01:08	1
Dibromofluoromethane (Surr)	100		80 - 120		03/29/19 01:08	1
Toluene-d8 (Surr)	98		75 - 125		03/29/19 01:08	1
Trifluorotoluene (Surr)	100		80 - 120		03/29/19 01:08	1

Lab Sample ID: LCS 580-297443/4
Matrix: Water
Analysis Batch: 297443

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1,1-Trichloroethane	5.00	4.69		ug/L		94	74 - 137
1,1,2,2-Tetrachloroethane	5.00	4.91		ug/L		98	69 - 147
1,1,2-Trichloroethane	5.00	4.81		ug/L		96	80 - 127
1,1-Dichloroethane	5.00	4.68		ug/L		94	80 - 135
1,1-Dichloroethene	5.00	4.72		ug/L		94	71 - 134
Benzene	5.00	4.73		ug/L		95	73 - 133
Chloroethane	5.00	4.52		ug/L		90	58 - 150
cis-1,2-Dichloroethene	5.00	4.51		ug/L		90	79 - 130
Ethylbenzene	5.00	4.70		ug/L		94	74 - 138
Methylene Chloride	5.00	4.76	J	ug/L		95	75 - 134
m-Xylene & p-Xylene	5.00	4.61		ug/L		92	73 - 130
o-Xylene	5.00	4.59		ug/L		92	80 - 139
Tetrachloroethene	5.00	4.65		ug/L		93	75 - 131
Toluene	5.00	4.82		ug/L		96	80 - 126
trans-1,2-Dichloroethene	5.00	4.28		ug/L		86	75 - 133
Trichloroethene	5.00	4.65		ug/L		93	72 - 136
Vinyl chloride	5.00	4.61		ug/L		92	59 - 140

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	103		80 - 120
4-Bromofluorobenzene (Surr)	102		80 - 120
Dibromofluoromethane (Surr)	99		80 - 120
Toluene-d8 (Surr)	99		75 - 125
Trifluorotoluene (Surr)	96		80 - 120

Lab Sample ID: LCSD 580-297443/5
Matrix: Water
Analysis Batch: 297443

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
1,1,1-Trichloroethane	5.00	4.87		ug/L		97	74 - 137	4	20
1,1,2,2-Tetrachloroethane	5.00	5.52		ug/L		110	69 - 147	12	16
1,1,2-Trichloroethane	5.00	5.17		ug/L		103	80 - 127	7	19
1,1-Dichloroethane	5.00	4.82		ug/L		96	80 - 135	3	20
1,1-Dichloroethene	5.00	4.92		ug/L		98	71 - 134	4	28
Benzene	5.00	4.96		ug/L		99	73 - 133	5	20
Chloroethane	5.00	4.73		ug/L		95	58 - 150	5	35

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

Lab Sample ID: LCSD 580-297443/5
Matrix: Water
Analysis Batch: 297443

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			5.00	4.62		ug/L		92	79 - 130	2	20
Ethylbenzene			5.00	4.97		ug/L		99	74 - 138	6	20
Methylene Chloride			5.00	4.97	J	ug/L		99	75 - 134	4	29
m-Xylene & p-Xylene			5.00	4.79		ug/L		96	73 - 130	4	20
o-Xylene			5.00	4.83		ug/L		97	80 - 139	5	20
Tetrachloroethene			5.00	4.83		ug/L		97	75 - 131	4	20
Toluene			5.00	5.05		ug/L		101	80 - 126	5	20
trans-1,2-Dichloroethene			5.00	4.37		ug/L		87	75 - 133	2	27
Trichloroethene			5.00	4.86		ug/L		97	72 - 136	5	20
Vinyl chloride			5.00	4.68		ug/L		94	59 - 140	1	30

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*104*		*80 - 120*
4-Bromofluorobenzene (Surr)	*102*		*80 - 120*
Dibromofluoromethane (Surr)	*99*		*80 - 120*
Toluene-d8 (Surr)	*99*		*75 - 125*
Trifluorotoluene (Surr)	*97*		*80 - 120*

Method: RSK-175 - Dissolved Gases (GC)

Lab Sample ID: MB 200-140729/4
Matrix: Water
Analysis Batch: 140729

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Carbon dioxide	ND		5000		ug/L			03/11/19 15:26	1

Lab Sample ID: LCS 200-140729/2
Matrix: Water
Analysis Batch: 140729

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

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Carbon dioxide			40000	38000		ug/L		95	70 - 130		

Lab Sample ID: LCSD 200-140729/3
Matrix: Water
Analysis Batch: 140729

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
Carbon dioxide			40000	42300		ug/L		106	70 - 130	11	30

Lab Sample ID: MB 490-581597/5
Matrix: Water
Analysis Batch: 581597

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethane	ND		0.0050		mg/L			03/18/19 11:38	1
Ethylene	ND		0.0050		mg/L			03/18/19 11:38	1

Method: RSK-175 - Dissolved Gases (GC) (Continued)

Lab Sample ID: MB 490-581597/5
Matrix: Water
Analysis Batch: 581597

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane	ND		0.0050		mg/L			03/18/19 11:38	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Acetylene (Surr)	*95*		*70 - 130*		*03/18/19 11:38*	*1*

Lab Sample ID: LCS 490-581597/6
Matrix: Water
Analysis Batch: 581597

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

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Ethane			0.527	0.541		mg/L		103	85 - 115		
Ethylene			0.493	0.520		mg/L		106	85 - 115		
Methane			0.287	0.295		mg/L		103	85 - 115		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Acetylene (Surr)	*101*		*70 - 130*

Lab Sample ID: LCSD 490-581597/7
Matrix: Water
Analysis Batch: 581597

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
Ethane			0.527	0.530		mg/L		100	85 - 115	2	30
Ethylene			0.493	0.510		mg/L		103	85 - 115	2	30
Methane			0.287	0.294		mg/L		103	85 - 115	0	30

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Acetylene (Surr)	*96*		*70 - 130*

Method: 200.8 - Metals (ICP/MS)

Lab Sample ID: MB 580-296414/14-A
Matrix: Water
Analysis Batch: 296584

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 296414

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	ND		0.20		mg/L		03/15/19 14:16	03/18/19 18:44	1
Manganese	ND		0.0020		mg/L		03/15/19 14:16	03/18/19 18:44	1

Lab Sample ID: LCS 580-296414/15-A
Matrix: Water
Analysis Batch: 296584

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 296414

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Iron			20.0	20.4		mg/L		102	85 - 115		
Manganese			1.00	1.01		mg/L		101	85 - 115		

Method: 200.8 - Metals (ICP/MS) (Continued)

Lab Sample ID: LCSD 580-296414/16-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 296584 — **Prep Batch: 296414**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Iron	20.0	20.1		mg/L		100	85 - 115	1	20
Manganese	1.00	0.992		mg/L		99	85 - 115	1	20

Lab Sample ID: 580-84380-1 MS — **Client Sample ID: MW-3**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 296584 — **Prep Batch: 296414**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Iron	4.4		20.0	26.1		mg/L		109	70 - 130
Manganese	0.95		1.00	2.02		mg/L		107	70 - 130

Lab Sample ID: 580-84380-1 MSD — **Client Sample ID: MW-3**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 296584 — **Prep Batch: 296414**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Iron	4.4		20.0	25.1		mg/L		104	70 - 130	4	20
Manganese	0.95		1.00	1.96		mg/L		101	70 - 130	3	20

Lab Sample ID: 580-84380-1 DU — **Client Sample ID: MW-3**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 296584 — **Prep Batch: 296414**

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Iron	4.4		4.56		mg/L		4	20
Manganese	0.95		0.983		mg/L		3	20

Method: 200.8 - Dissolved Metals by ICPMS

Lab Sample ID: MB 580-296703/10-A — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 296816 — **Prep Batch: 296703**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	ND		0.20		mg/L		03/19/19 16:58	03/20/19 11:00	1
Manganese	ND		0.0020		mg/L		03/19/19 16:58	03/20/19 11:00	1

Lab Sample ID: LCS 580-296703/11-A — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 296816 — **Prep Batch: 296703**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Iron	20.0	20.7		mg/L		104	85 - 115
Manganese	1.00	0.996		mg/L		100	85 - 115

Method: 200.8 - Dissolved Metals by ICPMS (Continued)

Lab Sample ID: LCSD 580-296703/12-A
Matrix: Water
Analysis Batch: 296816

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 296703

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Iron			20.0	21.1		mg/L		105	85 - 115	2	20
Manganese			1.00	1.02		mg/L		102	85 - 115	2	20

Lab Sample ID: 580-84380-1 MS
Matrix: Water
Analysis Batch: 296816

Client Sample ID: MW-3
Prep Type: Dissolved
Prep Batch: 296703

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Iron	3.1		20.0	24.1		mg/L		105	70 - 130
Manganese	0.93		1.00	1.97		mg/L		104	70 - 130

Lab Sample ID: 580-84380-1 MSD
Matrix: Water
Analysis Batch: 296816

Client Sample ID: MW-3
Prep Type: Dissolved
Prep Batch: 296703

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Iron	3.1		20.0	25.4		mg/L		111	70 - 130	5	20
Manganese	0.93		1.00	2.05		mg/L		113	70 - 130	4	20

Lab Sample ID: 580-84380-1 DU
Matrix: Water
Analysis Batch: 296816

Client Sample ID: MW-3
Prep Type: Dissolved
Prep Batch: 296703

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Iron	3.1		3.14		mg/L		2	20
Manganese	0.93		0.944		mg/L		2	20

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 580-295938/3
Matrix: Water
Analysis Batch: 295938

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	ND		0.20		mg/L			03/08/19 13:36	1

Lab Sample ID: LCS 580-295938/4
Matrix: Water
Analysis Batch: 295938

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

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrate as N			5.00	5.05		mg/L		101	90 - 110

Lab Sample ID: LCSD 580-295938/5
Matrix: Water
Analysis Batch: 295938

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
Nitrate as N			5.00	5.05		mg/L		101	90 - 110	0	15

Method: 300.0 - Anions, Ion Chromatography (Continued)

Lab Sample ID: MB 580-295939/3
Matrix: Water
Analysis Batch: 295939

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		mg/L			03/08/19 13:36	1

Lab Sample ID: LCS 580-295939/4
Matrix: Water
Analysis Batch: 295939

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfate	50.0	50.2		mg/L		100	90 - 110

Lab Sample ID: LCSD 580-295939/5
Matrix: Water
Analysis Batch: 295939

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
Sulfate	50.0	50.2		mg/L		100	90 - 110	0	15

Method: SM 5210B - BOD, 5-Day

Lab Sample ID: USB 580-295918/1
Matrix: Water
Analysis Batch: 295918

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

Analyte	USB Result	USB Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Biochemical Oxygen Demand	ND		2.0		mg/L			03/09/19 08:14	1

Lab Sample ID: LCS 580-295918/2
Matrix: Water
Analysis Batch: 295918

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Biochemical Oxygen Demand	198	211		mg/L		107	85 - 115

Method: SM 5220C - COD

Lab Sample ID: MB 580-296411/3-A
Matrix: Water
Analysis Batch: 296413

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 296411

Analyte	MB Result	MB Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chemical Oxygen Demand	ND		10		mg/L		03/15/19 13:59	03/15/19 13:59	1

Lab Sample ID: LCS 580-296411/4-A
Matrix: Water
Analysis Batch: 296413

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 296411

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chemical Oxygen Demand	75.0	79.1		mg/L		106	80 - 120

Client: Robinson and Noble, Inc.
Project/Site: 318 State Ave Olympia

TestAmerica Job ID: 580-84380-1

Method: SM 5220C - COD (Continued)

Lab Sample ID: LCSD 580-296411/5-A
Matrix: Water
Analysis Batch: 296413

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 296411

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chemical Oxygen Demand	75.0	80.0		mg/L		107	80 - 120	1	20

Lab Chronicle

Client: Robinson and Noble, Inc.
Project/Site: 318 State Ave Olympia

TestAmerica Job ID: 580-84380-1

Client Sample ID: MW-3

Date Collected: 03/07/19 09:15
Date Received: 03/07/19 13:50

Lab Sample ID: 580-84380-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	295922	03/10/19 20:26	T1W	TAL SEA
Total/NA	Analysis	RSK-175		1	140729	03/11/19 15:35	MLT	TAL BUR
Total/NA	Analysis	RSK-175		1	581597	03/18/19 12:37	AAB	TAL NSH
Total/NA	Analysis	RSK-175		10	581597	03/18/19 14:29	AAB	TAL NSH
Dissolved	Prep	200.8			296703	03/19/19 16:58	JKM	TAL SEA
Dissolved	Analysis	200.8		1	296816	03/20/19 11:14	FCW	TAL SEA
Total/NA	Prep	200.8			296414	03/15/19 14:16	JKM	TAL SEA
Total/NA	Analysis	200.8		1	296584	03/18/19 18:57	FCW	TAL SEA
Total/NA	Analysis	300.0		1	295938	03/08/19 14:47	EMM	TAL SEA
Total/NA	Analysis	300.0		1	295939	03/08/19 14:47	EMM	TAL SEA
Total/NA	Analysis	SM 5210B		1	295918	03/09/19 08:14	R1K	TAL SEA
Total/NA	Prep	SM 5220			296411	03/15/19 13:59	R1K	TAL SEA
Total/NA	Analysis	SM 5220C		1	296413	03/15/19 13:59	R1K	TAL SEA

Client Sample ID: MW-16

Date Collected: 03/07/19 11:20
Date Received: 03/07/19 13:50

Lab Sample ID: 580-84380-2

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	295922	03/10/19 20:53	T1W	TAL SEA
Total/NA	Analysis	RSK-175		1	140729	03/11/19 15:44	MLT	TAL BUR
Total/NA	Analysis	RSK-175		1	581597	03/18/19 12:47	AAB	TAL NSH
Total/NA	Analysis	RSK-175		10	581597	03/18/19 14:33	AAB	TAL NSH
Dissolved	Prep	200.8			296703	03/19/19 16:58	JKM	TAL SEA
Dissolved	Analysis	200.8		1	296816	03/20/19 11:57	FCW	TAL SEA
Total/NA	Prep	200.8			296414	03/15/19 14:16	JKM	TAL SEA
Total/NA	Analysis	200.8		1	296584	03/18/19 19:36	FCW	TAL SEA
Total/NA	Analysis	300.0		1	295938	03/08/19 14:58	EMM	TAL SEA
Total/NA	Analysis	300.0		1	295939	03/08/19 14:58	EMM	TAL SEA
Total/NA	Analysis	SM 5210B		1	295918	03/09/19 08:14	R1K	TAL SEA
Total/NA	Prep	SM 5220			296411	03/15/19 13:59	R1K	TAL SEA
Total/NA	Analysis	SM 5220C		1	296413	03/15/19 13:59	R1K	TAL SEA

Client Sample ID: MW-18

Date Collected: 03/07/19 10:20
Date Received: 03/07/19 13:50

Lab Sample ID: 580-84380-3

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C	DL	10	296902	03/21/19 15:19	DSO	TAL SEA
Total/NA	Analysis	8260C		1	297443	03/29/19 02:56	JSM	TAL SEA
Total/NA	Analysis	RSK-175		1	140729	03/11/19 15:52	MLT	TAL BUR

Lab Chronicle

Client: Robinson and Noble, Inc.
Project/Site: 318 State Ave Olympia

TestAmerica Job ID: 580-84380-1

Client Sample ID: MW-18

Date Collected: 03/07/19 10:20
Date Received: 03/07/19 13:50

Lab Sample ID: 580-84380-3

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	RSK-175		1	581597	03/18/19 12:50	AAB	TAL NSH
Total/NA	Analysis	RSK-175		5	581597	03/18/19 14:39	AAB	TAL NSH
Dissolved	Prep	200.8			296703	03/19/19 16:58	JKM	TAL SEA
Dissolved	Analysis	200.8		1	296816	03/20/19 11:11	FCW	TAL SEA
Total/NA	Prep	200.8			296414	03/15/19 14:16	JKM	TAL SEA
Total/NA	Analysis	200.8		1	296584	03/18/19 19:40	FCW	TAL SEA
Total/NA	Analysis	300.0		1	295938	03/08/19 15:10	EMM	TAL SEA
Total/NA	Analysis	300.0		1	295939	03/08/19 15:10	EMM	TAL SEA
Total/NA	Analysis	SM 5210B		1	295918	03/09/19 08:14	R1K	TAL SEA
Total/NA	Prep	SM 5220			296411	03/15/19 13:59	R1K	TAL SEA
Total/NA	Analysis	SM 5220C		1	296413	03/15/19 13:59	R1K	TAL SEA

Client Sample ID: MW-19

Date Collected: 03/07/19 12:15
Date Received: 03/07/19 13:50

Lab Sample ID: 580-84380-4

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	295922	03/10/19 21:46	T1W	TAL SEA
Total/NA	Analysis	RSK-175		1	140729	03/11/19 16:01	MLT	TAL BUR
Total/NA	Analysis	RSK-175		1	581597	03/18/19 12:54	AAB	TAL NSH
Dissolved	Prep	200.8			296703	03/19/19 16:58	JKM	TAL SEA
Dissolved	Analysis	200.8		1	296816	03/20/19 11:53	FCW	TAL SEA
Total/NA	Prep	200.8			296414	03/15/19 14:16	JKM	TAL SEA
Total/NA	Analysis	200.8		1	296584	03/18/19 19:45	FCW	TAL SEA
Total/NA	Analysis	300.0		1	295938	03/08/19 15:22	EMM	TAL SEA
Total/NA	Analysis	300.0		1	295939	03/08/19 15:22	EMM	TAL SEA
Total/NA	Analysis	SM 5210B		1	295918	03/09/19 08:14	R1K	TAL SEA
Total/NA	Prep	SM 5220			296411	03/15/19 13:59	R1K	TAL SEA
Total/NA	Analysis	SM 5220C		1	296413	03/15/19 13:59	R1K	TAL SEA

Laboratory References:

TAL BUR = TestAmerica Burlington, 30 Community Drive, Suite 11, South Burlington, VT 05403, TEL (802)660-1990
TAL NSH = TestAmerica Nashville, 2960 Foster Creighton Drive, Nashville, TN 37204, TEL (615)726-0177
TAL SEA = TestAmerica Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310

Accreditation/Certification Summary

Client: Robinson and Noble, Inc.
Project/Site: 318 State Ave Olympia

TestAmerica Job ID: 580-84380-1

Laboratory: TestAmerica Seattle

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

Authority	Program	EPA Region	Identification Number	Expiration Date
Alaska (UST)	State Program	10	17-024	01-19-20
ANAB	DoD / DOE		L2236	01-19-22
ANAB	ISO/IEC 17025		L2236	01-19-22
California	State Program	9	2901	11-05-19
Montana (UST)	State Program	8	N/A	04-30-20
Nevada	State Program	9	WA000502019-1	07-31-19
Oregon	NELAP	10	WA100007	11-05-19
US Fish & Wildlife	Federal		LE058448-0	07-31-19
USDA	Federal		P330-14-00126	02-10-20
Washington	State Program	10	C553	02-17-20

Laboratory: TestAmerica Burlington

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

Authority	Program	EPA Region	Identification Number	Expiration Date
ANAB	DoD / DOE		L2336	02-25-20
Connecticut	State Program	1	PH-0751	09-30-19
DE Haz. Subst. Cleanup Act (HSCA)	State Program	3	NA	02-01-19 *
Florida	NELAP	4	E87467	06-30-19
Maine	State Program	1	VT00008	04-17-19 *
Minnesota	NELAP	5	050-999-436	12-31-19
New Hampshire	NELAP	1	2006	12-18-19
New Jersey	NELAP	2	VT972	06-30-19
New York	NELAP	2	10391	04-01-19 *
Pennsylvania	NELAP	3	68-00489	04-30-19 *
Rhode Island	State Program	1	LAO00298	12-30-19
US Fish & Wildlife	Federal		LE-058448-0	07-31-19
USDA	Federal		P330-11-00093	07-24-20
Vermont	State Program	1	VT-4000	12-31-19
Virginia	NELAP	3	460209	12-14-19

Laboratory: TestAmerica Nashville

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

Authority	Program	EPA Region	Identification Number	Expiration Date
A2LA	ISO/IEC 17025		0453.07	12-31-19
Alaska (UST)	State Program	10	UST-087	06-30-19
Arizona	State Program	9	AZ0473	05-05-19
Arkansas DEQ	State Program	6	88-0737	04-25-19
California	State Program	9	2938	06-30-19
Connecticut	State Program	1	PH-0220	12-31-19
Florida	NELAP	4	E87358	06-30-19
Georgia	State Program	4	NA: NELAP & A2LA	12-31-19
Illinois	NELAP	5	200010	12-09-18 *
Iowa	State Program	7	131	04-01-20
Kansas	NELAP	7	E-10229	10-31-19
Kentucky (UST)	State Program	4	19	06-30-19
Kentucky (WW)	State Program	4	90038	12-31-19
Louisiana	NELAP	6	30613	06-30-19
Maine	State Program	1	TN00032	11-03-19
Maryland	State Program	3	316	03-31-20

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Accreditation/Certification Summary

Client: Robinson and Noble, Inc.
Project/Site: 318 State Ave Olympia

TestAmerica Job ID: 580-84380-1

Laboratory: TestAmerica Nashville (Continued)

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

Authority	Program	EPA Region	Identification Number	Expiration Date
Massachusetts	State Program	1	M-TN032	06-30-19
Minnesota	NELAP	5	047-999-345	12-31-19
Mississippi	State Program	4	N/A	06-30-19
Nevada	State Program	9	TN00032	07-31-19
New Hampshire	NELAP	1	2963	10-09-19
New Jersey	NELAP	2	TN965	06-30-19
New York	NELAP	2	11342	03-31-19 *
North Carolina (WW/SW)	State Program	4	387	12-31-19
North Dakota	State Program	8	R-146	06-30-19
Ohio VAP	State Program	5	CL0033	07-06-19
Oklahoma	State Program	6	9412	08-31-19
Oregon	NELAP	10	TN200001	04-26-19
Pennsylvania	NELAP	3	68-00585	07-31-19
Rhode Island	State Program	1	LAO00268	12-30-19
South Carolina	State Program	4	84009 (001)	02-28-19 *
Tennessee	State Program	4	2008	02-23-20
Texas	NELAP	6	T104704077	08-31-19
USDA	Federal		P330-13-00306	12-01-19
Utah	NELAP	8	TN00032	07-31-19
Virginia	NELAP	3	460152	06-14-19
Washington	State Program	10	C789	07-19-19
West Virginia DEP	State Program	3	219	02-28-19 *
Wisconsin	State Program	5	998020430	08-31-19
Wyoming (UST)	A2LA	8	453.07	12-31-19

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Sample Summary

Client: Robinson and Noble, Inc.
Project/Site: 318 State Ave Olympia

TestAmerica Job ID: 580-84380-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
580-84380-1	MW-3	Water	03/07/19 09:15	03/07/19 13:50
580-84380-2	MW-16	Water	03/07/19 11:20	03/07/19 13:50
580-84380-3	MW-18	Water	03/07/19 10:20	03/07/19 13:50
580-84380-4	MW-19	Water	03/07/19 12:15	03/07/19 13:50

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

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

Loc: 580
84380

☐ Rush
☐ Short Hold

Chain of Custody Record

Client: Robinson Noble	Client Contact: John Hildenbrand	Date: 3/7/19	Chain of Custody Number: 35488
Address: 2105 South C Street	Telephone Number (Area Code)/Fax Number: 253 475 7711	Lab Number:	Page 1 of 1
City: Tacoma; State: Wa; Zip Code: 98402	Sampler: MJM	Lab Contact:	
Project Name and Location (State): 318 State Ave Olympia	Billing Contact:		
Contract/Purchase Order/Quote No.:			

Analysis (Attach list if more space is needed)

Sample I.D. and Location/Description (Containers for each sample may be combined on one line)	Date	Time	Matrix: Air	Aqueous	Sed.	Soil		Containers & Preservatives: Unpres.	H2SO4	HNO3	HCl	NaOH	ZnAc/NaOH	Total	8260C_LL Dep + Dep	300.0 Nitrate	300.0 Sulfate	300.8 Total Iron + Manganese	300.8 Diss Iron + Manganese	SM5310B_Calc BOD	RSK 175 methane Ethane Ethene	RSK 175 CO2	Special Instructions/ Conditions of Receipt
MW-3	3/7/19	9:15		X										17	X	X	X	X	X	X	X	X	
MW-16	3/7/19	11:20		X										17	X	X	X	X	X	X	X	X	
MW-18	3/7/19	10:20		X										17	X	X	X	X	X	X	X	X	
MW-19	3/7/19	12:15		X										17	X	X	X	X	X	X	X	X	

Therm. ID: A2 Cor: 7.9° Unc: 7.9°
Cooler Dsc: LB
Packing: Bub
Cust. Seal: Yes___ No X
(Blue Ice), Wet, Dry, None
FedEx:
UPS:
Lab Cour:
Other: CD

580-84380 Chain of Custody

Cooler: ☐ Yes ☐ No Cooler Temp: ______

Possible Hazard Identification: ☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal: ☐ Return To Client ☐ Disposal By Lab ☐ Archive For ______ Months (A fee may be assessed if samples are retained longer than 1 month)

Turn Around Time Required (business days): ☐ 24 Hours ☐ 48 Hours ☐ 5 Days ☐ 10 Days ☐ 15 Days ☐ Other ______

QC Requirements (Specify)

1. Relinquished By Sign/Print: [signature]	Date: 3/7/19	Time: 13:50	1. Received By Sign/Print: [signature]	Date: 3.7.19	Time: 1350
2. Relinquished By Sign/Print	Date	Time	2. Received By Sign/Print	Date	Time
3. Relinquished By Sign/Print	Date	Time	3. Received By Sign/Print	Date	Time

Comments

DISTRIBUTION: WHITE – Stays with the Samples; CANARY – Returned to Client with Report; PINK – Field Copy

TAL-8274-580 (0210)

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

Chain of Custody Record

580-84380 Chain of Custody

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Zalmai, Kayse 1		COC No: 580-63994.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: kayse.zalmai@testamericainc.com	State of Origin: Washington	Page: Page 1 of 1
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note):		Job #: 580-84380-1
Address: 30 Community Drive, Suite 11,	Due Date Requested: 3/19/2019			
City: South Burlington	TAT Requested (days):			
State, Zip: VT, 05403				
Phone: 802-660-1990(Tel) 802-660-1919(Fax)	PO #:			
Email:	WO #:			
Project Name: 318 State Ave Olympia	Project #: 58012168			
Site:	SSOW#:			

Analysis Requested

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2O3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - pH 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	RSK_175_CO2/ Carbon Dioxide	Perform MS/MSD (Yes or No)	Special Instructions/Note:
		Preservation Code:						
MW-3 (580-84380-1)	3/7/19	09:15 Pacific		Water		X		
MW-16 (580-84380-2)	3/7/19	11:20 Pacific		Water		X		
MW-18 (580-84380-3)	3/7/19	10:20 Pacific		Water		X		
MW-19 (580-84380-4)	3/7/19	12:15 Pacific		Water		X		

Note: Since laboratory accreditations are subject to change, TestAmerica Laboratories, Inc. places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to TestAmerica Laboratories, Inc. attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said complicance to TestAmerica Laboratories, Inc.

Possible Hazard Identification *Unconfirmed*	***Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)*** ☐ *Return To Client* ☐ *Disposal By Lab* ☐ *Archive For* _____ *Months*
Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2	Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by: Kayse Zalmai	Date/Time: 3-8-19	Company TASea	Received by:	Date/Time: 3/9/19 09:37	Company TA Bmt
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: ☑ Yes ☐ No	Custody Seal No.: 499622	Cooler Temperature(s) °C and Other Remarks: 1.2

Ver: 01/16/2019


ORIGIN ID:TCMA (253) 922-2310
SAMPLE RECEIVING
TA-SEATTLE
5755 8TH ST E
FIFE, WA 98424
UNITED STATES US
SHIP DATE: 08MAR19
ACTWGT: 13.95 LB
CAD: 989746/CAFE3211
BILL RECIPIENT
TO SHIPPING/RECEIVING
TESTAMERICA LABORATORIES, INC.
30 COMMUNITY DRIVE
SUITE 11
SOUTH BURLINGTON VT 05403
(802) 660-1990
PO: YES
REF: S580-32869
FedEx
Express
SATURDAY 12:00P
PRIORITY OVERNIGHT
TRK# 0201 4779 7566 1069
XO BTVA
05403
VT-US BTV
Part # 159471-434 RIT2 EXP 12/19

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
Nashville, TN

COOLER RECEIPT FORM

580-84380 Chain of Custody

Cooler Received/Opened On 3/9/2019 @ 0915

Time Samples Removed From Cooler 11:00 Time Samples Placed In Storage 12:36 (2 Hour Window)

1. Tracking # 0070 (last 4 digits, FedEx) Courier: FedEx

IR Gun ID 17960353 pH Strip Lot _____ Chlorine Strip Lot _____

2. Temperature of rep. sample or temp blank when opened: 2.8 *Degrees Celsius*

3. If Item #2 temperature is 0°C or less, was the representative sample or temp blank frozen? YES NO NA

4. Were custody seals on outside of cooler? YES...NO...NA

If yes, how many and where: 1 (Front)

5. Were the seals intact, signed, and dated correctly? YES...NO...NA

6. Were custody papers inside cooler? YES...NO...NA

I certify that I opened the cooler and answered questions 1-6 (intial) JJ

7. Were custody seals on containers: YES NO and Intact YES...NO...NA

Were these signed and dated correctly? YES...NO...NA

8. Packing mat'l used? Bubblewrap Plastic bag Peanuts Vermiculite Foam Insert Paper Other None

9. Cooling process: Ice Ice-pack Ice (direct contact) Dry ice Other None

10. Did all containers arrive in good condition (unbroken)? YES...NO...NA

11. Were all container labels complete (#, date, signed, pres., etc)? YES...NO...NA

12. Did all container labels and tags agree with custody papers? YES...NO...NA

13a. Were VOA vials received? YES...NO...NA

b. Was there any observable headspace present in any VOA vial? YES...NO...NA

Larger than this.

14. Was there a Trip Blank in this cooler? YES...NO...NA If multiple coolers, sequence #_____

I certify that I unloaded the cooler and answered questions 7-14 (intial) JJ

15a. On pres'd bottles, did pH test strips suggest preservation reached the correct pH level? YES...NO...NA

b. Did the bottle labels indicate that the correct preservatives were used YES...NO...NA

16. Was residual chlorine present? YES...NO...NA

I certify that I checked for chlorine and pH as per SOP and answered questions 15-16 (intial) JJ

17. Were custody papers properly filled out (ink, signed, etc)? YES...NO...NA

18. Did you sign the custody papers in the appropriate place? YES...NO...NA

19. Were correct containers used for the analysis requested? YES...NO...NA

20. Was sufficient amount of sample sent in each container? YES...NO...NA

I certify that I entered this project into LIMS and answered questions 17-20 (intial) JJ

I certify that I attached a label with the unique LIMS number to each container (intial) JJ

21. Were there Non-Conformance issues at login? YES...NO Was a NCM generated? YES...NO...#_____

BIS = Broken in shipment

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

Chain of Custody Record

580-84380

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Zalmai, Kayse 1		COC No: 580-63995.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: kayse.zalmai@testamericainc.com	State of Origin: Washington	Page: Page 1 of 1
Company: TestAmerica Laboratories, Inc		Accreditations Required (See note):		Job #: 580-84380-1
Address: 2960 Foster Creighton Drive, ,	Due Date Requested: 3/19/2019			
City: Nashville	TAT Requested (days):			
State, Zip: TN, 37204				
Phone: 615-726-0177(Tel) 615-726-3404(Fax)	PO #:			
Email:	WO #:			
Project Name: 318 State Ave Olympia	Project #: 58012168			
Site:	SSOW#:			

Analysis Requested

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2O3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - pH 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	RSK_175/ Methane, Ethane, Ethene	Total Number of containers	Special Instructions/Note:
			Preservation Code:						
MW-3 (580-84380-1)	3/7/19	09:15 Pacific		Water			X	3	
MW-16 (580-84380-2)	3/7/19	11:20 Pacific		Water			X	3	
MW-18 (580-84380-3)	3/7/19	10:20 Pacific		Water			X	3	
MW-19 (580-84380-4)	3/7/19	12:15 Pacific		Water			X	3	

Note: Since laboratory accreditations are subject to change, TestAmerica Laboratories, Inc. places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to TestAmerica Laboratories, Inc. attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said complicance to TestAmerica Laboratories, Inc.

Possible Hazard Identification *Unconfirmed*	***Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)*** ☐ *Return To Client* ☐ *Disposal By Lab* ☐ *Archive For* _____ *Months*
Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2	Special Instructions/QC Requirements:

Empty Kit Relinquished by:		Date:		Time:		Method of Shipment:	
Relinquished by:	Date/Time: 3.8.19	Company TAES	Received by:		Date/Time: 03/09/19 09:15	Company TA-NAS	
Relinquished by:	Date/Time:	Company	Received by:		Date/Time:	Company	
Relinquished by:	Date/Time:	Company	Received by:		Date/Time:	Company	

Custody Seals Intact: △ Yes △ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks: 2.8

Ver: 01/16/2019

3/29/2019

Login Sample Receipt Checklist

Client: Robinson and Noble, Inc.

Job Number: 580-84380-1

Login Number: 84380
List Number: 1
Creator: Gall, Brandon A

List Source: TestAmerica Seattle

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	Lab does not accept radioactive samples.
The cooler's custody seal, if present, is intact.	N/A	Not present
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	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.	False	Received Trip Blank(s) not listed on COC.
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	

Login Sample Receipt Checklist

Client: Robinson and Noble, Inc.

Job Number: 580-84380-1

Login Number: 84380
List Number: 3
Creator: McNabb, Robert W

List Source: TestAmerica Burlington
List Creation: 03/09/19 02:33 PM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	Lab does not accept radioactive samples.
The cooler's custody seal, if present, is intact.	True	496622
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	1.2ºC
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.	N/A	
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").	N/A	
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: 580-75280-1
Client Project/Site: City of Olympia

For:
Robinson and Noble, Inc.
2105 South C Street
Tacoma, Washington 98402

Attn: John Hildenbrand

Kim Presley

Authorized for release by:
3/6/2018 1:37:07 PM

Kim Presley, Project Management Assistant I
(253)922-2310
kim.presley@testamericainc.com

Table of Contents

Case Narrative

Client: Robinson and Noble, Inc.
Project/Site: City of Olympia

TestAmerica Job ID: 580-75280-1

Job ID: 580-75280-1

Laboratory: TestAmerica Seattle

Narrative

Receipt
The samples were received on 2/23/2018 8:52 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 6.4º C.

Receipt Exceptions
A trip blank was submitted for analysis with these samples; however, it was not listed on the Chain of Custody (COC). The Trip blank was added on hold per client request.

The sample time on the container label for the following sample MW-16 (580-75280-2) did not match the information listed on the Chain-of-Custody (COC): The container labels list a variety of times leading up to 14:10, while the COC lists 14:10. The sample is logged in per COC.

GC/MS VOA
Method(s) 8260C: The laboratory control sample (LCS) for analytical batch 580-267928 recovered outside control limits for the following analytes: Benzene . This analyte was biased high in the LCS and was not detected in the associated samples; MW-3 (580-75280-1) and MW-16 (580-75280-2) therefore, the data have been reported.

Method(s) 8260C: The following sample MW-18 (580-75280-3) was re-analyzed in analytical batch 580-268001 for Benzene due to LCS failure in the original batch.

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

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

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

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

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

Definitions/Glossary

Client: Robinson and Noble, Inc.
Project/Site: City of Olympia

TestAmerica Job ID: 580-75280-1

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
*	LCS or LCSD is outside acceptance limits.

General Chemistry

Qualifier	Qualifier Description
F1	MS and/or MSD Recovery is outside acceptance limits.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
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 (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Client: Robinson and Noble, Inc.
Project/Site: City of Olympia

TestAmerica Job ID: 580-75280-1

Client Sample ID: MW-3
Date Collected: 02/22/18 13:00
Date Received: 02/23/18 08:52

Lab Sample ID: 580-75280-1
Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		0.20		ug/L			02/23/18 22:11	1
1,1,2,2-Tetrachloroethane	ND		0.20		ug/L			02/23/18 22:11	1
1,1,2-Trichloroethane	ND		0.20		ug/L			02/23/18 22:11	1
1,1-Dichloroethane	ND		0.20		ug/L			02/23/18 22:11	1
1,1-Dichloroethene	ND		0.10		ug/L			02/23/18 22:11	1
Benzene	ND	*	0.20		ug/L			02/23/18 22:11	1
Chloroethane	ND		0.50		ug/L			02/23/18 22:11	1
cis-1,2-Dichloroethene	**0.20**		0.20		ug/L			02/23/18 22:11	1
Ethylbenzene	ND		0.20		ug/L			02/23/18 22:11	1
Methylene Chloride	ND		0.50		ug/L			02/23/18 22:11	1
m-Xylene & p-Xylene	ND		0.50		ug/L			02/23/18 22:11	1
o-Xylene	ND		0.50		ug/L			02/23/18 22:11	1
Tetrachloroethene	ND		0.50		ug/L			02/23/18 22:11	1
Toluene	ND		0.20		ug/L			02/23/18 22:11	1
trans-1,2-Dichloroethene	ND		0.20		ug/L			02/23/18 22:11	1
Trichloroethene	**0.45**		0.20		ug/L			02/23/18 22:11	1
Vinyl chloride	**0.41**		0.020		ug/L			02/23/18 22:11	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*106*		*46 - 150*		*02/23/18 22:11*	*1*
4-Bromofluorobenzene (Surr)	*103*		*81 - 120*		*02/23/18 22:11*	*1*
Dibromofluoromethane (Surr)	*104*		*42 - 132*		*02/23/18 22:11*	*1*
Toluene-d8 (Surr)	*100*		*75 - 125*		*02/23/18 22:11*	*1*
Trifluorotoluene (Surr)	*99*		*74 - 118*		*02/23/18 22:11*	*1*

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Carbon dioxide	**7000**		5000		ug/L			03/01/18 15:28	1
Ethane	ND		0.0050		mg/L			02/26/18 12:30	1
Ethylene	ND		0.0050		mg/L			02/26/18 12:30	1
Methane	**0.97**		0.025		mg/L			02/26/18 13:20	5

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Acetylene (Surr)	*104*		*70 - 130*		*02/26/18 12:30*	*1*

Method: 200.8 - Dissolved Metals by ICPMS - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	ND		0.20		mg/L		03/01/18 09:18	03/02/18 18:03	1
Manganese	**0.096**		0.0020		mg/L		03/01/18 09:18	03/02/18 18:03	1

Method: 200.8 - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	**1.3**		0.20		mg/L		03/01/18 09:18	03/02/18 17:12	1
Manganese	**0.12**		0.0020		mg/L		03/01/18 09:18	03/02/18 17:12	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	**0.29**		0.20		mg/L			02/23/18 12:57	1
Sulfate	**4.6**	**F1**	1.2		mg/L			02/23/18 12:57	1

Client Sample Results

Client: Robinson and Noble, Inc.
Project/Site: City of Olympia

TestAmerica Job ID: 580-75280-1

Client Sample ID: MW-3
Date Collected: 02/22/18 13:00
Date Received: 02/23/18 08:52

Lab Sample ID: 580-75280-1
Matrix: Water

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Biochemical Oxygen Demand	3.5		2.0		mg/L			02/23/18 14:05	1
Chemical Oxygen Demand	13		10		mg/L		02/26/18 11:40	02/26/18 11:40	1

Client: Robinson and Noble, Inc.
Project/Site: City of Olympia

TestAmerica Job ID: 580-75280-1

Client Sample ID: MW-16

Date Collected: 02/22/18 11:40
Date Received: 02/23/18 08:52

Lab Sample ID: 580-75280-2

Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		0.20		ug/L			02/23/18 22:37	1
1,1,2,2-Tetrachloroethane	ND		0.20		ug/L			02/23/18 22:37	1
1,1,2-Trichloroethane	ND		0.20		ug/L			02/23/18 22:37	1
1,1-Dichloroethane	ND		0.20		ug/L			02/23/18 22:37	1
1,1-Dichloroethene	ND		0.10		ug/L			02/23/18 22:37	1
Benzene	ND	*	0.20		ug/L			02/23/18 22:37	1
Chloroethane	ND		0.50		ug/L			02/23/18 22:37	1
cis-1,2-Dichloroethene	ND		0.20		ug/L			02/23/18 22:37	1
Ethylbenzene	ND		0.20		ug/L			02/23/18 22:37	1
Methylene Chloride	ND		0.50		ug/L			02/23/18 22:37	1
m-Xylene & p-Xylene	ND		0.50		ug/L			02/23/18 22:37	1
o-Xylene	ND		0.50		ug/L			02/23/18 22:37	1
Tetrachloroethene	ND		0.50		ug/L			02/23/18 22:37	1
Toluene	ND		0.20		ug/L			02/23/18 22:37	1
trans-1,2-Dichloroethene	ND		0.20		ug/L			02/23/18 22:37	1
Trichloroethene	ND		0.20		ug/L			02/23/18 22:37	1
Vinyl chloride	**0.11**		0.020		ug/L			02/23/18 22:37	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*106*		*46 - 150*		*02/23/18 22:37*	*1*
4-Bromofluorobenzene (Surr)	*103*		*81 - 120*		*02/23/18 22:37*	*1*
Dibromofluoromethane (Surr)	*104*		*42 - 132*		*02/23/18 22:37*	*1*
Toluene-d8 (Surr)	*100*		*75 - 125*		*02/23/18 22:37*	*1*
Trifluorotoluene (Surr)	*97*		*74 - 118*		*02/23/18 22:37*	*1*

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Carbon dioxide	ND		5000		ug/L			03/01/18 15:37	1
Ethane	ND		0.0050		mg/L			02/26/18 12:37	1
Ethylene	ND		0.0050		mg/L			02/26/18 12:37	1
Methane	**0.33**		0.0050		mg/L			02/26/18 12:37	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Acetylene (Surr)	*109*		*70 - 130*		*02/26/18 12:37*	*1*

Method: 200.8 - Dissolved Metals by ICPMS - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	ND		0.20		mg/L		03/01/18 09:18	03/02/18 18:07	1
Manganese	**0.046**		0.0020		mg/L		03/01/18 09:18	03/02/18 18:07	1

Method: 200.8 - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	ND		0.20		mg/L		03/01/18 09:18	03/02/18 17:56	1
Manganese	**0.040**		0.0020		mg/L		03/01/18 09:18	03/02/18 17:56	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	**6.5**		0.20		mg/L			02/23/18 13:32	1
Sulfate	**14**		1.2		mg/L			02/23/18 13:32	1

Client Sample Results

Client: Robinson and Noble, Inc.
Project/Site: City of Olympia

TestAmerica Job ID: 580-75280-1

Client Sample ID: MW-16
Date Collected: 02/22/18 11:40
Date Received: 02/23/18 08:52

Lab Sample ID: 580-75280-2
Matrix: Water

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Biochemical Oxygen Demand	ND		2.0		mg/L			02/23/18 14:05	1
Chemical Oxygen Demand	**10**		10		mg/L		02/26/18 11:40	02/26/18 11:40	1

Client Sample ID: MW-18
Date Collected: 02/22/18 14:10
Date Received: 02/23/18 08:52

Lab Sample ID: 580-75280-3
Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		0.20		ug/L			02/23/18 23:04	1
1,1,2,2-Tetrachloroethane	ND		0.20		ug/L			02/23/18 23:04	1
1,1,2-Trichloroethane	ND		0.20		ug/L			02/23/18 23:04	1
1,1-Dichloroethane	ND		0.20		ug/L			02/23/18 23:04	1
1,1-Dichloroethene	ND		0.10		ug/L			02/23/18 23:04	1
Chloroethane	ND		0.50		ug/L			02/23/18 23:04	1
cis-1,2-Dichloroethene	**0.27**		0.20		ug/L			02/23/18 23:04	1
Ethylbenzene	ND		0.20		ug/L			02/23/18 23:04	1
Methylene Chloride	ND		0.50		ug/L			02/23/18 23:04	1
m-Xylene & p-Xylene	ND		0.50		ug/L			02/23/18 23:04	1
o-Xylene	ND		0.50		ug/L			02/23/18 23:04	1
Tetrachloroethene	ND		0.50		ug/L			02/23/18 23:04	1
Toluene	ND		0.20		ug/L			02/23/18 23:04	1
trans-1,2-Dichloroethene	**0.27**		0.20		ug/L			02/23/18 23:04	1
Trichloroethene	**0.31**		0.20		ug/L			02/23/18 23:04	1
Vinyl chloride	**1.2**		0.020		ug/L			02/23/18 23:04	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*103*		*46 - 150*		*02/23/18 23:04*	*1*
4-Bromofluorobenzene (Surr)	*103*		*81 - 120*		*02/23/18 23:04*	*1*
Dibromofluoromethane (Surr)	*103*		*42 - 132*		*02/23/18 23:04*	*1*
Toluene-d8 (Surr)	*101*		*75 - 125*		*02/23/18 23:04*	*1*
Trifluorotoluene (Surr)	*99*		*74 - 118*		*02/23/18 23:04*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	**0.27**		0.20		ug/L			02/26/18 21:17	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*102*		*46 - 150*		*02/26/18 21:17*	*1*
4-Bromofluorobenzene (Surr)	*103*		*81 - 120*		*02/26/18 21:17*	*1*
Dibromofluoromethane (Surr)	*102*		*42 - 132*		*02/26/18 21:17*	*1*
Toluene-d8 (Surr)	*101*		*75 - 125*		*02/26/18 21:17*	*1*
Trifluorotoluene (Surr)	*99*		*74 - 118*		*02/26/18 21:17*	*1*

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Carbon dioxide	**12000**		5000		ug/L			03/01/18 15:46	1
Ethane	ND		0.0050		mg/L			02/26/18 12:41	1
Ethylene	**0.0055**		0.0050		mg/L			02/26/18 12:41	1
Methane	**1.4**		0.025		mg/L			02/26/18 13:31	5

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Acetylene (Surr)	*107*		*70 - 130*		*02/26/18 12:41*	*1*

Method: 200.8 - Dissolved Metals by ICPMS - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	ND		0.20		mg/L		03/01/18 09:18	03/02/18 18:11	1
Manganese	**0.027**		0.0020		mg/L		03/01/18 09:18	03/02/18 18:11	1

Client Sample Results

Client: Robinson and Noble, Inc.
Project/Site: City of Olympia

TestAmerica Job ID: 580-75280-1

Client Sample ID: MW-18

Date Collected: 02/22/18 14:10
Date Received: 02/23/18 08:52

Lab Sample ID: 580-75280-3

Matrix: Water

Method: 200.8 - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	ND		0.20		mg/L		03/01/18 09:18	03/02/18 17:59	1
Manganese	**0.031**		0.0020		mg/L		03/01/18 09:18	03/02/18 17:59	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	**1.4**		0.20		mg/L			02/23/18 13:44	1
Sulfate	**40**		1.2		mg/L			02/23/18 13:44	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Biochemical Oxygen Demand	**2.9**		2.0		mg/L			02/23/18 14:05	1
Chemical Oxygen Demand	ND		10		mg/L		02/26/18 11:40	02/26/18 11:40	1

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

Lab Sample ID: MB 580-267928/7
Matrix: Water
Analysis Batch: 267928

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		0.20		ug/L			02/23/18 20:52	1
1,1,2,2-Tetrachloroethane	ND		0.20		ug/L			02/23/18 20:52	1
1,1,2-Trichloroethane	ND		0.20		ug/L			02/23/18 20:52	1
1,1-Dichloroethane	ND		0.20		ug/L			02/23/18 20:52	1
1,1-Dichloroethene	ND		0.10		ug/L			02/23/18 20:52	1
Benzene	ND		0.20		ug/L			02/23/18 20:52	1
Chloroethane	ND		0.50		ug/L			02/23/18 20:52	1
cis-1,2-Dichloroethene	ND		0.20		ug/L			02/23/18 20:52	1
Ethylbenzene	ND		0.20		ug/L			02/23/18 20:52	1
Methylene Chloride	ND		0.50		ug/L			02/23/18 20:52	1
m-Xylene & p-Xylene	ND		0.50		ug/L			02/23/18 20:52	1
o-Xylene	ND		0.50		ug/L			02/23/18 20:52	1
Tetrachloroethene	ND		0.50		ug/L			02/23/18 20:52	1
Toluene	ND		0.20		ug/L			02/23/18 20:52	1
trans-1,2-Dichloroethene	ND		0.20		ug/L			02/23/18 20:52	1
Trichloroethene	ND		0.20		ug/L			02/23/18 20:52	1
Vinyl chloride	ND		0.020		ug/L			02/23/18 20:52	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*103*		*46 - 150*		*02/23/18 20:52*	*1*
4-Bromofluorobenzene (Surr)	*101*		*81 - 120*		*02/23/18 20:52*	*1*
Dibromofluoromethane (Surr)	*105*		*42 - 132*		*02/23/18 20:52*	*1*
Toluene-d8 (Surr)	*101*		*75 - 125*		*02/23/18 20:52*	*1*
Trifluorotoluene (Surr)	*104*		*74 - 118*		*02/23/18 20:52*	*1*

Lab Sample ID: LCS 580-267928/4
Matrix: Water
Analysis Batch: 267928

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1,1-Trichloroethane	5.00	5.96		ug/L		119	56 - 150
1,1,2,2-Tetrachloroethane	5.00	6.10		ug/L		122	60 - 134
1,1,2-Trichloroethane	5.00	5.72		ug/L		114	62 - 137
1,1-Dichloroethane	5.00	5.83		ug/L		117	68 - 135
1,1-Dichloroethene	5.00	5.70		ug/L		114	64 - 125
Benzene	5.00	6.11	*	ug/L		122	73 - 120
Chloroethane	5.00	5.31		ug/L		106	58 - 130
cis-1,2-Dichloroethene	5.00	5.93		ug/L		119	73 - 130
Ethylbenzene	5.00	6.05		ug/L		121	74 - 125
Methylene Chloride	5.00	5.71		ug/L		114	58 - 134
m-Xylene & p-Xylene	5.00	5.96		ug/L		119	73 - 130
o-Xylene	5.00	5.91		ug/L		118	80 - 139
Tetrachloroethene	5.00	5.64		ug/L		113	67 - 123
Toluene	5.00	5.83		ug/L		117	70 - 126
trans-1,2-Dichloroethene	5.00	5.88		ug/L		118	69 - 124
Trichloroethene	5.00	5.93		ug/L		119	72 - 123
Vinyl chloride	5.00	4.87		ug/L		97	59 - 140

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

Lab Sample ID: LCS 580-267928/4
Matrix: Water
Analysis Batch: 267928

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

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	*99*		*46 - 150*
4-Bromofluorobenzene (Surr)	*101*		*81 - 120*
Dibromofluoromethane (Surr)	*101*		*42 - 132*
Toluene-d8 (Surr)	*96*		*75 - 125*
Trifluorotoluene (Surr)	*98*		*74 - 118*

Lab Sample ID: LCSD 580-267928/5
Matrix: Water
Analysis Batch: 267928

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
1,1,1-Trichloroethane			5.00	5.64		ug/L		113	56 - 150	6	29
1,1,2,2-Tetrachloroethane			5.00	5.92		ug/L		118	60 - 134	3	25
1,1,2-Trichloroethane			5.00	5.66		ug/L		113	62 - 137	1	30
1,1-Dichloroethane			5.00	5.63		ug/L		113	68 - 135	4	27
1,1-Dichloroethene			5.00	5.50		ug/L		110	64 - 125	4	28
Benzene			5.00	5.90		ug/L		118	73 - 120	3	20
Chloroethane			5.00	5.15		ug/L		103	58 - 130	3	35
cis-1,2-Dichloroethene			5.00	5.78		ug/L		116	73 - 130	2	20
Ethylbenzene			5.00	5.90		ug/L		118	74 - 125	2	20
Methylene Chloride			5.00	5.53		ug/L		111	58 - 134	3	29
m-Xylene & p-Xylene			5.00	5.77		ug/L		115	73 - 130	3	20
o-Xylene			5.00	5.73		ug/L		115	80 - 139	3	20
Tetrachloroethene			5.00	5.49		ug/L		110	67 - 123	3	20
Toluene			5.00	5.63		ug/L		113	70 - 126	3	20
trans-1,2-Dichloroethene			5.00	5.68		ug/L		114	69 - 124	3	27
Trichloroethene			5.00	5.82		ug/L		116	72 - 123	2	20
Vinyl chloride			5.00	4.64		ug/L		93	59 - 140	5	30

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	*99*		*46 - 150*
4-Bromofluorobenzene (Surr)	*102*		*81 - 120*
Dibromofluoromethane (Surr)	*100*		*42 - 132*
Toluene-d8 (Surr)	*96*		*75 - 125*
Trifluorotoluene (Surr)	*98*		*74 - 118*

Lab Sample ID: MB 580-268001/7
Matrix: Water
Analysis Batch: 268001

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.20		ug/L			02/26/18 20:24	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	*103*		*46 - 150*		*02/26/18 20:24*	*1*
4-Bromofluorobenzene (Surr)	*100*		*81 - 120*		*02/26/18 20:24*	*1*
Dibromofluoromethane (Surr)	*104*		*42 - 132*		*02/26/18 20:24*	*1*

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

Lab Sample ID: MB 580-268001/7
Matrix: Water
Analysis Batch: 268001

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

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	101		75 - 125		02/26/18 20:24	1
Trifluorotoluene (Surr)	102		74 - 118		02/26/18 20:24	1

Lab Sample ID: LCS 580-268001/4
Matrix: Water
Analysis Batch: 268001

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	5.00	4.54		ug/L		91	73 - 120

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	97		46 - 150
4-Bromofluorobenzene (Surr)	102		81 - 120
Dibromofluoromethane (Surr)	101		42 - 132
Toluene-d8 (Surr)	97		75 - 125
Trifluorotoluene (Surr)	97		74 - 118

Lab Sample ID: LCSD 580-268001/5
Matrix: Water
Analysis Batch: 268001

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
Benzene	5.00	4.67		ug/L		93	73 - 120	3	20

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	99		46 - 150
4-Bromofluorobenzene (Surr)	101		81 - 120
Dibromofluoromethane (Surr)	102		42 - 132
Toluene-d8 (Surr)	97		75 - 125
Trifluorotoluene (Surr)	99		74 - 118

Method: RSK-175 - Dissolved Gases (GC)

Lab Sample ID: MB 200-126921/5
Matrix: Water
Analysis Batch: 126921

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Carbon dioxide	ND		5000		ug/L			03/01/18 15:16	1

Lab Sample ID: LCS 200-126921/4
Matrix: Water
Analysis Batch: 126921

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Carbon dioxide	40000	40400		ug/L		101	70 - 130

Method: RSK-175 - Dissolved Gases (GC) (Continued)

Lab Sample ID: MB 490-497745/5
Matrix: Water
Analysis Batch: 497745

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethane	ND		0.0050		mg/L			02/26/18 09:56	1
Ethylene	ND		0.0050		mg/L			02/26/18 09:56	1
Methane	ND		0.0050		mg/L			02/26/18 09:56	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Acetylene (Surr)	*95*		*70 - 130*		*02/26/18 09:56*	*1*

Lab Sample ID: LCS 490-497745/6
Matrix: Water
Analysis Batch: 497745

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

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Ethane			0.527	0.555		mg/L		105	85 - 115		
Ethylene			0.493	0.509		mg/L		103	85 - 115		
Methane			0.287	0.311		mg/L		108	85 - 115		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Acetylene (Surr)	*98*		*70 - 130*

Lab Sample ID: LCSD 490-497745/7
Matrix: Water
Analysis Batch: 497745

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
Ethane			0.527	0.520		mg/L		99	85 - 115	7	30
Ethylene			0.493	0.487		mg/L		99	85 - 115	5	30
Methane			0.287	0.287		mg/L		100	85 - 115	8	30

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Acetylene (Surr)	*93*		*70 - 130*

Method: 200.8 - Metals (ICP/MS)

Lab Sample ID: MB 580-268159/14-A
Matrix: Water
Analysis Batch: 268291

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 268159

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	ND		0.20		mg/L		03/01/18 09:18	03/02/18 17:08	1
Manganese	ND		0.0020		mg/L		03/01/18 09:18	03/02/18 17:08	1

Lab Sample ID: LCS 580-268159/15-A
Matrix: Water
Analysis Batch: 268291

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 268159

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Iron			10.0	9.99		mg/L		100	85 - 115		

Method: 200.8 - Metals (ICP/MS) (Continued)

Lab Sample ID: LCS 580-268159/15-A
Matrix: Water
Analysis Batch: 268291

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 268159

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Manganese			0.100	0.0994		mg/L		99	85 - 115		

Lab Sample ID: LCSD 580-268159/16-A
Matrix: Water
Analysis Batch: 268291

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 268159

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Iron			10.0	10.1		mg/L		101	85 - 115	1	20
Manganese			0.100	0.0981		mg/L		98	85 - 115	1	20

Lab Sample ID: 580-75280-1 MS
Matrix: Water
Analysis Batch: 268291

Client Sample ID: MW-3
Prep Type: Total/NA
Prep Batch: 268159

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Iron	1.3		10.0	11.2		mg/L		99	70 - 130		
Manganese	0.12		0.100	0.220		mg/L		98	70 - 130		

Lab Sample ID: 580-75280-1 MSD
Matrix: Water
Analysis Batch: 268291

Client Sample ID: MW-3
Prep Type: Total/NA
Prep Batch: 268159

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Iron	1.3		10.0	11.2		mg/L		99	70 - 130	0	20
Manganese	0.12		0.100	0.218		mg/L		97	70 - 130	1	20

Lab Sample ID: 580-75280-1 DU
Matrix: Water
Analysis Batch: 268291

Client Sample ID: MW-3
Prep Type: Total/NA
Prep Batch: 268159

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Iron	1.3			1.28		mg/L				1	20
Manganese	0.12			0.121		mg/L				0.4	20

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 580-268063/3
Matrix: Water
Analysis Batch: 268063

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		mg/L			02/23/18 12:33	1

Lab Sample ID: LCS 580-268063/4
Matrix: Water
Analysis Batch: 268063

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

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Sulfate			50.0	52.3		mg/L		105	90 - 110		

Method: 300.0 - Anions, Ion Chromatography (Continued)

Lab Sample ID: 580-75280-1 MS
Matrix: Water
Analysis Batch: 268063

Client Sample ID: MW-3
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Sulfate	4.6	F1	50.0	59.9	F1	mg/L		111	90 - 110		

Lab Sample ID: 580-75280-1 MSD
Matrix: Water
Analysis Batch: 268063

Client Sample ID: MW-3
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Sulfate	4.6	F1	50.0	59.9	F1	mg/L		111	90 - 110	0	15

Lab Sample ID: MB 580-268064/3
Matrix: Water
Analysis Batch: 268064

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	ND		0.20		mg/L			02/23/18 12:33	1

Lab Sample ID: LCS 580-268064/4
Matrix: Water
Analysis Batch: 268064

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

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Nitrate as N			5.00	5.25		mg/L		105	90 - 110		

Lab Sample ID: 580-75280-1 MS
Matrix: Water
Analysis Batch: 268064

Client Sample ID: MW-3
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Nitrate as N	0.29		5.00	5.60		mg/L		106	90 - 110		

Lab Sample ID: 580-75280-1 MSD
Matrix: Water
Analysis Batch: 268064

Client Sample ID: MW-3
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Nitrate as N	0.29		5.00	5.60		mg/L		106	90 - 110	0	15

Method: SM 5210B - BOD, 5-Day

Lab Sample ID: USB 580-267850/1
Matrix: Water
Analysis Batch: 267850

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

Analyte	USB Result	USB Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Biochemical Oxygen Demand	ND		2.0		mg/L			02/23/18 08:39	1

Method: SM 5210B - BOD, 5-Day (Continued)

Lab Sample ID: LCS 580-267850/2
Matrix: Water
Analysis Batch: 267850

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

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Biochemical Oxygen Demand			198	223		mg/L		113	85 - 115		

Method: SM 5220C - COD

Lab Sample ID: MB 580-268020/1-A
Matrix: Water
Analysis Batch: 268021

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 268020

Analyte	MB Result	MB Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chemical Oxygen Demand	ND		10		mg/L		02/26/18 11:40	02/26/18 11:40	1

Lab Sample ID: LCS 580-268020/2-A
Matrix: Water
Analysis Batch: 268021

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 268020

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Chemical Oxygen Demand			100	113		mg/L		113	80 - 120		

Lab Chronicle

Client: Robinson and Noble, Inc.
Project/Site: City of Olympia

TestAmerica Job ID: 580-75280-1

Client Sample ID: MW-3

Date Collected: 02/22/18 13:00
Date Received: 02/23/18 08:52

Lab Sample ID: 580-75280-1
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	267928	02/23/18 22:11	P1P	TAL SEA
Total/NA	Analysis	RSK-175		1	126921	03/01/18 15:28	ERT	TAL BUR
Total/NA	Analysis	RSK-175		1	497745	02/26/18 12:30	AAB	TAL NSH
Total/NA	Analysis	RSK-175		5	497745	02/26/18 13:20	AAB	TAL NSH
Dissolved	Prep	200.8			268159	03/01/18 09:18	ASJ	TAL SEA
Dissolved	Analysis	200.8		1	268291	03/02/18 18:03	FCW	TAL SEA
Total/NA	Prep	200.8			268159	03/01/18 09:18	ASJ	TAL SEA
Total/NA	Analysis	200.8		1	268291	03/02/18 17:12	FCW	TAL SEA
Total/NA	Analysis	300.0		1	268063	02/23/18 12:57	MMM	TAL SEA
Total/NA	Analysis	300.0		1	268064	02/23/18 12:57	MMM	TAL SEA
Total/NA	Analysis	SM 5210B		1	267850	02/23/18 14:05	EMM	TAL SEA
Total/NA	Prep	SM 5220			268020	02/26/18 11:40	MP	TAL SEA
Total/NA	Analysis	SM 5220C		1	268021	02/26/18 11:40	MP	TAL SEA

Client Sample ID: MW-16

Date Collected: 02/22/18 11:40
Date Received: 02/23/18 08:52

Lab Sample ID: 580-75280-2
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	267928	02/23/18 22:37	P1P	TAL SEA
Total/NA	Analysis	RSK-175		1	126921	03/01/18 15:37	ERT	TAL BUR
Total/NA	Analysis	RSK-175		1	497745	02/26/18 12:37	AAB	TAL NSH
Dissolved	Prep	200.8			268159	03/01/18 09:18	ASJ	TAL SEA
Dissolved	Analysis	200.8		1	268291	03/02/18 18:07	FCW	TAL SEA
Total/NA	Prep	200.8			268159	03/01/18 09:18	ASJ	TAL SEA
Total/NA	Analysis	200.8		1	268291	03/02/18 17:56	FCW	TAL SEA
Total/NA	Analysis	300.0		1	268063	02/23/18 13:32	MMM	TAL SEA
Total/NA	Analysis	300.0		1	268064	02/23/18 13:32	MMM	TAL SEA
Total/NA	Analysis	SM 5210B		1	267850	02/23/18 14:05	EMM	TAL SEA
Total/NA	Prep	SM 5220			268020	02/26/18 11:40	MP	TAL SEA
Total/NA	Analysis	SM 5220C		1	268021	02/26/18 11:40	MP	TAL SEA

Client Sample ID: MW-18

Date Collected: 02/22/18 14:10
Date Received: 02/23/18 08:52

Lab Sample ID: 580-75280-3
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	267928	02/23/18 23:04	P1P	TAL SEA
Total/NA	Analysis	8260C	RA	1	268001	02/26/18 21:17	RSB	TAL SEA
Total/NA	Analysis	RSK-175		1	126921	03/01/18 15:46	ERT	TAL BUR
Total/NA	Analysis	RSK-175		1	497745	02/26/18 12:41	AAB	TAL NSH

Lab Chronicle

Client: Robinson and Noble, Inc.
Project/Site: City of Olympia

TestAmerica Job ID: 580-75280-1

Client Sample ID: MW-18

Date Collected: 02/22/18 14:10
Date Received: 02/23/18 08:52

Lab Sample ID: 580-75280-3

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	RSK-175		5	497745	02/26/18 13:31	AAB	TAL NSH
Dissolved	Prep	200.8			268159	03/01/18 09:18	ASJ	TAL SEA
Dissolved	Analysis	200.8		1	268291	03/02/18 18:11	FCW	TAL SEA
Total/NA	Prep	200.8			268159	03/01/18 09:18	ASJ	TAL SEA
Total/NA	Analysis	200.8		1	268291	03/02/18 17:59	FCW	TAL SEA
Total/NA	Analysis	300.0		1	268063	02/23/18 13:44	MMM	TAL SEA
Total/NA	Analysis	300.0		1	268064	02/23/18 13:44	MMM	TAL SEA
Total/NA	Analysis	SM 5210B		1	267850	02/23/18 14:05	EMM	TAL SEA
Total/NA	Prep	SM 5220			268020	02/26/18 11:40	MP	TAL SEA
Total/NA	Analysis	SM 5220C		1	268021	02/26/18 11:40	MP	TAL SEA

Laboratory References:

TAL BUR = TestAmerica Burlington, 30 Community Drive, Suite 11, South Burlington, VT 05403, TEL (802)660-1990
TAL NSH = TestAmerica Nashville, 2960 Foster Creighton Drive, Nashville, TN 37204, TEL (615)726-0177
TAL SEA = TestAmerica Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310

Accreditation/Certification Summary

Client: Robinson and Noble, Inc.
Project/Site: City of Olympia

TestAmerica Job ID: 580-75280-1

Laboratory: TestAmerica Seattle

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

Authority	Program	EPA Region	Identification Number	Expiration Date
Alaska (UST)	State Program	10	17-024	01-19-19
ANAB	DoD ELAP		L2236	01-19-19
ANAB	ISO/IEC 17025		L2236	01-19-19
California	State Program	9	2901	11-05-18
Montana (UST)	State Program	8	N/A	04-30-20
Oregon	NELAP	10	WA100007	11-05-18
US Fish & Wildlife	Federal		LE058448-0	10-31-18
USDA	Federal		P330-14-00126	02-10-20
Washington	State Program	10	C553	02-17-19

Laboratory: TestAmerica Burlington

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

Authority	Program	EPA Region	Identification Number	Expiration Date
Connecticut	State Program	1	PH-0751	09-30-19
DE Haz. Subst. Cleanup Act (HSCA)	State Program	3	NA	02-01-19
Florida	NELAP	4	E87467	06-30-18
L-A-B	DoD ELAP		L2336	02-25-20
Maine	State Program	1	VT00008	04-17-19
Minnesota	NELAP	5	050-999-436	12-31-18
New Jersey	NELAP	2	VT972	06-30-18
New York	NELAP	2	10391	04-01-18 *
Pennsylvania	NELAP	3	68-00489	04-30-18 *
Rhode Island	State Program	1	LAO00298	12-30-18
US Fish & Wildlife	Federal		LE-058448-0	07-31-18
USDA	Federal		P330-11-00093	07-24-20
Vermont	State Program	1	VT-4000	12-31-18
Virginia	NELAP	3	460209	12-14-18

Laboratory: TestAmerica Nashville

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

Authority	Program	EPA Region	Identification Number	Expiration Date
A2LA	A2LA		NA: NELAP & A2LA	12-31-19
A2LA	ISO/IEC 17025		0453.07	12-31-19
Alaska (UST)	State Program	10	UST-087	06-30-18
Arizona	State Program	9	AZ0473	05-05-18
Arkansas DEQ	State Program	6	88-0737	04-25-18
California	State Program	9	2938	10-31-18
Connecticut	State Program	1	PH-0220	12-31-19
Florida	NELAP	4	E87358	06-30-18
Georgia	State Program	4	E87358(FL)/453.07(A2LA)	06-30-18
Illinois	NELAP	5	200010	12-09-18
Iowa	State Program	7	131	04-01-18
Kansas	NELAP	7	E-10229	10-31-18
Kentucky (UST)	State Program	4	19	06-30-18
Kentucky (WW)	State Program	4	90038	12-31-18
Louisiana	NELAP	6	30613	06-30-18
Maine	State Program	1	TN00032	11-03-19
Maryland	State Program	3	316	03-31-19

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Client: Robinson and Noble, Inc.
Project/Site: City of Olympia

TestAmerica Job ID: 580-75280-1

Laboratory: TestAmerica Nashville (Continued)

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

Authority	Program	EPA Region	Identification Number	Expiration Date
Massachusetts	State Program	1	M-TN032	06-30-18
Minnesota	NELAP	5	047-999-345	12-31-18
Mississippi	State Program	4	N/A	06-30-18
Montana (UST)	State Program	8	NA	02-24-20
Nevada	State Program	9	TN00032	07-31-18
New Hampshire	NELAP	1	2963	10-09-18
New Jersey	NELAP	2	TN965	06-30-18
New York	NELAP	2	11342	03-31-18
North Carolina (WW/SW)	State Program	4	387	12-31-18
North Dakota	State Program	8	R-146	06-30-18
Ohio VAP	State Program	5	CL0033	07-06-19
Oklahoma	State Program	6	9412	08-31-18
Oregon	NELAP	10	TN200001	04-27-18
Pennsylvania	NELAP	3	68-00585	06-30-18
Rhode Island	State Program	1	LAO00268	12-30-18
South Carolina	State Program	4	84009 (001)	02-28-18 *
Tennessee	State Program	4	2008	02-23-20
Texas	NELAP	6	T104704077	08-31-18
USDA	Federal		P330-13-00306	12-01-19
Utah	NELAP	8	TN00032	07-31-18
Virginia	NELAP	3	460152	06-14-18
Washington	State Program	10	C789	07-19-18
West Virginia DEP	State Program	3	219	02-28-19
Wisconsin	State Program	5	998020430	08-31-18
Wyoming (UST)	A2LA	8	453.07	12-31-19

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Sample Summary

Client: Robinson and Noble, Inc.
Project/Site: City of Olympia

TestAmerica Job ID: 580-75280-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
580-75280-1	MW-3	Water	02/22/18 13:00	02/23/18 08:52
580-75280-2	MW-16	Water	02/22/18 11:40	02/23/18 08:52
580-75280-3	MW-18	Water	02/22/18 14:10	02/23/18 08:52

TestAmerica Seattle
5755 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	Sampler: NRG + KAT	Lab PM: Presley, Kim A	Carrier Tracking No(s):	COC No: 580-27783-9163.1
Client Contact: John Hildenbrand	Phone:	E-Mail: kim.presley@testamericainc.com		Page: Page 1 of 1
Company: Robinson and Noble, Inc.				Job #: 75280
Address: 2105 South C Street	Due Date Requested:			
City: Tacoma	TAT Requested (days): standard			
State, Zip: WA, 98402				
Phone: 253-475-7711(Tel)	PO #: Purchase Order not required			
Email: jhildenbrand@robinson-noble.com	WO #:			
Project Name:	Project #: 58012168			
Site:	SSOW#:			

Analysis Requested

Preservation Codes:
A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA
M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Z - other (specify)
Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8260C_LL - PCE+Degradation products	300.0 - Nitrate	300.00 - Sulfate	200.8 Total Iron and Manganese	200.8 Diss Iron and Manganese (FF)	SM5210B_Calc - BOD, 5-Day	5220C - COD	RSK_175 - Methane, Ethane, Ethene	RSK_175_CO2 - Carbon Dioxide	Total Number of containers	Special Instructions/Note:
				Preservation Code:	X	X	A	N	N	D	D	N	S	A	N	X	
MW-3	2/22/18	13:00		Water	X		X	X	X	X	X	X	X	X	X	14	
MW-16	2/22/18	11:40		Water	X		X	X	X	X	X	X	X	X	X	14	
MW-18	2/22/18	14:10		Water	X		X	X	X	X	X	X	X	X	X	14	
Trip Blank ~~2/23/18~~				Water													
				Water													
				Water													

580-75280 Chain of Custody

Therm. ID A2 Cor 6.40 Unc 7.50
Cooler Dsc: Lg Blue
~~Wet/Packs~~ Packing: a/bub
Custody Seal: Yes__ No X
cli dro

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☐ Disposal By Lab ☐ Archive For ______ Months

Deliverable Requested: I, II, III, IV, Other (specify)
Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
[signature]	2/23/18 8:52	Robinson Noble	[signature]	2-23-18 0852	TASea

Custody Seals Intact: Δ Yes Δ No | Custody Seal No.: | Cooler Temperature(s) °C and Other Remarks:

Ver: 08/04/2016 3/6/2018

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

Chain of Custody Record

580-75280 Chain of Custody

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Presley, Kim A		COC No: 580-53363.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: kim.presley@testamericainc.com	State of Origin: Washington	Page: Page 1 of 1
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note):		Job #: 580-75280-1
Address: 30 Community Drive, Suite 11,	Due Date Requested: 3/7/2018			
City: South Burlington	TAT Requested (days):			
State, Zip: VT, 05403				
Phone: 802-660-1990(Tel) 802-660-1919(Fax)	PO #:			
Email:	WO #:			
Project Name: City of Olympia	Project #: 58012168			
Site:	SSOW#:			

Analysis Requested

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2O3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - pH 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	RSK_175_CO2/ Carbon Dioxide	Total Number of containers	Special Instructions/Note:
			Preservation Code:					
MW-3 (580-75280-1)	2/22/18	13:00 Pacific		Water		X	3	
MW-16 (580-75280-2)	2/22/18	11:40 Pacific		Water		X	3	
MW-18 (580-75280-3)	2/22/18	14:10 Pacific		Water		X	3	

Note: Since laboratory accreditations are subject to change, TestAmerica Laboratories, Inc. places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to TestAmerica Laboratories, Inc. attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said complicance to TestAmerica Laboratories, Inc.

Possible Hazard Identification *Unconfirmed*	***Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)*** ☐ *Return To Client* ☐ *Disposal By Lab* ☐ *Archive For* _____ *Months*
Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2	Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by: Tom Blankenship	Date/Time: 2/23/18	Company TA-Sea	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time: 2/26/18 0900	Company TASea

Custody Seals Intact: ☑ Yes ☐ No | Custody Seal No.: 247148 | Cooler Temperature(s) °C and Other Remarks: 2.6

Ver: 09/20/2016


ACTWGT: 10.45 LB
CAD: 989746/CAFE3108
BILL RECIPIENT
5755 8TH ST E
FIFE, WA 98424
UNITED STATES US
TO SHIPPING/RECEIVING
TESTAMERICA LABORATORIES, INC.
30 COMMUNITY DRIVE
SUITE 11
SOUTH BURLINGTON VT 05403
(802) 660-1990
REF: S580-27824
PO: YES
FedEx
Express
SATURDAY 12:00P
PRIORITY OVERNIGHT
TRK# 0201 4260 0914 8028
XO BTVA
05403
VT-US BTV
Part # 159471-434 RIT2 EXP 12/18
FedEx® Saturday Delivery

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
Nashville, TN

580-75280 Chain of Custody

COOLER RECEIPT FORM

Cooler Received/Opened On 2/24/2018 @0915

Time Samples Removed From Cooler_____ Time Samples Placed In Storage_____ (2 Hour Window)

1. Tracking # 8040 (last 4 digits, FedEx) Courier: FedEx

IR Gun ID 17960358 pH Strip Lot_____ Chlorine Strip Lot_____

2. Temperature of rep. sample or temp blank when opened: 1.7 Degrees Celsius

3. If Item #2 temperature is 0°C or less, was the representative sample or temp blank frozen? YES NO...NA

4. Were custody seals on outside of cooler? YES...NO...NA

If yes, how many and where: 1 front

5. Were the seals intact, signed, and dated correctly? YES...NO...NA

6. Were custody papers inside cooler? YES...NO...NA

I certify that I opened the cooler and answered questions 1-6 (intial) ES

7. Were custody seals on containers: YES NO and Intact YES...NO...NA

Were these signed and dated correctly? YES...NO...NA

8. Packing mat'l used? Bubblewrap Plastic bag Peanuts Vermiculite Foam Insert Paper Other None

9. Cooling process: Ice Ice-pack Ice (direct contact) Dry ice Other None

10. Did all containers arrive in good condition (unbroken)? YES...NO...NA

11. Were all container labels complete (#, date, signed, pres., etc)? YES...NO...NA

12. Did all container labels and tags agree with custody papers? YES...NO...NA

13a. Were VOA vials received? YES...NO...NA

b. Was there any observable headspace present in any VOA vial? YES...NO...NA

● Larger than this.

14. Was there a Trip Blank in this cooler? YES...NO...NA If multiple coolers, sequence #_____

I certify that I unloaded the cooler and answered questions 7-14 (intial) ES

15a. On pres'd bottles, did pH test strips suggest preservation reached the correct pH level? YES...NO...NA

b. Did the bottle labels indicate that the correct preservatives were used YES...NO...NA

16. Was residual chlorine present? YES...NO...NA

I certify that I checked for chlorine and pH as per SOP and answered questions 15-16 (intial) ES

17. Were custody papers properly filled out (ink, signed, etc)? YES...NO...NA

18. Did you sign the custody papers in the appropriate place? YES...NO...NA

19. Were correct containers used for the analysis requested? YES...NO...NA

20. Was sufficient amount of sample sent in each container? YES...NO...NA

I certify that I entered this project into LIMS and answered questions 17-20 (intial) ES

I certify that I attached a label with the unique LIMS number to each container (intial) ES

21. Were there Non-Conformance issues at login? YES...NO Was a NCM generated? YES...NO...# ES

BIS = Broken in shipment
Cooler Receipt Form.doc

LF-1
End of Form

Revised 8/23/17

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

Chain of Custody Record

580-75280

America
R IN ENVIRONMENTAL TESTING

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Presley, Kim A	.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: kim.presley@testamericainc.com	State of Origin: Washington
Company: TestAmerica Laboratories, Inc		Accreditations Required (See note):	Page 1 of 1
Address: 2960 Foster Creighton Drive, ,	Due Date Requested: 3/7/2018		Job #: 580-75280-1
City: Nashville	TAT Requested (days):		
State, Zip: TN, 37204			
Phone: 615-726-0177(Tel) 615-726-3404(Fax)	PO #:		
Email:	WO #:		
Project Name: City of Olympia	Project #: 58012168		
Site:	SSOW#:		

Analysis Requested

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2O3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - pH 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	RSK_175/ Methane, Ethane, Ethene	Total Number of containers	Special Instructions/Note:
			Preservation Code:						
MW-3 (580-75280-1)	2/22/18	13:00 Pacific		Water			X	3	
MW-16 (580-75280-2)	2/22/18	11:40 Pacific		Water			X	3	
MW-18 (580-75280-3)	2/22/18	14:10 Pacific		Water			X	3	

Note: Since laboratory accreditations are subject to change, TestAmerica Laboratories, Inc. places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to TestAmerica Laboratories, Inc. attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said complicance to TestAmerica Laboratories, Inc.

Possible Hazard Identification *Unconfirmed*	***Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)*** ☐ *Return To Client* ☐ *Disposal By Lab* ☐ *Archive For* _____ *Months*
Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2	Special Instructions/QC Requirements:

Empty Kit Relinquished by:		Date:		Time:		Method of Shipment:	
Relinquished by: Tom Stanford	Date/Time: 2/23/18	Company TA-Sea	Received by:	Date/Time: 2-24-18 9:18	Company TANS		
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company		
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company		

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks: 1.7

Ver: 09/20/2016

Login Sample Receipt Checklist

Client: Robinson and Noble, Inc.

Job Number: 580-75280-1

Login Number: 75280
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.	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?	True	
There are no discrepancies between the containers received and the COC.	False	Received Trip Blank(s) not listed on COC.
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	

Login Sample Receipt Checklist

Client: Robinson and Noble, Inc.

Job Number: 580-75280-1

Login Number: 75280
List Number: 3
Creator: Nye, Elizabeth A

List Source: TestAmerica Burlington
List Creation: 02/26/18 12:10 PM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	Lab does not accept radioactive samples.
The cooler's custody seal, if present, is intact.	True	247148
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	2.6º C
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	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	