UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 10
1200 Sixth Avenue, Suite 900
Seattle, Washington 98101-3140

OFFICE OF ENVIRONMENTAL CLEANUP
EMERGENCY RESPONSE UNIT

Site Specific Sampling Plan

Project Name: Gorst Creek Removal Action Site ID: 10GL

Removal Action Phase: Excavation Waste Profiling

Author: Mark Woodke Company: E & E Date Completed: June 1, 2016

This Site Specific Sampling Plan (SSSP) is prepared and used in conjunction with the Quality Assurance Plan (QAP) for the Emergency Response Unit for collecting samples during this Removal Program project. The information contained herein is based on the information available at the time of preparation. As better information becomes available, this SSSP will be adjusted.

When inadequate time is available for preparing the SSSP in advance of the sampling event, a Field Sampling Form may be prepared on-site immediately prior to sampling. This full length version of the SSSP is written after the sampling event and the completed Field Sampling Form attached to it.

1. Approvals

Name, Title	Telephone, Email, Address	Signature
Jeff Rodin, On-Scene Coordinator	206 553-6709, rodin.jeffry@epa.gov USEPA , M/S: ECL-116, 1200 Sixth Ave. Suite 900, Seattle, WA 98101	JEFFRY RODIN Digitally signed by JEFFRY RODIN DN: c=US, o=U.S. Government, ou=USEPA, ou=Staff, cn=JEFFRY RODIN, dnQualifier=0000010814 Date: 2016.06.09 14:14:52 -07'00'
Kathy Parker, ERU Quality Assurance Coordinator	206-553-0062, parker.kathy@epa.gov USEPA , M/S: ECL-116, 1200 Sixth Ave. Suite 900, Seattle, WA 98101	Kathy Parker Digitally signed by Kathy Parker DN: cn=Kathy Parker, o=EPA, ou=OSC, email=parker.kathy@epa.gov, c=US Date: 2016.06.09 13:39:24 -07'00'

I. Project Management and Organization

2. Personnel and Roles involved in the project:

Name	Telephone, Email, Company, Address	Project Role	Data Recipient
Jeff Rodin	206 553-6709, rodin.jeffry@epa.gov, USEPA , M/S: ECL-116, 1200 Sixth Ave. Suite 900, Seattle, WA 98101	On Scene Coordinator	Yes
Jake Moersen	206 624-9537, jmoersen@ene.com, E & E 720 Third Avenue, Suite 1700 Seattle, Washington 98104	Superfund Technical Assessment and Response Team (START) Field Manager	Yes
Kathy Parker	206 553-0062, parker.kathy@epa.gov USEPA , M/S: ECL-116, 1200 Sixth Ave. Suite 900, Seattle, WA 98101	ERU Quality Assurance Coordinator	Yes
Mark Woodke	206 624-9537, mwoodke@ene.com, E & E 720 Third Ave, Suite 1700 Seattle, WA 98104	START Quality Assurance Reviewer	Yes

Christabel Escarez	253 922-2310, Christabel.excarez@Testamericainc.com, Test America, Inc., 5755 8th Street East, Tacoma, WA 98424	General Laboratory Contact	No
Lauren Kerber, Asbestos Laboratory Manager	206 269-6310, TBD, EMSL Analytical Inc., 3317 3rd Ave S., Suite D, Seattle, WA, 98134	Asbestos Laboratory Contact	No

3. Physical Description and Site Contact Information:

Site Name	Bremerton Auto Wrecking Landfill/Gorst Creek Removal	
Site Location	4275 State Highway 3 SW, Port Orchard, Washington (See Figure 1).	
Property Size	Approximately 10 acres (See Figure 2).	
Site Contact	Not applicable	Phone Number: Not applicable
Nearest Residents	Within 0.25 miles	Direction: North and east
Primary Land Uses Surrounding the Site	Commercial, recreational, residential	

4. The proposed schedule of project work follows:

Activity	Estimated Start Date	Estimated Completion Date	Comments
SSSP Review/Approval	4/26/2016	5/27/2016	
Mobilize to / Demobilize from Site	4/25/2016	9/30/2016	Dates are approximate.
Sample Collection	5/7/2016	9/20/2016	Throughout the project as needed.
Laboratory Sample Receipt	5/9/2016	9/21/2016	
Laboratory Analysis	5/9/2016	9/28/2016	Various turnaround times depending on needs.
Data Validation	5/16/2016	9/29/2016	

5. Historical and Background Information

The Bremerton Auto Wrecking Landfill – Gorst Creek Removal Action property encompasses a triangular parcel centered over approximately 700 feet of the Gorst Creek Ravine (Figure 2). An auto wrecking yard (Airport Auto Wrecking, Too) borders the property to the northeast, and the Washington State Department of Transportation (WSDOT) owns the property adjacent to the landfill to the northwest (downstream), including State Highway 3 SW and an easement corridor on either side of the highway. Gorst Creek flows northwest under the property through an approximate 700 foot-long 24-inch corrugated steel culvert, then under State Highway 3 through a box culvert. The Gorst Creek Landfill was an active facility from the late 1950s until approximately 1987. In 1997, Gorst Creek backed up behind the landfill, flooded, and a portion of the northwest slope of the landfill failed, washing into Gorst Creek down slope of the landfill. Wastes were found approximately one-half mile downstream in Gorst Creek. The site is estimated to contain approximately 150,000 cubic yards of waste. Potential contaminants of concern associated with landfill operations include polychlorinated biphenyls

(PCBs), target analyte list (TAL) metals, polynuclear aromatic hydrocarbons (PAHs; a subset of semivolatile organic compounds SVOCs), gasoline-range total petroleum hydrocarbons (TPHs), diesel-range TPHs, asbestos, and volatile organic compounds (VOCs). In 2011, EPA performed an Engineering Evaluation/Cost Analysis to determine potential alternative actions to be taken at the site. Based on potential threats of site contaminants to human health and the environment, EPA decided to perform a time-critical removal action at the site which includes removal of the 150,000 cubic yards of waste.

This SSSP addresses the excavation waste profiling phase of the removal action and is the third of several that will be used to support the removal action. The following is the current list of the removal action SSSPs:

1. Baseline/background sampling.
2. Air sampling/monitoring.
3. Waste profile sampling (excavated material for the landfill and suspect ACM).
4. Stormwater/surface water monitoring.
5. Post-excavation confirmation sampling.

References:

Ecology and Environment, April 2012, Final Draft Engineering Evaluation/Cost Analysis, Bremerton Auto Wrecking Landfill - Gorst Creek Site, prepared for the United States Environmental Protection Agency, Seattle, Washington, Contract Number EP-S7-06-02, Technical Direction Document Number 11-11-0005.

Hart Crowser, Inc., October 2000, Site Hazard Assessment Gorst Landfill, prepared for the Department of the Navy, Engineering Field Activity Northwest, Naval Facilities Engineering Command, Contract Number N44255-98-D-4409.

Kitsap County Health Department, Various Dates, Site files for the Gorst Creek – Bremerton Auto Wrecking Landfill.

United States Environmental Protection Agency, January 2003, Geographic Information Query System for Gorst Creek – Bremerton Auto Wrecking Landfill.

6. Conceptual Site Model

Contaminants: VOCs, PAHs, PCBs, TAL metals and potentially asbestos

Transport Mechanisms: Direct contact with excavated materials, soils and/or sediments, migration to groundwater or surface water, vapor or particles moving on air currents

Receptors: People on site, people using groundwater or surface water sources, people downwind of the site, and ecological receptors in the creek downstream of the site

7. Decision Statement

The decision(s) to be made from this investigation is/are to:

Excavation/Waste Profiling - Determine whether excavated soil/landfill materials exceeds screening levels (see Attachment A) to allow determination of an appropriate disposal facility.

Hazard Categorization Testing – Determine whether unknown substance exhibits hazardous characteristics according to First step hazard categorization for off-site disposal.

8. Action Level

Site screening levels for excavated materials have been provided by the landfill subcontracted to receive the waste (Waste Management in Arlington, Oregon):

- Total PAHs: less than 10,000 milligrams per kilogram (mg/kg)
- Total PCBs: less than 50 mg/kg
- TCLP VOCs and Metals: less than Toxicity Characteristic Leaching Procedure (TCLP) limits.

The laboratory reporting limits and TCLP limits are included in Attachment A.

For bulk substances subjected to First step hazard categorization testing, ignitable liquid/vapors or flammable liquid with flashpoint <140 degrees Fahrenheit (F); combustible liquid with flashpoint >140 degrees and < 200 degrees F; corrosive if pH less than or equal to 2 or greater than or equal to 12.5.

If a suspect piece of waste or debris contains more than 1% asbestos as determined by polarized light microscopy (PLM; EPA Method 600/R-93/116), then that material is asbestos-containing material (ACM).

II. Data Acquisition and Measurement Objectives

9. Site Diagram and Sampling Areas

The site diagram is included in Figure 2.

Landfill materials will be excavated and placed in stockpiles inside lined containment cells on site. Concrete, tires, cylinders, drums, metal, and any suspect friable ACM will be segregated during excavation. Each containment cell is a sampling area. Representative samples will be collected from the containment cells at varying rates depending on the landfill's requirements. Initially, 10 composite samples will be collected from the first 2,000 cubic yards (two containment cells with 1,000 cubic yards each; each of these containment cells will be divided into five 200-cubic yard stockpiles). After the initial 10 samples, waste will be managed in single stockpiles inside each containment cell, and samples will be collected at a rate of one sample for every 500 to 1,000 cubic yards of excavated material or as determined by the receiving waste disposal facility.

10. The Decision Rules

If excavated material contaminant concentrations exceed non-hazardous landfill disposal levels/site screening levels, the materials will likely be disposed of at a hazardous waste landfill (to be determined).

If excavated material contaminant concentrations are less than landfill disposal levels/site screening levels, the materials will likely be disposed of at a non-hazardous waste/municipal landfill (to be determined).

If a material is determined to be hazardous waste based on hazard categorization testing and/or field instrument identification or if materials exceed applicable action levels, the materials will be disposed of at an appropriate off-site disposal facility.

If suspect, potential friable ACM is observed, then the material will either be assumed to be ACM and will be segregated for special handling and disposal procedures, or the material will be sampled for asbestos analysis by PLM to determine whether it is ACM.

11. Information Needed for the Decision Rule

The following inputs to the decision are necessary to interpret the analytical results:

Contaminant concentrations
Disposal criteria from the landfill.

12. Sampling and Analysis

Throughout the removal action, as many as approximately 400 random composite samples will be collected from the stockpiles of excavated waste. Excavated waste is being managed in seven containment cells that have been constructed in the laydown and waste loading area, and the sampling frequency has been established based on the requirements of the landfill. For the first 2,000 cubic yards, the excavated waste will be managed in 10 discrete 200-cubic yard stockpiles inside the first two containment cells, and one composite sample will be collected from each stockpile.

After the first 2,000 cubic yards, excavated waste will be managed as single 2,000-cubic yard

stockpiles inside each containment cell. Composite samples will be collected at a frequency of one per every 500 cubic yards of waste, and each containment cell stockpile divided into quadrants for the four composite samples.

Location identification numbers will be assigned to each sample based on the containment cell number (1 through 7) and the quadrant where the sample was collected (NE, NW, SE, or SW).

Samples will be collected from 0 to 6 inches below the stockpile surface using dedicated stainless steel spoons or new, disposable plastic scoops. Composite samples will consist of waste from four locations per stockpile or quadrant.

If non-dedicated sampling equipment is used, rinsate blank samples will be collected at an approximate rate of one rinsate blank per 20 landfill material samples.

Excavated waste samples will be analyzed for the chemical parameters listed below, based on the criteria of the receiving waste disposal facility.

- SVOCs (EPA Method 8270)
- PCBs (EPA Method 8082)
- TCLP RCRA Metals (EPA Method 1311/6020/7471)
- TCLP Volatiles (EPA Method 1311/8260)

Trip blank samples will be submitted for VOCs (EPA Method 8260) at a rate of one per each cooler containing VOC samples. An estimated 40 to 60 trip blank samples will be submitted for analysis throughout the removal action.

The off-site laboratory for general chemical analyses is Test America, Inc., Tacoma, Washington.

Bulk substances of suspected hazard subjected to hazard categorization testing will be tested for reactivity, ignitability, and/or corrosivity following the First Step Quick Start Guide.

Samples of suspect ACM will be collected as grab samples using wet sampling methods (i.e., sprayed with water to reduce fiber release). The samples will be analyzed by PLM (EPA 600/R-93/116) at EMSL in Seattle, Washington.

13. Applicability of Data (place an X in front of the data categories needed, explain with comments)

_X_ ***A) Definitive data*** *is analytical data of sufficient quality for final decision-making. To produce definitive data on-site or off-site, the field or lab analysis will have passed full Quality Control (QC) requirements (continuing calibration checks, Method Detection Limit (MDL) study, field duplicate samples, field blank, matrix spikes, lab duplicate samples, and other method-specific QC such as surrogates) AND the analyst will have passed a Precision and Recovery (PAR) study AND the instrument will have a valid Performance Evaluation sample on file. This category of data is suitable for:* ***1) enforcement purposes, 2) determination of extent of contamination, 3) disposal, 4) RP verification or 5) cleanup confirmation.***
Comments: All chemical analyses at the off-site laboratory will produce definitive data.

___ ***B) Screening data with definitive confirmation*** *is analytical data that may be used* ***to support preliminary or intermediate decision-making*** *until confirmed by definitive data. However, even after confirmation, this data is often not as precise as definitive data. To produce this category of data, the analyst will have passed a PAR study to determine analytical error AND 10% of the samples are split and analyzed by a method that produced definitive data with a minimum of three samples above the action level and three samples below it.*
Comments:

__ ***C) Screening data*** *is analytical data which has not been confirmed by definitive data. The QC requirements are limited to an MDL study and continuing calibration checks. This data can be used for making decisions:* ***1) in emergencies, 2) for health and safety screening, 3) to supplement other analytical data, 4) to determine where to collect samples, 5) for waste profiling, and 6) for preliminary identification of pollutants****. This data is not of sufficient quality for final decision-making.*
Comments:

14. Special Sampling or Analysis Directions

Quick turnaround results will be required during much of the removal action to expedite excavated material removal and disposal.

15. Method Requirements

[Describe the restrictions to be considered in choosing an analytical method due to the need to meet specific regulations, policies, ARARs, and other analytical needs. Examples: 1) Methods must meet USEPA Drinking Water Program requirements. 2) Methods must achieve lower quantitation limits of less than 1/10 the action levels.3) Methods must be performed exactly as written without modification by the analytical laboratory.]

Methods must achieve lower quantitation limits of at least the action levels.

16. Sample Collection Information

The applicable sample collection Standard Operating Procedures (SOPs) or methods will be followed and include:

Field Activity Logbook SOP
Sample Packaging and Shipping SOP
Sampling Equipment Decontamination SOP
Site entry
Soil sampling
VOC – Soil and sediment sampling

First Step Hazard Categorization Testing Quick Start Guide

17. Optimization of Sampling Plan (Maximizing Data Quality While Minimizing Time and Cost)

Initially, quick-turnaround results will be required for excavated material samples to expedite removal and disposal of excavated materials. Later in the removal action, the turnaround time for results may be adjusted at the landfill's discretion to save analytical costs if it appears that similar materials are repeatedly being sent for disposal.

The format for sample number identification is summarized in Table 1. Sample collection and analysis information is summarized in Table 2.

Table 1
SAMPLE CODING

Project Name: Gorst Creek Removal: Air Monitoring and Excavation Waste Profiling **Site ID:** 10GL

SAMPLE NUMBER [(1)]

Digits	Description	Code (Example)
1,2,3,4	Year and Month Code	1604 (YYMM)
5,6,7,8	Consecutive Sample Number (grouped by SA as appropriate)	0501 (First sample of SA)

SAMPLE NAME / LOCATION ID [(2)]
(Optional)

1,2	Sampling Area	LF – Landfill RB – Rinsate Blank SP – Stock Pile TB – Trip Blank CL – Containment Cell
3,4	Consecutive Sample Number or Containment Cell Number	01 – First sample of Sampling Area
5,6	Matrix Code or direction	BK - Bulk EM – Excavated Material SB – Subsurface Soil SO - Soil SS – Surface Soil QC – Quality Control WT – Water NW – Northwest NE – Northeast SE – Southeast SW – Southwest CE - Center
7,8	Depth (Optional)	01 (feet below ground surface)

Notes:
(1) The Sample Number is a unique, 8-digit number assigned to each sample.
(2) The Sample Name or Location ID is an optional identifier that can be used to further describe each sample or sample location.

Table 2. Sampling and Analysis

Data Quality	Sampling Area	Matrix	Sampling Pattern	Sample Type	Data Quality	Number of Field Samples	Analyte or Parameter	EPA Method Number	Action Level	Method Quant. Limit	#/type of Sample Containers per Sample	Preservative (Ice to ≤6°Celsius [C])	Hold Time (days unless otherwise noted) (to extraction/to analysis)	Field QC
Lab Analysis	Excavated Landfill Materials	Soil	Random	Composite (grab for VOCs)	Definitive	30 - 410	TCLP VOCs	1311/8260	See Attachments	See Attachments	2x8-oz glass for VOC, SVOCs, PCBs, and Metals. No headspace.	≤ 6 °C	48 hours (7 days if frozen)	None
							SVOCs	8270				None	14/40	
							PCBs	8082					NA	
							TCLP Metals	1311/6000/7000 Series					6 months (28 days for mercury)	
		Bulk	Targeted	Grab			Asbestos	600/R-93/116	1%	1%	1x1 Quart ziplocking bag		None	
Lab Analysis	Trip Blanks	Water	QC Sample	Grab	Definitive	20 – 50	(Trip & Rinsate) VOCs	8260	Positive results	See Attachments	3x40 mL VOA vials	HCl pH ≤ 2	14	None
	Rinsate Blanks					10 - 20	(Rinsate Only) Asbestos	100.2			2x1-Liter polyethylene	None	To lab in 48 hours	
							SVOCs	8270			2x1-Liter amber glass	None	7/40	
							PCBs	8082			2x1-Liter amber glass	None	7/40	
							TCLP Metals	1311 and 6000/7000 Series			1x1-Liter polyethylene	HNO_3 pH ≤ 2	6 months (28 days mercury)	
Field Screening	All decision areas	Bulk Substances	Targeted	Grab	Screening	Each unknown substance	pH Reactivity Flammability	First Step	<2 and > 12.5 Positive >140 F	NA	2oz Jar or in-situ	NA	NA	NA

Note: For matrix spike and/or duplicate samples, no extra volume is required for air (unless co-located samples are collected), oil, product, or soil samples except soil VOC or NWTPH-Gx samples (triple volume). Triple volume is also required for organic water samples (double volume for inorganic).

Table 3. Common Sample Handling Information

Analysis Type	Sub Analysis	Matrix	Analytical Method	Container Type	Minimum Volume	Preservative	Temperature/ Storage	Hold Time	Source
Metals	Metals Not including Mercury or Hexachrome. Includes TAL, PP, RCRA lists)	Solid	EPA 6000 / 7000 Series	Glass Jar	200 g	n/a	None	6 months	SW-846 ch. 3
		Aqueous	EPA 6000 / 7000 Series	PTFE or HDPE	600 mL	HNO_3 to pH < 2	Not listed	6 months	SW-846 ch. 3
	Mercury	Solid	EPA 7471B	Glass Jar	200 g	n/a	$\leq 6^{o}$ C	28 days	SW-846 ch. 3
		Aqueous	EPA 7470A	PTFE or HDPE	400 mL	HNO_3 to pH < 2	Not listed	28 days	SW-846 ch. 3
	Hexavalent Chromium, (Hexachrome, Cr+6)	Solid	Lab-specific soil extraction modification, EPA 7196A	Glass Jar	100 g	n/a	$\leq 6^{o}$ C	28 days to extraction	SW-846 ch. 3
		Aqueous	EPA 218.6 (Drinking Water)	PTFE or HDPE	400 mL	n/a	$\leq 6^{o}$ C	24 hours	SW-846 ch. 3
	XRF	Solid (in situ; on the ground surface)	6200	none	n/a	none	none	Analyze Immediately	n/a
		Solid (ex situ)	6200	plastic bag	200 g	none	none	6 months	n/a
VOCs	VOCs / BTEX	Solid	EPA 5035 / 8260B	*	*	*	*	2 days to lab / 14 days	SW-846 ch. 4
		Aqueous	EPA 8260B	Amber Vial with Septa Lid	2 x 40 mL	HCl to pH< 2	$\leq 6^{o}$ C (headspace free)	14 days	SW-846 ch. 4
SVOCs	SVOCs / PAHs	Solid	EPA 8270D	Glass Jar	8 ounces	n/a	$\leq 6^{o}$ C	14 days	SW-846 ch. 4
		Aqueous	EPA 8270D	Amber Glass	2 x 1 L	n/a	$\leq 6^{o}$ C	7 days	SW-846 ch. 4
PCBs and Dioxins/Furans	PCBs	Solid	EPA 8082	Glass Jar	8 ounces	n/a	$\leq 6^{o}$ C	none	SW-846 ch. 4
		Aqueous	EPA 8082	Amber Glass	2 x 1 L	n/a	$\leq 6^{o}$ C	none	SW-846 ch. 4
	Dioxins/Furans	Solid	EPA 8280 or 8290	Glass Jar	8 ounces	n/a	$\leq 6^{o}$ C	none	SW-846 ch. 4
		Aqueous	EPA 8280 or 8290	Amber Glass	2 x 1 L	n/a	$\leq 6^{o}$ C	none	SW-846 ch. 4
Pesticides and Herbicides	Chlorinated Pesticides	Solid	EPA 8081	Glass Jar	8 ounces	n/a	$\leq 6^{o}$ C	14 days	SW-846 ch. 4
		Aqueous	EPA 8081	Amber Glass	2 x 1 L	n/a	$\leq 6^{o}$ C	7 days	SW-846 ch. 4
	Chlorinated Herbicides	Solid	EPA 8151	Glass Jar	8 ounces	n/a	$\leq 6^{o}$ C	14 days	SW-846 ch. 4
		Aqueous	EPA 8151	Amber Glass	2 x 1 L	n/a	$\leq 6^{o}$ C	7 days	SW-846 ch. 4
NWTPH	Gasoline-Range Organics	Solid	TPHs/NWTPH-Gx	Amber Glass Jar with Septa Lid	4 ounces	n/a	$\leq 6^{o}$ C (headspace free)	14 days	Method
		Aqueous	TPHs/NWTPH-Gx	Amber Vial with Septa Lid	2 x 40 mL	pH < 2 with HCl	$\leq 6^{o}$ C (headspace free)	7 days unpreserved 14 days preserved	Method
	Diesel-Range Organics	Solid	3510, 3540/3550, 8000	Glass Jar	8 ounces	n/a	$\leq 6^{o}$ C	14 days	Method

Analysis Type	Sub Analysis	Matrix	Analytical Method	Container Type	Minimum Volume	Preservative	Temperature/ Storage	Hold Time	Source
		Aqueous	3510, 3540/3550, 8000	Glass Amber	2 x 1 L	pH < 2 with HCl	≤ 6° C	7 days unpreserved 14 days preserved	Method
Miscellaneous	pH	Solid	EPA 9045	Glass Jar	8 ounces	n/a	n/a	Analyze Immediately	SW-846 ch. 3
		Aqueous	EPA 9040	PTFE	25 mL	n/a	n/a	Analyze Immediately	SW-846 ch. 3
	Total Organic Carbon (TOC)	Solid	SW-846 9060	Glass Jar	100 mL	n/a	≤ 6° C	28 days	SW-846
		Aqueous	EPA 415.1	PTFE or HDPE	200 mL	store in dark HCL or H_2SO_4 to pH <2	≤ 6° C	7 days unpreserved 28 days preserved	Method
	Cyanide	Solid	SW-846 9013	Glass Jar	5 g	n/a	≤ 6° C	14 days	SW-846 ch. 3
		Aqueous	SW-846 9010C	PTFE or HDPE	500 mL	NaOH to pH > 12	≤ 6° C	14 days	SW-846 ch. 3
	Conductivity	Aqueous	EPA 120.1	PTFE or HDPE	100 mL	n/a	n/a	Analyze Immediately	Method
	Hardness	Aqueous	EPA 130.1	PTFE or HDPE	1 x 1 L	HNO3 to pH<2	≤ 6° C	28 days	Method
	Total Suspended Solids	Aqueous	EPA 160.2	PTFE or HDPE	100 mL	n/a	≤ 6° C	7 days	Method
	Total Dissolved Solids	Aqueous	EPA 160.1	PTFE or HDPE	100 mL	n/a	≤ 6° C	7 days	Method
	Nitrate/nitrite	Aqueous	EPA 353.2	PTFE or HDPE	1 x 250 mL	H_2SO_4 to pH <2	≤ 6° C	28 days	Method
	Nitrate	Aqueous	SW-846 9210A	PTFE or HDPE	1,000 mL	n/a	≤ 6° C	28 days	SW-846 ch. 3
	Nitrite	Aqueous	SW-846 9216	PTFE or HDPE	25 mL	n/a	≤ 6° C	48 hours	SW-846 ch. 3, Method
	Fluoride	Aqueous	SW-846 9214	PTFE or HDPE	300 mL	n/a	≤ 6° C	28 days	SW-846 ch. 3
	Chloride	Aqueous	SW-846 9250	PTFE or HDPE	50 mL	n/a	≤ 6° C	28 days	SW-846 ch. 3
	Sulfate	Aqueous	SW-846 9035	PTFE or HDPE	50 mL	n/a	≤ 6° C	28 days	SW-846 ch. 3
	Sulfide	Solid	SW-846 9215	Glass Jar	1 x 4 ounces	Fill sample surface with 2N zinc acetate until moistened.	≤ 6° C (headspace free)	7 days	SW-846 ch. 3
		Aqueous	SW-846 9031	PTFE or HDPE	100 mL	4 drops 2N zinc acetate/100 mL sample; NaOH to pH>9.	≤ 6° C (headspace free)	7 days	SW-846 ch. 3

Key:

* = See individual methods. We typically collect 3xEnCore-type samplers and 1x40 mL VOA vial per sample, keep at ≤ 6°C with no chemical preservative, and they must be at the lab within 48 hours of collection.

C	= Celsius	HNO_3	= nitric acid	SVOCs	= semivolatile organic compounds
Cr	= chromium	L	= liter	SW-846	= EPA Test Methods for Evaluating Solid Waste, Physical/Chemical Methods
EPA	= Environmental Protection Agency	mL	= milliliter	TAL	= Target Analyte List
g	=grams	n/a	= not applicable	TPH	= total petroleum hydrocarbons
H2SO4	= sulfuric acid	NaOH	= sodium hydroxide	VOA	= Volatile Organic Analysis
HCL	= hydrochloric acid	PCBs	= polychlorinated biphenyls	VOCs	= Volatile Organic Compounds
HDPE	= high-density polyethylene	PTFE	= polytetrafluoroethylene		
Hg	= mercury	RCRA	= Resource Conservation and Recovery Act		

III. Assessment and Response

A Sample Plan Alteration Form (SPAF) will be used to describe project discrepancies (if any) that occur between planned project activities listed in the final SSSP and actual project work. The completed SPAF will be approved by the OSC and QAC and appended to the original SSSP.

A Field Sampling Form (FSF) may be used to capture the sampling and analysis scheme for emergency responses in the field and then the FSF pages can be inserted into the appropriate areas of the final SSSP.

Corrective actions will be assessed by the sampling team and others involved in the sampling and a corrective action report describing the problem, solution, and recommendations will be forwarded to the OSC and the ERU QAC.

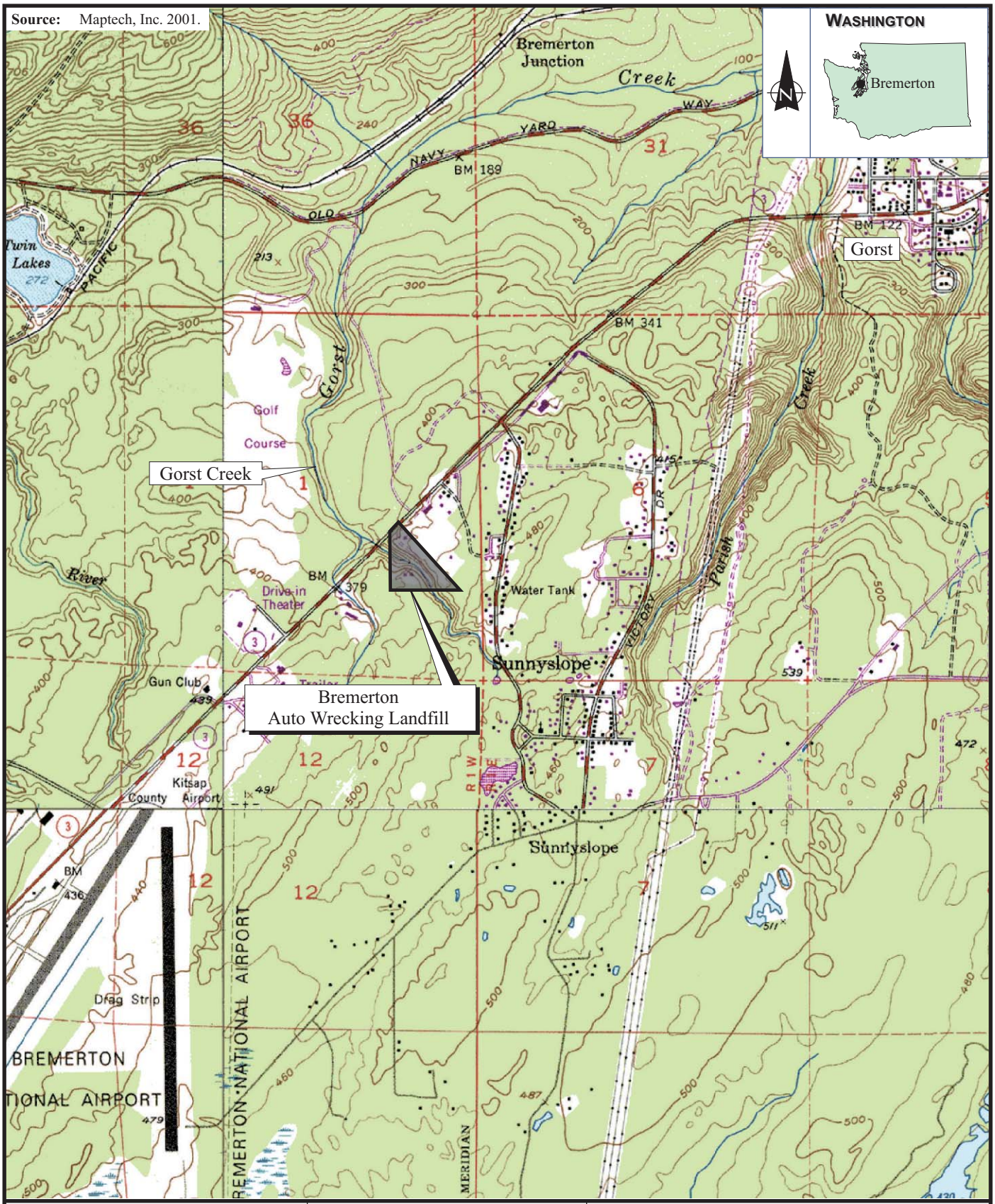
IV. Data Validation and Usability

The sample collection data will be entered into Scribe and Scribe will be used to print lab Chains of Custody. Results of field and lab analyses will be entered into Scribe as they are received and uploaded to Scibe.net when the sampling and analysis has been completed.

18. Data Validation or Verification will be performed by:

ERU's general recommendation on validation is that a minimum of CLP-equivalent stage IIA verification and validation be performed for every SSSP involving laboratory analyses. However, stage IIB is preferred if the lab can provide it. Dioxins should be validated at CLP-equivalent stage 4.

	Data Verification and Validation Stages						
Performed by:	I	IIA	IIB	III	IV	Verification	Other:
E and E QA Reviewer			100%		10%	100% Field Screening	
EPA Region 10 QA Office							
MEL staff							
Other:							



ecology and environment, inc.
Global Environmental Specialists
Seattle, Washington

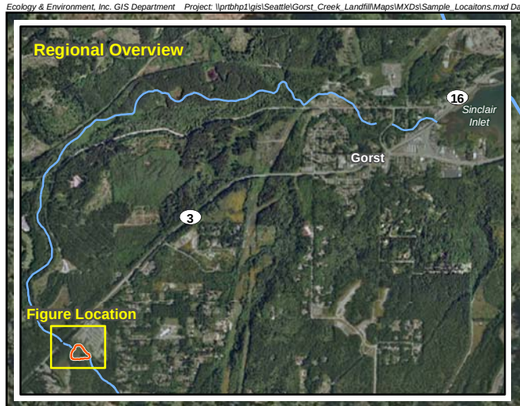
GORST CREEK-BREMERTON
AUTO WRECKING LANDFILL
Port Orchard, Washington

Figure 1

SITE LOCATION MAP

0 1000 2000
Approximate Scale in Feet

Date:	Drawn by:	
4-6-16	AES	10:START-IV\08090006\fig



Gorst Creek - Bremerton Auto Wrecking Landfill

Outfall location

24-inch corrugated metal pipe under the landfill

Gorst Creek - Bremerton Auto Wrecking landfill boundary

Bremerton Auto Wrecking Landfill/Gorst Creek

Port Orchard, Washington

N
W E
S

Map Projection: NAD 1983 UTM Zone 10N Meter
Map Scale: 1: 2,000

0 25 50 100 150 200 250

Feet
1 in = 167 ft

Figure 2

Site Map

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Attachment A
TCLP Limits and
Laboratory Reporting Limits

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Analyte Group	Analyte Name	CAS Number	TCLP Limit	Units
VOCs	Carbon tetrachloride	56-23-5	0.1	mg/L
VOCs	Chlorobenzene	108-90-7	50	mg/L
VOCs	Chloroform	67-66-3	1	mg/L
VOCs	1,4-Dichlorobenzene	106-46-7	5	mg/L
VOCs	1,2-Dichloroethane	107-06-2	0.25	mg/L
VOCs	1,1-Dichloroethylene	75-35-4	0.25	mg/L
VOCs	Hexachlorobutadiene	87-68-3	0.25	mg/L
VOCs	Methyl ethyl ketone	78-93-3	50	mg/L
VOCs	Tetrachloroethylene	127-18-4	0.5	mg/L
VOCs	Trichloroethylene	79-01-6	0.25	mg/L
VOCs	Vinyl chloride	75-01-4	0.1	mg/L
Metals	Arsenic	7440-38-2	5	mg/L
Metals	Barium	7440-39-3	100	mg/L
Metals	Benzene	71-43-2	0.5	mg/L
Metals	Cadmium	7440-43-9	1	mg/L
Metals	Chromium	7440-47-3	5	mg/L
Metals	Lead	7439-92-1	5	mg/L
Metals	Mercury	7439-97-6	0.2	mg/L
Metals	Selenium	7782-49-2	1	mg/L
Metals	Silver	7440-22-4	5	mg/L

Analyte Group	Analyte Name	CAS Number	Lab Name	Published Date	Units	Matrix	Low Soil Reporting Limit
PCBs	Aroclor 1016	12674-11-2	Commercial	2016	µg/kg	Soil	0.01
PCBs	Aroclor 1221	11104-28-2	Commercial	2016	µg/kg	Soil	0.01
PCBs	Aroclor 1232	11141-16-5	Commercial	2016	µg/kg	Soil	0.01
PCBs	Aroclor 1242	53469-21-9	Commercial	2016	µg/kg	Soil	0.01
PCBs	Aroclor 1248	12672-29-6	Commercial	2016	µg/kg	Soil	0.01
PCBs	Aroclor 1254	11097-69-1	Commercial	2016	µg/kg	Soil	0.01
PCBs	Aroclor 1260	11096-82-5	Commercial	2016	µg/kg	Soil	0.01
PCBs	Aroclor 1262	37324-23-5	Commercial	2016	µg/kg	Soil	0.01
PCBs	Aroclor 1268	11100-14-4	Commercial	2016	µg/kg	Soil	0.01
SVOCs	1,1'-Biphenyl	92-52-4	Commercial	2016	µg/kg	Soil	50
SVOCs	1,2,4,5-Tetrachlorobenzene	95-94-3	Commercial	2016	µg/kg	Soil	50
SVOCs	1,4-Dioxane	123-91-1	Commercial	2016	µg/kg	Soil	50
SVOCs	2,2'-Oxybis(1-chloropropane)	108-60-1	Commercial	2016	µg/kg	Soil	50
SVOCs	2,3,4,6-Tetrachlorophenol	58-90-2	Commercial	2016	µg/kg	Soil	50
SVOCs	2-Nitrophenol	88-75-5	Commercial	2016	µg/kg	Soil	50
SVOCs	3-Nitroaniline	99-09-2	Commercial	2016	µg/kg	Soil	100
SVOCs	4-Bromophenyl-phenyl ether	101-55-3	Commercial	2016	µg/kg	Soil	50
SVOCs	4-Chlorophenyl-phenyl ether	7005-72-3	Commercial	2016	µg/kg	Soil	50
SVOCs	4-Nitrophenol	100-02-7	Commercial	2016	µg/kg	Soil	50
SVOCs	Acenaphthene	83-32-9	Commercial	2016	µg/kg	Soil	20
SVOCs	Acenaphthylene	208-96-8	Commercial	2016	µg/kg	Soil	20
SVOCs	Acetophenone	98-86-2	Commercial	2016	µg/kg	Soil	50
SVOCs	Anthracene	120-12-7	Commercial	2016	µg/kg	Soil	20
SVOCs	Atrazine	1912-24-9	Commercial	2016	µg/kg	Soil	50
SVOCs	Benz[a]anthracene	56-55-3	Commercial	2016	µg/kg	Soil	20
SVOCs	Benzaldehyde	100-52-7	Commercial	2016	µg/kg	Soil	50
SVOCs	Benzo(g,h,i)perylene	191-24-2	Commercial	2016	µg/kg	Soil	20
SVOCs	Benzo[a]pyrene	50-32-8	Commercial	2016	µg/kg	Soil	20
SVOCs	Benzo[b]fluoranthene	205-99-2	Commercial	2016	µg/kg	Soil	20
SVOCs	Benzo[k]fluoranthene	207-08-9	Commercial	2016	µg/kg	Soil	20
SVOCs	Bis(2-chloroethoxy)methane	111-91-1	Commercial	2016	µg/kg	Soil	50
SVOCs	Bis(2-chloroethyl)ether	111-44-4	Commercial	2016	µg/kg	Soil	50
SVOCs	Bis(2-ethylhexyl)phthalate	117-81-7	Commercial	2016	µg/kg	Soil	500
SVOCs	Butyl Benzyl Phthalate	85-68-7	Commercial	2016	µg/kg	Soil	500
SVOCs	Caprolactam	105-60-2	Commercial	2016	µg/kg	Soil	50
SVOCs	Carbazole	86-74-8	Commercial	2016	µg/kg	Soil	50
SVOCs	Chloroaniline, p-	106-47-8	Commercial	2016	µg/kg	Soil	50
SVOCs	Chloronaphthalene, Beta-	91-58-7	Commercial	2016	µg/kg	Soil	50
SVOCs	Chlorophenol, 2-	95-57-8	Commercial	2016	µg/kg	Soil	50
SVOCs	Chrysene	218-01-9	Commercial	2016	µg/kg	Soil	20
SVOCs	Cresol, o-	95-48-7	Commercial	2016	µg/kg	Soil	50
SVOCs	Cresol, p-	106-44-5	Commercial	2016	µg/kg	Soil	50
SVOCs	Cresol, p-chloro-m-	59-50-7	Commercial	2016	µg/kg	Soil	50
SVOCs	Dibenz[a,h]anthracene	53-70-3	Commercial	2016	µg/kg	Soil	20
SVOCs	Dibenzofuran	132-64-9	Commercial	2016	µg/kg	Soil	50
SVOCs	Dibutyl Phthalate	84-74-2	Commercial	2016	µg/kg	Soil	50
SVOCs	Dichlorobenzidine, 3,3'-	91-94-1	Commercial	2016	µg/kg	Soil	50
SVOCs	Dichlorophenol, 2,4-	120-83-2	Commercial	2016	µg/kg	Soil	50
SVOCs	Diethyl Phthalate	84-66-2	Commercial	2016	µg/kg	Soil	50
SVOCs	Dimethylphenol, 2,4-	105-67-9	Commercial	2016	µg/kg	Soil	50
SVOCs	Dimethylphthalate	131-11-3	Commercial	2016	µg/kg	Soil	50
SVOCs	Dinitro-o-cresol, 4,6-	534-52-1	Commercial	2016	µg/kg	Soil	1000
SVOCs	Dinitrophenol, 2,4-	51-28-5	Commercial	2016	µg/kg	Soil	1000
SVOCs	Dinitrotoluene, 2,4-	121-14-2	Commercial	2016	µg/kg	Soil	50
SVOCs	Dinitrotoluene, 2,6-	606-20-2	Commercial	2016	µg/kg	Soil	50
SVOCs	Di-n-octyl phthalate	117-84-0	Commercial	2016	µg/kg	Soil	500
SVOCs	Fluoranthene	206-44-0	Commercial	2016	µg/kg	Soil	20
SVOCs	Fluorene	86-73-7	Commercial	2016	µg/kg	Soil	20
SVOCs	Hexachlorobenzene	118-74-1	Commercial	2016	µg/kg	Soil	50
SVOCs	Hexachlorobutadiene	87-68-3	Commercial	2016	µg/kg	Soil	50
SVOCs	Hexachlorocyclopentadiene	77-47-4	Commercial	2016	µg/kg	Soil	50
SVOCs	Hexachloroethane	67-72-1	Commercial	2016	µg/kg	Soil	50

Analyte Group	Analyte Name	CAS Number	Lab Name	Published Date	Units	Matrix	Low Soil Reporting Limit
SVOCs	Indeno[1,2,3-cd]pyrene	193-39-5	Commercial	2016	µg/kg	Soil	20
SVOCs	Isophorone	78-59-1	Commercial	2016	µg/kg	Soil	50
SVOCs	Methylnaphthalene, 2-	91-57-6	Commercial	2016	µg/kg	Soil	20
SVOCs	Naphthalene	91-20-3	Commercial	2016	µg/kg	Soil	20
SVOCs	Nitroaniline, 2-	88-74-4	Commercial	2016	µg/kg	Soil	100
SVOCs	Nitroaniline, 4-	100-01-6	Commercial	2016	µg/kg	Soil	100
SVOCs	Nitrobenzene	98-95-3	Commercial	2016	µg/kg	Soil	50
SVOCs	Nitroso-di-N-propylamine, N-	621-64-7	Commercial	2016	µg/kg	Soil	50
SVOCs	Nitrosodiphenylamine, N-	86-30-6	Commercial	2016	µg/kg	Soil	50
SVOCs	Pentachlorophenol	87-86-5	Commercial	2016	µg/kg	Soil	50
SVOCs	Phenanthrene	85-01-8	Commercial	2016	µg/kg	Soil	20
SVOCs	Phenol	108-95-2	Commercial	2016	µg/kg	Soil	50
SVOCs	Pyrene	129-00-0	Commercial	2016	µg/kg	Soil	20
SVOCs	Trichlorophenol, 2,4,5-	95-95-4	Commercial	2016	µg/kg	Soil	200
SVOCs	Trichlorophenol, 2,4,6-	88-06-2	Commercial	2016	µg/kg	Soil	200

Analyte Group	Analyte Name	CAS Number	Lab Name	Published Date	Units	Matrix	ICP-AES Reporting Limit
Metals	Aluminum	7429-90-5	Sub	2016	mg/L	Water	1.5
Metals	Antimony	7440-36-0	Sub	2016	mg/L	Water	0.06
Metals	Arsenic	7440-38-2	Sub	2016	mg/L	Water	0.06
Metals	Barium	7440-39-3	Sub	2016	mg/L	Water	0.01
Metals	Beryllium and compounds	7440-41-7	Sub	2016	mg/L	Water	0.01
Metals	Cadmium (Diet)	7440-43-9	Sub	2016	mg/L	Water	0.02
Metals	Calcium	7440-70-2	Sub	2016	mg/L	Water	1.1
Metals	Chromium, Total	7440-47-3	Sub	2016	mg/L	Water	0.025
Metals	Cobalt	7440-48-4	Sub	2016	mg/L	Water	0.02
Metals	Copper	7440-50-8	Sub	2016	mg/L	Water	0.03
Metals	Iron	7439-89-6	Sub	2016	mg/L	Water	0.5
Metals	Lead and Compounds	7439-92-1	Sub	2016	mg/L	Water	0.03
Metals	Magnesium	7439-95-4	Sub	2016	mg/L	Water	1.1
Metals	Manganese	7439-96-5	Sub	2016	mg/L	Water	0.02
Metals	Mercury, Inorganic Salts	7487-94-7	Sub	2016	mg/L	Water	0.0002
Metals	Nickel Soluble Salts	7440-02-0	Sub	2016	mg/L	Water	0.02
Metals	Potassium	7440-09-7	Sub	2016	mg/L	Water	3.3
Metals	Selenium	7782-49-2	Sub	2016	mg/L	Water	0.1
Metals	Silver	7440-22-4	Sub	2016	mg/L	Water	0.05
Metals	Sodium	7440-43-5	Sub	2016	mg/L	Water	2
Metals	Thallium (Soluble Salts)	7440-28-0	Sub	2016	mg/L	Water	0.1
Metals	Vanadium, Metallic	7440-62-2	Sub	2016	mg/L	Water	0.02
Metals	Zinc (Metallic)	7440-66-6	Sub	2016	mg/L	Water	0.04

Analyte Group	Analyte Name	CAS Number	Lab Name	Published Date	Units	Matrix	Medium Water Reporting Limit
VOCs	1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	Commercial	2016	µg/L	Water	1
VOCs	1,3-Dichlorobenzene	541-73-1	Commercial	2016	µg/L	Water	1
VOCs	1,4-Dioxane	123-91-1	Commercial	2016	µg/L	Water	1
VOCs	Acetone	67-64-1	Commercial	2016	µg/L	Water	1
VOCs	Benzene	71-43-2	Commercial	2016	µg/L	Water	1
VOCs	Bromochloromethane	74-97-5	Commercial	2016	µg/L	Water	1
VOCs	Bromodichloromethane	75-27-4	Commercial	2016	µg/L	Water	1
VOCs	Bromoform	75-25-2	Commercial	2016	µg/L	Water	1
VOCs	Bromomethane	74-83-9	Commercial	2016	µg/L	Water	5
VOCs	Carbon Disulfide	75-15-0	Commercial	2016	µg/L	Water	1
VOCs	Carbon Tetrachloride	56-23-5	Commercial	2016	µg/L	Water	1
VOCs	Chlorobenzene	108-90-7	Commercial	2016	µg/L	Water	1
VOCs	Chloroethane	75-00-3	Commercial	2016	µg/L	Water	1
VOCs	Chloroform	67-66-3	Commercial	2016	µg/L	Water	1
VOCs	Chloromethane	74-87-3	Commercial	2016	µg/L	Water	5
VOCs	cis-1,3-Dichloropropene	10061-01-5	Commercial	2016	µg/L	Water	1
VOCs	Cyclohexane	110-82-7	Commercial	2016	µg/L	Water	1
VOCs	Dibromo-3-chloropropane, 1,2-	96-12-8	Commercial	2016	µg/L	Water	2
VOCs	Dibromochloromethane	124-48-1	Commercial	2016	µg/L	Water	1
VOCs	Dibromoethane, 1,2-	106-93-4	Commercial	2016	µg/L	Water	1
VOCs	Dichlorobenzene, 1,2-	95-50-1	Commercial	2016	µg/L	Water	1
VOCs	Dichlorobenzene, 1,4-	106-46-7	Commercial	2016	µg/L	Water	1
VOCs	Dichlorodifluoromethane	75-71-8	Commercial	2016	µg/L	Water	1
VOCs	Dichloroethane, 1,1-	75-34-3	Commercial	2016	µg/L	Water	1
VOCs	Dichloroethane, 1,2-	107-06-2	Commercial	2016	µg/L	Water	1
VOCs	Dichloroethylene, 1,1-	75-35-4	Commercial	2016	µg/L	Water	1
VOCs	Dichloroethylene, 1,2-cis-	156-59-2	Commercial	2016	µg/L	Water	1
VOCs	Dichloroethylene, 1,2-trans-	156-60-5	Commercial	2016	µg/L	Water	1
VOCs	Dichloropropane, 1,2-	78-87-5	Commercial	2016	µg/L	Water	1
VOCs	Ethylbenzene	100-41-4	Commercial	2016	µg/L	Water	1
VOCs	Hexanone, 2-	591-78-6	Commercial	2016	µg/L	Water	1
VOCs	Isopropylbenzene	98-82-8	Commercial	2016	µg/L	Water	1
VOCs	Methyl Acetate	79-20-9	Commercial	2016	µg/L	Water	1
VOCs	Methyl Ethyl Ketone (2-Butanone)	78-93-3	Commercial	2016	µg/L	Water	1
VOCs	Methyl Isobutyl Ketone (4-methyl-2-pentanone)	108-10-1	Commercial	2016	µg/L	Water	1
VOCs	Methyl tert-Butyl Ether (MTBE)	1634-04-4	Commercial	2016	µg/L	Water	1
VOCs	Methylcyclohexane	108-87-2	Commercial	2016	µg/L	Water	1
VOCs	Methylene Chloride	75-09-2	Commercial	2016	µg/L	Water	5
VOCs	Styrene	100-42-5	Commercial	2016	µg/L	Water	5
VOCs	Tetrachloroethane, 1,1,2,2-	79-34-5	Commercial	2016	µg/L	Water	1
VOCs	Tetrachloroethylene	127-18-4	Commercial	2016	µg/L	Water	1
VOCs	Toluene	108-88-3	Commercial	2016	µg/L	Water	1
VOCs	trans-1,3-Dichloropropene	10061-02-6	Commercial	2016	µg/L	Water	1
VOCs	Trichlorobenzene, 1,2,3-	87-61-6	Commercial	2016	µg/L	Water	1
VOCs	Trichlorobenzene, 1,2,4-	120-82-1	Commercial	2016	µg/L	Water	1
VOCs	Trichloroethane, 1,1,1-	71-55-6	Commercial	2016	µg/L	Water	1
VOCs	Trichloroethane, 1,1,2-	79-00-5	Commercial	2016	µg/L	Water	1
VOCs	Trichloroethylene	79-01-6	Commercial	2016	µg/L	Water	1
VOCs	Trichlorofluoromethane	75-69-4	Commercial	2016	µg/L	Water	1
VOCs	Vinyl Chloride	75-01-4	Commercial	2016	µg/L	Water	1
VOCs	Xylene, M,P-	179601-23-1	Commercial	2016	µg/L	Water	1
VOCs	Xylene, o-	95-47-6	Commercial	2016	µg/L	Water	1

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