UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 10
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OFFICE OF ENVIRONMENTAL CLEANUP
EMERGENCY RESPONSE UNIT

Site Specific Sampling Plan

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

Removal Action Phase: Field Screening of Soils and Unknown Substances

Author: Tyler Chatriand Company: E & E Date Completed: July 8, 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.

1. Approvals

Name, Title	Telephone, Email, Address	Signature
Jeffry 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: cn=Jeffry Rodin, o=EPA, ou=ERU, email=rodin.jeffry@epa.gov, c=US Date: 2016.07.28 14:33:35 -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: 2016.07.28 14:30:39 -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	No
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

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	Jeffry Rodin	Phone Number: 360-550-4009
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	7/7/2016	7/11/2016	
Mobilize to / Demobilize from Site	4/25/2016	10/30/2016	EPA/START/ERRS mobilized in April 2016.
Sample Collection	6/18/2016	10/20/2016	Throughout the project as needed.
Laboratory Sample Receipt	n/a	n/a	
Field Analysis	6/18/2016	10/20/2016	
Data Validation	6/27/2016	10/29/2016	

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) 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 diameter corrugated steel culvert, then under State Highway 3 through a box culvert. The Gorst Creek Landfill was an active facility from the late 1960s 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 is the fifth of several that have been prepared to support the removal action. Removal action SSSPs include:

1. Pre-removal action sampling at the laydown and stockpile staging area (i.e., background sampling).
2. Air monitoring and sampling.
3. Excavation waste profiling.
4. Stormwater monitoring and sampling.
5. Field screening of soil and unknown substances.
6. Post-excavation sampling.

This SSSP addresses field screening and characterization of soils and other unknown media encountered during excavation activities.

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, TPHs, PCBs, TAL metals, and 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 Screening – Using field analytical instruments and techniques, determine whether exposed or excavated landfill materials exceed screening levels (see Section 8) to allow for waste profiling, to determine if segregation of the waste is needed, or to determine if post-excavation sampling may be performed.

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

8. Action Level

Landfill Waste and Excavated Material
Waste soils and materials in the landfill area may be screened with a field-portable X-ray fluorescence (XRF) instrument to identify areas of potential elevated metals concentrations (i.e., "hot spots") for segregation and special waste handling.

Total metals concentrations (as determined by the XRF) from excavated and stockpiled wastes waiting for off-site disposal will be compared to 20X the TCLP limits to determine the possibility that the material is hazardous (toxicity characteristic):

Metal	TCLP Limit	Total Concentration (20X TCLP Limit)
Arsenic	5 milligrams per liter (mg/L)	100 milligrams per kilogram (mg/kg)
Barium	100 mg/L	2,000 mg/kg
Cadmium	1 mg/L	20 mg/kg
Chromium	5 mg/L	100 mg/kg
Lead	5 mg/L	100 mg/kg
Mercury	0.2 mg/L	4 mg/kg
Selenium	1 mg/L	20 mg/kg
Silver	5 mg/L	100 mg/kg

For bulk substances subjected to First Step hazard categorization testing:

- Ignitable liquid/vapors or flammable liquid with a flashpoint <140 degrees Fahrenheit (°F);
- Combustible liquid with a flashpoint >140 °F and < 200 °F; and
- Corrosive if pH less than or equal to 2 or greater than or equal to 12.5.

Excavation Base Material
After landfill waste has been excavated, the underlying soil may be screened with the XRF to determine whether elevated metal concentrations remain or whether post-excavation sampling should proceed (see separate Post-Excavation SSSP).

II. Data Acquisition and Measurement Objectives

9. Site Diagram and Sampling Areas

The site diagram is included in Figure 2.

Landfill Waste and Excavated Material
Landfill materials will be excavated and placed in stockpiles on site. Concrete, tires, batteries, cylinders, drums, metal, and large quantities of suspect asbestos-containing materials will be segregated out during excavation.

Suspicious or unknown media exposed during excavation activities will be characterized as needed according to First Step hazard categorization.

Excavation Base Material
The base of excavations will be screened for elevated metals concentrations in order to determine whether post-excavation samples should be collected for laboratory analysis.

10. The Decision Rules

Landfill Waste and Excavated Material
If excavated landfill material contaminant concentrations exceed hazardous landfill disposal levels or site screening levels, the materials will likely be disposed of at a hazardous waste landfill.

If a material is determined to be hazardous waste based on hazard categorization testing and/or subsequent fixed laboratory analysis, the materials will be disposed of at an appropriate off-site disposal facility.

If the sample is not determined to be hazardous waste based on hazard categorization testing and/or fixed laboratory analyses or if materials do not exceed applicable action levels, the materials may be characterized as

not posing an unacceptable risk to human health or the environment and may or may not be subject to additional Removal Program activities.

Excavation Base Material
Underlying soil screened with the XRF will be compared to site screening levels (see Post-Excavation SSSP) to determine whether post excavation sampling should proceed or if additional excavation is warranted.

11. Information Needed for the Decision Rule

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

Contaminant concentrations determined with the XRF instrument
Results from on-site hazard categorization field testing
Action/screening levels – characteristic hazardous waste limits

12. Sampling and Analysis

Landfill Waste and Excavated Material
Targeted soils and materials in excavated or exposed soils and landfill materials will be screened in-place for toxic metals compliant with EPA Method 6200 using the XRF instrument as directed by the EPA OSC or designee.

Unknown or suspicious materials found during excavation activities will be tested by First Step hazard classification testing (presence of water, water solubility, reactivity, pH, oxidizer, sulfide, cyanide, flammability, Beilstein, iodine saturation, char test). Complete hazard categorization as found in the First Step Hazard Categorization instructions will be performed as needed. Hazard classification results may be supported with FirstDefender and TruDefender instrumentation, if necessary. Depending upon the final disposition of the material being screened a product sample may be collected for laboratory analysis at the OSC's discretion. Refer to the appropriate SSSP and Table 2 for more detailed information.

Excavation Base Material
The base of excavations will be screened in-place for metals per EPA Method 6200 using the XRF instrument as directed by the EPA OSC or designee. If it is determined that post-excavation sampling will be performed, then refer to the Post Excavation SSSP.

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

__ ***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: Field XRF testing will provide screening data with potential sample collection for definitive confirmation at a fixed laboratory.

_X_ ***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: Field instruments and field hazard categorization testing will produce screening data.

14. Special Sampling or Analysis Directions

Soil screening will be performed using a field portable XRF instrument by trained START personnel.

Hazard category testing and field portable Fourier Transform Infrared Red (FTIR) instrumentation and/or Raman spectrometry will be performed by trained START personnel.

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.]

Soil screening methods for toxic metals must meet EPA regional screening levels for industrial soils.

Screen the immediate vicinity of unknown substances with the MultiRAE and combination PID/LEL/oxygen meter. Hazard category testing field methods must be able to determine if the substance contents are characteristic hazardous wastes per the Resource Conservation and Recovery Act (RCRA; 40 CFR Part 261).

16. Sample Collection Information

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

Field Activity Logbook SOP
First Step Hazard Categorization Procedures
Hazardous Waste Site Entry and Egress SOP
Metals in Soil by XRF SOP
Multi RAE Pro Quick Start Guide
Sampling Equipment Decontamination SOP
FirstDefender QSG
TruDefender QSG

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

Soil screening and hazard category testing will be performed in the field to allow for real-time field decisions.

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: Field Screening of Soils and Unknown Substances **Site ID:** 10GL

SAMPLE NUMBER [(1)]		
Digits	**Description**	**Code (Example)**
1,2,3,4	Year and Month Code	1605 (YYMM)
5,6,7,8	Consecutive Sample Number (grouped by SA as appropriate)	0001 (First sample of SA)

SAMPLE NAME / LOCATION ID [(2)] ***(Optional)***		
1,2	Sampling Area	LF – Landfill PR - Perimeter PS - Personal RB – Rinsate Blank SP – Stock Pile TB – Trip Blank
3,4	Consecutive Sample Number	01 – First sample of Sampling Area
5,6	Matrix Code	AR – Air BK - Bulk EM – Excavated Material SB – Subsurface Soil SO - Soil SS – Surface Soil QC – Quality Control WT – Water
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 ≤6oC)	Hold Time (days unless otherwise noted) (to extraction/to analysis)	Field QC
Field Screening	All decision areas	Soil	Targeted	Grab or In-situ	Screening	As needed depending on excavated materials or as directed by the OSC.	TCLP Heavy Metals	6200	EPA Regional Screening Levels for Industrial Soils	10 – 85 mg/kg	In-Situ or 1 gallon Ziploc bag	NA	NA (6 months if bagged)	None
Field Screening	All decision areas	Bulk Substances	Targeted	Grab or In-Situ	Screening	Each unknown substance	HazCat/First-Step tests (presence of water, Water Solubility, reactivity, pH, Oxidizer, Sulfide, Cyanide, Flammability Beilstein, iodine saturation, char test FTIR, RAMAN	HazCat SOP	Ignitable Material: Flashpoint <140 (F) Flammable liquid: Flashpoint <140 (F) Combustible liquid FP >140 (F) and < 200 (F). Corrosive: pH ≤2 or ≥12.5	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	≤ 6° 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	≤ 6° C	28 days to extraction	SW-846 ch. 3
		Aqueous	EPA 218.6 (Drinking Water)	PTFE or HDPE	400 mL	n/a	≤ 6° 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	≤ 6° C (headspace free)	14 days	SW-846 ch. 4
SVOCs	SVOCs / PAHs	Solid	EPA 8270D	Glass Jar	8 ounces	n/a	≤ 6° C	14 days	SW-846 ch. 4
		Aqueous	EPA 8270D	Amber Glass	2 x 1 L	n/a	≤ 6° C	7 days	SW-846 ch. 4
PCBs and Dioxins/Furans	PCBs	Solid	EPA 8082	Glass Jar	8 ounces	n/a	≤ 6° C	none	SW-846 ch. 4
		Aqueous	EPA 8082	Amber Glass	2 x 1 L	n/a	≤ 6° C	none	SW-846 ch. 4
	Dioxins/Furans	Solid	EPA 8280 or 8290	Glass Jar	8 ounces	n/a	≤ 6° C	none	SW-846 ch. 4
		Aqueous	EPA 8280 or 8290	Amber Glass	2 x 1 L	n/a	≤ 6° C	none	SW-846 ch. 4
Pesticides and Herbicides	Chlorinated Pesticides	Solid	EPA 8081	Glass Jar	8 ounces	n/a	≤ 6° C	14 days	SW-846 ch. 4
		Aqueous	EPA 8081	Amber Glass	2 x 1 L	n/a	≤ 6° C	7 days	SW-846 ch. 4
	Chlorinated Herbicides	Solid	EPA 8151	Glass Jar	8 ounces	n/a	≤ 6° C	14 days	SW-846 ch. 4
		Aqueous	EPA 8151	Amber Glass	2 x 1 L	n/a	≤ 6° 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	≤ 6° C (headspace free)	14 days	Method
		Aqueous	TPHs/NWTPH-Gx	Amber Vial with Septa Lid	2 x 40 mL	pH < 2 with HCl	≤ 6° C (headspace free)	7 days unpreserved 14 days preserved	Method
	Diesel-Range Organics	Solid	3510, 3540/3550, 8000	Glass Jar	8 ounces	n/a	≤ 6° C	14 days	Method
		Aqueous	3510, 3540/3550,	Glass Amber	2 x 1 L	pH < 2 with HCl	≤ 6° C	7 days unpreserved 14 days preserved	Method

Analysis Type	Sub Analysis	Matrix	Analytical Method	Container Type	Minimum Volume	Preservative	Temperature/ Storage	Hold Time	Source
			8000						
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	≤ 6º 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	≤ 6º C	7 days unpreserved 28 days preserved	Method
	Cyanide	Solid	SW-846 9013	Glass Jar	5 g	n/a	≤ 6º C	14 days	SW-846 ch. 3
		Aqueous	SW-846 9010C	PTFE or HDPE	500 mL	NaOH to pH > 12	≤ 6º 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	≤ 6º C	28 days	Method
	Total Suspended Solids	Aqueous	EPA 160.2	PTFE or HDPE	100 mL	n/a	≤ 6º C	7 days	Method
	Total Dissolved Solids	Aqueous	EPA 160.1	PTFE or HDPE	100 mL	n/a	≤ 6º C	7 days	Method
	Nitrate/nitrite	Aqueous	EPA 353.2	PTFE or HDPE	1 x 250 mL	H_2SO_4 to pH <2	≤ 6º C	28 days	Method
	Nitrate	Aqueous	SW-846 9210A	PTFE or HDPE	1,000 mL	n/a	≤ 6º C	28 days	SW-846 ch. 3
	Nitrite	Aqueous	SW-846 9216	PTFE or HDPE	25 mL	n/a	≤ 6º C	48 hours	SW-846 ch. 3, Method
	Fluoride	Aqueous	SW-846 9214	PTFE or HDPE	300 mL	n/a	≤ 6º C	28 days	SW-846 ch. 3
	Chloride	Aqueous	SW-846 9250	PTFE or HDPE	50 mL	n/a	≤ 6º C	28 days	SW-846 ch. 3
	Sulfate	Aqueous	SW-846 9035	PTFE or HDPE	50 mL	n/a	≤ 6º 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.	≤ 6º 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.	≤ 6º 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 ≤ 6ºC with no chemical preservative, and they must be at the lab within 48 hours of collection.

C = Celsius
Cr = chromium
EPA = Environmental Protection Agency
g =grams
H_2SO_4 = sulfuric acid
HCL = hydrochloric acid
HDPE = high-density polyethylene
Hg = mercury
HNO_3 = nitric acid
L = liter
mL = milliliter
n/a = not applicable
NaOH = sodium hydroxide
PCBs = polychlorinated biphenyls
PTFE = polytetrafluoroethylene
RCRA = Resource Conservation and Recovery Act
SVOCs = semivolatile organic compounds
SW-846 = EPA Test Methods for Evaluating Solid Waste, Physical/Chemical Methods
TAL = Target Analyte List
TPH = total petroleum hydrocarbons
VOA = Volatile Organic Analysis
VOCs = Volatile Organic Compounds

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% Field Screening	
EPA Region 10 QA Office							
MEL staff							
Other:							