US EPA RECORDS CENTER REGION 5
511695

TETRA TECH EMI REGION 5 START
SITE-SPECIFIC SAMPLING AND ANALYSIS PLAN
SHORT FORM

Project Information

TDD No.: S05-0309-007	TDD Type: Site Assessment	Analytical TDD No.:S05-0309-008
Site Name: Stetzer Road Landfill	City/County: Bucyrus/Crawford	State: Ohio
TTEMI Project Mgr: William Kosco	EPA Project Mgr.: Brad Stimple	

Site Lead: x US EPA ☐ State ☐ PRP:_____ ☐ Other: _____

Site Description: The Stetzer Road Site is located at 4676 Stetzer Road, Bucyrus, Ohio. From 1966 through 1971 the site was used to dispose of rubber products and other possible solid wastes including rubber hoses. There are also reports of 60 drums per week of waste oil being dumped into the landfill. The disposal area that once was in the flood plain is now estimated to be about 20 feet above the flood plain. Ohio EPA referred the site to the U.S. EPA. U.S. EPA will be excavating test pits and conducting sampling activities, the week of December 15, 2003.

Sampling Information

Sampling Summary (START Role, Collection Method, etc.): START will mobilize 2 personnel to the site for approximately 2 consecutive days beginning December 17, 2003 to assist U.S. EPA personnel in the collection, preparation and shipment of samples for laboratory analysis for the purpose of establishing an environmental threat at the site. Inland Waters personnel will be subcontracted by START to utilize an excavator to perform the test trenching to find the buried drums. If possible the drums will be removed from the trenches/pits intact and START will either use a bung wrench or a spike on the excavator to open the drum. Drum thieves will be used for sampling. In the event that the drums are damaged in the trench/pits prior to being removed, START will attempt to sample the drums with a drum thieve prior to removing the drum from the test trench/pit. All samples will be hazcatted (pH, flammability, and solubility) which will help determine the volume of sample necessary, and the laboratory analysis parameters. All sampling will be performed in Level B PPE. STL laboratories will pick up the samples from the TTEMI office on Friday, December 19, 2003.

Date of Sampling Event: 12/17 - 12/18/03 Sample Shipment Date: 12/19/03

Data Deadline: Verbal: Standard (2 weeks) Hardcopy: Standard (4 weeks)

Weather Conditions: Temp (°F): <40 Sky Condition: Wind Speed /Direction:

Type of Sampling: x Site Characterization ☐ Disposal Characterization ☐ Extent of Contamination
☐ Split-Samples ☐ Confirmation ☐ Other: _____

Laboratory X Field Tests: (pH, Flamm, solubility) ☐ Mobile: _____
☐ CLP: _____ X Subcontracted: STL-North Canton

Required Detection Limits: x Method Quantitation Limits ☐ State Cleanup Values ☐ US EPA PRG Values
☐ Drinking Water ☐ Other:

Table 1 (attached) includes the following information:

- Number of samples anticipated to be collected for each matrix (soil, drums, water, etc.)
- Number and size of containers
- Number of Quality Control (QC) samples collected for each matrix
- Field and Laboratory analytical methods used for analysis

Approvals

Signatures:	Date:
US EPA Project Manager:	
TTEMI Project Manager:	
TTEMI QA Review:	

Table 1
Sampling Requirements Worksheet

Matrix	Parameter/ Method	Volume and Container	No. of Investigative Samples	No. of Quality Control (QC) Samples						Total No. of Samples (Investigative + QC)	Total No. of sample containers
				MS	MSD	Field	Equipment	Field	Trip		
non-aqueos liquid waste	U.S. EPA SW 846 8260 (VOCs) Appendix IX	1- 40ml vial	TBD	NA	NA	NA	NA	NA	NA	TBD	
non-aqueos liquid waste	U.S. EPA SW 846 8270 (TCL SVOC), 6010A, 6020, 7000 (TAL metals), 9040 (pH), 1010 (ignitability), 8082 (PCB), 7.2.3.4 (reactive sulfide)	1-16-oz clear or amber container. (Can be split into 8-oz containers)	TBD	NA	NA	NA	NA	NA	NA	TBD	
Aqueous	VOC (8260) Appendix IX	3 40-ml vial	TBD	NA	NA	NA	NA	NA	NA	TBD	
Aqueous	TCL SVOC (8270)	2 -1-liter amber	TBD	NA	NA	NA	NA	NA	NA	TBD	
Aqueous	TAL metals (6010A, 6020, 7000)	1 liter HDPE	TBD	NA	NA	NA	NA	NA	NA	TBD	
Aqueous	pH (9040)	1 40-ml vial,	TBD	NA	NA	NA	NA	NA	NA	TBD	
Aqueous	Ignitability (1010)	4-oz clear	TBD	NA	NA	NA	NA	NA	NA	TBD	
Aqueous	PCB (8020)	2-1-liter amber	TBD	NA	NA	NA	NA	NA	NA	TBD	
Aqueous	Reactive sulfide (7.3.4.2 and 9034)	1 liter HDPE	TBD	NA	NA	NA	NA	NA	NA	TBD	

Notes:

TBD	To be determined. The exact number of samples will be determined in the field during the site assessment
NA	Not Applicable
VOC	Volatile Organic Compounds
SVOC	Semi-Volatile Organic Compoumds
TCL	Target Compound List
TAL	Target Analyte List
PCB	Polychlorinated Biphenyls

ATTACHMENT A

REFERENCES
(EXCERPTS FROM REGION 5 QUALITY ASSURANCE PROJECT PLAN

2.5.1 Field Quality Control Requirements

Field QC samples will be collected and analyzed to assess the quality of data generated from sampling activities. These samples may include trip blanks, field blanks, equipment rinsate blanks, field duplicates, field split samples, MS samples, MSD samples, and matrix duplicate samples. Field QC measurements may include field replicate measurements and checks of instrument responses against QC standards.

Trip blanks are used to assess the potential for sample contamination during handling, shipment, and storage. Trip blanks are sample bottles filled by the analytical laboratory with organic-free water. The trip blanks are sealed and transported to the field; kept with empty sample bottles and then with the investigative samples throughout the field effort; and returned to the laboratory for analysis with the investigative samples. Trip blanks are never opened in the field. One trip blank is usually included within every shipping cooler of liquid samples to be analyzed for VOCs.

Field blanks are samples of the same or similar matrix as the actual investigative samples that are exposed to the sampling environment or equipment at the time of sampling. They are used to assess contamination resulting from ambient conditions. Field blanks are required for liquid matrices. For aqueous samples, field blanks consist of analyte-free water such as degasified organic-free water for VOC analysis, HPLC water for SVOC analysis, and deionized or demineralized water for inorganic analyses. Field blanks are generally not required for solid matrices but may be collected on a case-by-case basis. Typically, one field blank is collected for every 10 or fewer liquid investigative samples.

Equipment rinsate blanks are collected when sampling equipment is used. These blanks assess the cleanliness of sampling equipment and the effectiveness of equipment decontamination. Equipment rinsate blanks are collected by pouring analyte-free water over surfaces of cleaned sampling equipment that contact sample media. Equipment rinsate blanks are collected after sampling equipment has been decontaminated but prior to being reused for sampling. Equipment rinsate blanks are typically collected for each type of decontaminated sampling equipment.

Field duplicate samples are independent samples collected as close as possible in space and time to the original investigative sample. Immediately following collection of the original sample, the field duplicate sample is collected using the same collection method. Care should be taken to collect the field duplicate sample as close to the location of the original sample as possible. Field duplicate samples can measure how sampling and field procedures influence the precision of an environmental measurement. They can also provide information on the heterogeneity of a sampling location. Typically, field duplicates are collected at a frequency of one for every 10 investigative samples of the same matrix type.

Field split samples are usually a set of two or more samples taken from a larger homogenized sample. The larger sample is usually collected from a single sampling location, but can also be a composite sample. Field split samples can be sent to two or more laboratories and are used to provide comparison data between the laboratories. Regulatory agencies involved in a project may request that field split samples be collected to monitor how closely laboratories are meeting project-specific QA objectives.

MS/MSD samples are typically collected for analysis by organic methods, and also often for analysis by inorganic methods. Solid MS/MSDs usually require no extra volume. Each liquid MS/MSD sample is a single sample, usually collected from a single sampling location at triple the normal sample volume. MS and matrix duplicate samples are typically collected for inorganic analysis. The MS sample and matrix duplicate sample are each a single sample, usually collected from a single location at double the normal sample volume. In the laboratory, MS/MSD samples and MS samples are spiked with known amounts of analytes. Matrix duplicate samples are not spiked. Analytical results of MS/MSDs are used to measure the precision and accuracy of the laboratory organic (or inorganic) analytical program and MSs are used to measure the accuracy of the inorganic analytical program. Matrix duplicate samples are used to measure the precision of the inorganic analytical program. Each of these QC samples is typically collected and analyzed at a frequency of one for every 20 investigative samples per matrix.

QC checks for field measurements will consist primarily of initial and continuing calibration checks of field

equipment. When applicable, QC check standards independent of the calibration standards will be used to check equipment performance. For example, when checking the accuracy of field equipment such as pH meters, a standard buffer solution independent of the calibration standards may be used. Precision of field measurements will usually be checked by taking replicate measurements. To the extent possible, Tetra Tech will use EPA-approved field methods. If approved methods are not available, Tetra Tech SOPs will be referenced in the project-specific QAPP. The types and frequencies of field QC measurements and the QC limits for these measurements will be specified in the project-specific QAPP.

TABLE 2-1

TETRA TECH ENVIRONMENTAL SOPs

SOP Number	SOP Title
073	Air Quality Monitoring
101	Anthrax Sampling
026	Borehole Logging
007	Bulk Material Sampling
091	Calculating Discharge Using a Parshall Flume
095	Calculation of Discharge Using a Marsh-McBirney Water Current Meter
090	Calculation of Discharge Using Price Type AA or Pygmy Current Meter
064	Calibration of Air Sampling Pump
065	Colorimetric Indicator Detectors (Dräeger Tubes)
008	Containerized Liquid, Sludge, and Slurry Sampling
061	Field Measurement of Groundwater pH, Specific Conductance, and Temperature Using the YSI Model 3560
012	Field Measurement of pH
013	Field Measurement of Specific Conductance
011	Field Measurement of Water Temperature
088	Field Measurement of Water Turbidity
002	General Equipment Decontamination
015	Groundwater Sample Collection Using Micropurge Technology
010	Groundwater Sampling
052	Measurement of Stream or Pond Stage
021	Monitoring Well Development
020	Monitoring Well Installation
077	Operation and Maintenance of Stevens Type F Recorders
003	Organic Vapor Air Monitoring
019	Packaging and Shipping Samples
024	Recording Notes in Field Logbooks
001	Site Reconnaissance and Characterization
006	Sludge and Sediment Sampling
074	Soil Gas Sampling Methods
005	Soil Sampling
025	Soil Sampling for Volatile Organic Compounds (In Preparation)
014	Static Water Level, Total Well Depth, and Immiscible Layer Measurement
093	Stream Flow Measurement Using a Crest-Stage Gauge
009	Surface Water Sampling
096	Using a Portable 90° V-Notch Weir and Calculating Discharge
054	Using the Geoprobe® System

TABLE 2-2

REQUIRED SAMPLE VOLUMES, CONTAINERS, PRESERVATION TECHNIQUES, AND HOLDING TIMES

Matrix	Parameter	SW-846 Analysis	Volume and Container	Preservation Techniques	Holding Time[a] (Extraction/Analysis)
Aqueous	Volatile organic compounds (VOC)	8015B, 8021B, 8260B	Three 40-mL glass vials with Teflon®-lined septum	To pH ≤ 2 with hydrochloric acid; sodium thiosulfate if residual chlorine; store at 4 °C	NA[b]/14 days
Aqueous	Semivolatile organic compounds (SVOC)	8270C	Two 1,000-mL amber glass bottles with Teflon®-lined caps	Sodium thiosulfate if residual chlorine present; store at 4 °C	7 days/40 days
Aqueous	Pesticides and herbicides	8081A 8151A	Two 1,000-mL amber glass bottles with Teflon®-lined caps	Sodium thiosulfate if residual chlorine present; store at 4 °C	7 days/40 days
Aqueous	Polychlorinated biphenyls (PCB)	8082	Two 1,000-mL amber glass bottles with Teflon®-lined caps	Sodium thiosulfate if residual chlorine present; store at 4 °C	7 days/40 days
Aqueous	Dioxins and furans	8280A, 8290	Two 1,000-mL amber glass bottles with Teflon®-lined cap	Store at 4 °C	30 days/45 days
Aqueous	Metals (except mercury)	6010B, 6020, 7000A series	One 1,000-mL glass or polyethylene bottle	To pH < 2 with nitric acid (HNO_3); store at 4 °C	NA/180 days
Aqueous	Mercury	7470A	One 1,000-mL glass or polyethylene bottle	To pH ≤ 2 with HNO_3; store at 4 °C	NA/28 days
Aqueous	Toxicity characteristic leaching procedure (TCLP) VOCs	1311	One 4-ounce glass bottle	Store at 4 °C	14 days/14 days
Aqueous	TCLP SVOCs	1311	One 1,000-mL glass bottle	Store at 4 °C	14 days/7 days/40 days[c]
Aqueous	TCLP Metals	1311	One 1,000-mL glass bottle	Store at 4 °C	180 days/180 days 28 days/28 days (mercury)

Matrix	Parameter	SW-846 Analysis	Volume and Container	Preservation Techniques	Holding Time[a] (Extraction/Analysis)
Aqueous	Ignitability	1010 or 1020A	One 4-ounce glass jar	Store at 4 °C	NA
Aqueous	Corrosivity	9040B	One 4-ounce glass jar	Store at 4 °C	NA
Aqueous	Reactive sulfide	7.3.4.2 and 9034	One 1-liter plastic bottle	To pH ≥12 with NaOH; zinc acetate; store at 4 °C	7 days
Aqueous	Reactive cyanide	7.3.3.2 and 9014	One 1-liter plastic bottle	To pH ≥12 with NaOH; store at 4 °C	14 days
Aqueous	Total and amenable cyanide	9010B or 9012A	One 1-liter plastic bottle	To pH ≥12 with NaOH; store at 4 °C	14 days
Oil	VOCs	8260B	One 8-ounce glass jar with Teflon®-lined cap	Store at 4 °C	NA/14 days
Oil	SVOCs	8270C	One 8-ounce glass jar with Teflon®-lined cap	Store at 4 °C	14 days/40 days
Oil	Metals	6010B, 6020, 7000A series	One 8-ounce glass jar or polyethylene container	Store at 4 °C	NA/180 days
Oil	Mercury	7471A	One 8-ounce glass jar or polyethylene container	Store at 4 °C	NA/28 days
Oil	TCLP VOCs	1311	One 4-ounce glass bottle	Store at 4 °C	14 days/14 days
Oil	TCLP SVOCs	1311	One 1,000-mL glass bottle	Store at 4 °C	14 days/7 days/40 days[c]
Oil	TCLP Metals	1311	One 1,000-mL glass bottle	Store at 4 °C	180 days/180 days 28 days/28 days (mercury)
Oil	Ignitability	1010 or 1020A	One 4-ounce glass jar	Store at 4 °C	NA
Oil	Reactive sulfide	7.3.4.2 and 9034	One 4-ounce glass jar	Store at 4 °C	NA

Matrix	Parameter	SW-846 Analysis	Volume and Container	Preservation Techniques	Holding Time[a] (Extraction/Analysis)
Oil	Reactive cyanide	7.3.3.2 and 9014	One 4-ounce glass jar	Store at 4 °C	NA
Oil	Corrosivity	9040B	One 4-ounce glass jar	Store at 4 °C	NA
Oil	Total and amenable cyanide	9010B or 9012A	One 4-ounce glass jar	Store at 4 °C	NA
Solid	VOCs	5021, 8260B	2 grams of soil in 22-mL screw-top glass headspace vial	10 mL of matrix modifying solution (phosphoric acid and sodium chloride); store at 4 °C	NA/14 days
Solid	VOCs	5035, 8260B[d]	(1) 5 grams of soil in 40-mL screw-top septum-sealed glass vial or (2) 5 grams of soil in 40-mL screw-top septum-sealed glass vial or (3) 5 grams of soil in EnCore™ sampler	(1) sodium bisulfate solution to pH ≤ 2; store at 4 °C; or (2) 10 mL of methanol; store at 4 °C; or (3) Store at 4 °C with no headspace and preserve with methanol within 48 hours	NA/14 days
Solid	SVOCs	8270C	One 8-ounce glass jar with Teflon®-lined cap	Store at 4 °C	14 days/40 days
Solid	Pesticides, herbicides	8081A, 8151A	One 8-ounce glass jar with Teflon®-lined cap	Store at 4 °C	14 days/40 days
Solid	PCBs	8082	One 8-ounce glass jar with Teflon®-lined cap	Store at 4 °C	14 days/40 days
Solid	Dioxin and furans	8280A, 8290	One 8-ounce glass jar with Teflon®-lined cap	Store at 4 °C	30 days/45 days
Solid	Metals (except mercury)	6010B, 6020, 7000 series	One 8-ounce glass or polyethylene jar	Store at 4 °C	NA/180 days

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Matrix	Parameter	SW-846 Analysis	Volume and Container	Preservation Techniques	Holding Time[a] (Extraction/Analysis)
Solid	Mercury	7471A	One 8-ounce glass or polyethylene jar	Store at 4 °C	NA/28 days
Solid	TCLP VOCs	1311	One 4-ounce glass bottle	Store at 4 °C	14 days/14 days
Solid	TCLP SVOCs	1311	One 1,000-mL glass bottle	Store at 4 °C	14 days/7 days/14 days[c]
Solid	TCLP Metals	1311	One 1,000-mL glass bottle	Store at 4 °C	180 days/180 days 28 days/28 days (mercury)
Solid	Ignitability	1010 or 1020A	One 4-ounce glass jar	Store at 4 °C	NA
Solid	Reactive Sulfide	7.3.4.2 and 9034	One 4-ounce glass jar	Store at 4 °C	NA
Solid	Reactive Cyanide	7.3.3.2 and 9014	One 4-ounce glass jar	Store at 4 °C	NA
Solid	Corrosivity	9045C	One 4-ounce glass jar	Store at 4 °C	NA
Solid	Total and amenable cyanide	9010B or 9012A	One 4-ounce glass jar	Store at 4 °C	NA

Notes:

mL = Milliliter

[a] Holding time is measured from the time of sample collection to the time of sample extraction and analysis.

[b] NA = Not applicable.

[c] SVOC holding times for Method 1311 include time to extraction/leachate/analysis of sample.

[d] Method 5035 includes three different sample collection and preservation options; (1) low concentration samples collected with a preservative; (2) high concentration samples collected with a preservative; and (3) high concentration samples collected without a preservative.