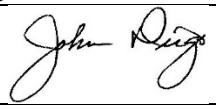
ABBREVIATED SAMPLING AND ANALYSIS PLAN FOR THE FEDERATED METALS-WHITING SITE

980543

TDD#:	**0001/S05-0001-1610-003**	
EPA OSC:	**Andrew Maguire**	
SITE NAME:	**Federated Metals-Whiting Site**	
SITE LOCATION:	**2230 Indianapolis Boulevard, Whiting, Indiana 46394**	
SAMPLING ACTIVITIES:	**Removal Assessment Activities (Residential Sampling)**	
SAMPLING DATES:	**April 2018**	
SAP PREPARER:	**Cordell Renner**	
SIGNATURE/DATE:		**27 March 2018**
QC REVIEWER:	**John Dirgo**	
SIGNATURE/DATE:		**27 March 2018**
EPA RPA APPROVAL SIGNATURE/DATE:		
Document Tracking Number (DTN)	**2333**	

OBJECTIVE OF SAMPLING

The Tetra Tech, Inc. (Tetra Tech) Superfund Technical Assessment and Response Team (START) has been tasked to collect soil samples to establish the extent of lead and arsenic contamination in the landfill area of Federated Metals-Whiting Site (Site). The site is located at 2230 Indianapolis Boulevard, Whiting, Lake County, Indiana (Figures 1 and 2). The property is a rectangular-shaped parcel (parcel ID: 45-03-07-403-045.000-023) that is approximately 23 acres in size. The property is located in a residential and commercial area. The parcel is bounded to the north by Lake George Trail, vacant land and residences; to the east by a commercial building and New York Avenue; to the south by vacant land and Calumet College of St. Joseph; and to the west by vacant land and Lake George. Lake Michigan is located approximately 0.7 miles northeast of the parcel.

The Federated Metals facility has been subject to Resource Conservation and Recovery Act (RCRA) Corrective Action/Indiana State RCRA closure project that is nearly complete. This work included demolition of an on-site baghouse; consolidation of debris, on-site hazardous wastes, and slag dredged from Lake George into an existing on-site landfill; and construction of a phyto-cap on the landfill.

The objective of this sampling event is to further investigate the impact of lead contamination in up to 20 residences in the area north/northwest of the Federated Metals Facility; addresses of the properties to be

determined in field. The U.S. Environmental Protection Agency (EPA) and START will collect a subset of samples collocated with the Indiana Department of Environmental Management (IDEM). The prevailing wind direction has been determined to be to the northeast. The sampling area will be bounded to the north by 119th Street; to the east by Oil City Stadium Park; to the south by 125th Street; and to the west by Lake Avenue. Soil sampling activities will take place in public and easily accessible areas (see Figure 3 for the proposed sampling area).

SAMPLING METHODS

Tetra Tech START will collect soil samples, which will be analyzed off-site for lead and arsenic content using an X-Ray Fluorescence (XRF) analyzer. These samples will then be held and surface soil (0-6 inches below ground surface [bgs]) samples will be sent to CT laboratories in Baraboo, WI. One in ten subsurface soil samples, as determined by the EPA Field Environmental Decision Support (FIELDS) Team, will be submitted to CT Laboratories for analysis to determine a correlation between XRF results and laboratory results. Table 1 presents a summary of the proposed soil samples.

During this assessment, Tetra Tech START will conduct the following sampling activities:

- Complete an underground utility clearance prior to subsurface investigation.
- Collect 5-point composite soil samples, in accordance with standard operating procedure (SOP) No. 005, “Soil Sampling,” from four depth intervals (0-6”, 6-12”, 12-18”, and 18-24” bgs) at each property. Samples will be analyzed off-site for lead and arsenic content using an XRF analyzer. Larger properties may be divided into sections. The number of samples that START will collect for XRF analysis will be determined by the number of properties to which EPA is able to gain access.
- Submit all surface soil and one in ten subsurface samples, as determined by EPA FIELDS Team, to CT laboratories for analysis of lead. Samples may also be submitted for metal speciation of lead-bearing minerals through particle characterization.
- IDEM will collect a subset of surface soil samples. IDEM will collect a grab sample from one point of the 5-point composite at each property. IDEM will determine this point based on their XRF readings in the field.
- Photo document sampling activities and sampling locations. The exact locations of the samples will be recorded with a global positioning system (GPS) during sampling activities.
- Package samples in accordance with SOP No. 019, “Packaging and Shipping Samples,” and deliver the samples to CT Laboratories for analysis of lead.

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SOIL SAMPLING

Tetra Tech START will collect soil samples in accordance with Tetra Tech standard operating procedure (SOP) No. 005, "Soil Sampling."

Tetra Tech START will collect 5-point composite samples from four depth intervals (0-6", 6-12", 12-18", and 18-24" bgs) at each property using a hand auger or shovel (depending on subsurface composition) as recommended in the Superfund Lead-Contaminated Residential Sites Handbook. More than one 5-point composite sample may be collected depending on the size of the property and stored to be later analyzed for lead and arsenic content using an XRF analyzer. Screening will be conducted in accordance Tetra Tech site specific SOP-029, "Field Portable XRF Analysis of Soil Samples." Soil from each depth interval will be placed in a plastic bag and thoroughly homogenized. The bagged soil sample will be checked for moisture either visually or by use of a moisture meter. If no visible water is present in the soil, or moisture is below 20 percent as measured by a moisture meter, the sample will be screened for lead and arsenic using a hand held XRF unit. If water is present, the sample will be dried using a toaster oven at low heat until the water dissipates. Because of the potential heterogeneity of metals in soils, Tetra Tech will use the XRF analyzer to screen the soil sample five times per bag (at five different areas of the sample in the bag). Averages of the five values will be designated as the sample lead and arsenic concentrations. The sampling device will be decontaminated with an Alconox detergent wash and rinsed with distilled water prior to sampling at each location. The samples will be identified according to location and depth of sample collection.

Soil composition at each soil screening location will be documented in the field notebook. The following information will be recorded for each soil sampling location: location number, date completed, time, field personnel's initials, and location sketch with a north directional arrow (exact locations will be recorded with a GPS unit for each component of the 5-point composite sample). The lithologic description will also be recorded for every location and will include color, texture, and lithology. If slag or stamp sands are encountered, this information will be clearly identified in the field notebook.

The total number of composite samples to be collected will be determined by the number of properties for which EPA is able to gain access. Every surface soil sample and one of every 10 sub-surface samples collected will be analyzed for lead at CT Laboratories. Samples may also be submitted for metal speciation, to Microvision Laboratories in Chemlford, MA of lead-bearing minerals through particle characterization

at EPA's discretion. The samples which will be sent to the laboratory will be chosen by EPA FIELDS Team based on the concentrations observed in the samples during XRF analysis.

SAMPLE HANDLING

Sampling locations will be noted in the site logbook in accordance with Tetra Tech SOP No. 024, "Recording Notes in Field Logbooks." The collected samples will be labeled, packaged, and delivered as needed in accordance with Tetra Tech SOP No. 019, "Packaging and Shipping Samples".

Table 2 provides a list of the analytical methods, preservation, holding times, and required sample containers for the samples that will be analyzed at an off-site laboratory.

QUALITY ASSURANCE/QUALITY CONTROL

Field QA/QC measures include the collection of one duplicate sample per 10 soil samples. Tetra Tech will collect one MS/MSD samples per each 20 samples. Tetra Tech will also collect one equipment rinsate blank per 10 properties sampled. The Tetra Tech project manager, Cordell Renner, will be responsible for ensuring that sample quality and integrity are maintained and that sample labeling and documentation procedures are in accordance with the START Quality Assurance Project Plan (QAPP) and this site-specific abbreviated SAP. Upon receipt of the results, a Tetra Tech START chemist will review the laboratory data package(s) for completeness and will conduct Stage 2A data validation in accordance with EPA National Functional Guidelines for Inorganic Superfund Methods Data Review.

DECONTAMINATION

Dedicated sampling equipment and personal protective equipment (PPE) will be double-bagged and disposed of with all other used PPE waste produced at the site. Non-dedicated sampling equipment, such as the hand auger or shovel, will undergo a gross decontamination using a brush to remove any soil that adheres in between depth intervals. Non-dedicated sampling equipment, such as the hand auger or shovel, will undergo a gross decontamination with Alconox and distilled water followed by a double rinse with distilled water between properties, in accordance with Tetra Tech SOP No. 002, "General Equipment Decontamination." All investigation-derived waste (IDW) will be double-bagged and disposed of as dry industrial waste by Tetra Tech.

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TABLE 1
SAMPLING REQUIREMENTS WORKSHEET

Matrix	Parameter	Number of Investigative Samples	Number of Quality Control (QC) Samples[a]				Number of Investigative and QC Samples[b]
			Field Duplicate	MS/MSD	Equipment Blank	Trip Blank	
Soil	Lead	TBD	1 in 10	1 in 20	1 in 10 properties	0	TBD
Soil	Elemental Particle Characterization	TBD	1 in 10	N/A	N/A	0	TBD

Notes:

[a] See Tetra Tech QAPP Worksheet #20 for QC sample requirements.
[b] Refer to Table 2 for required sample volumes, containers, preservation techniques, and holding times.
MS Matrix Spike
MSD Matrix Spike Duplicate
QC Quality Control

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TABLE 2
SAMPLE VOLUMES, CONTAINERS, PRESERVATION TECHNIQUES, AND HOLDING TIMES

Matrix	Parameter	Analytical Method[a]	Volumes and Containers	Preservation	Holding Time[b]
Soil	Lead	SW-846 6010C	One 4-ounce glass jar with Teflon®-lined cap	NA	6 Months
Soil	Elemental Particle Characterization	SEM & EDS	TBD	NA	TBD

Note:

[a] See Worksheet 23 for analytical methods
[b] Holding time is measured from the time of sample collection to the time of sample extraction and analysis
NA Not applicable
EDS Energy dispersive X-ray spectroscopy
SEM Scanning electron microscopy

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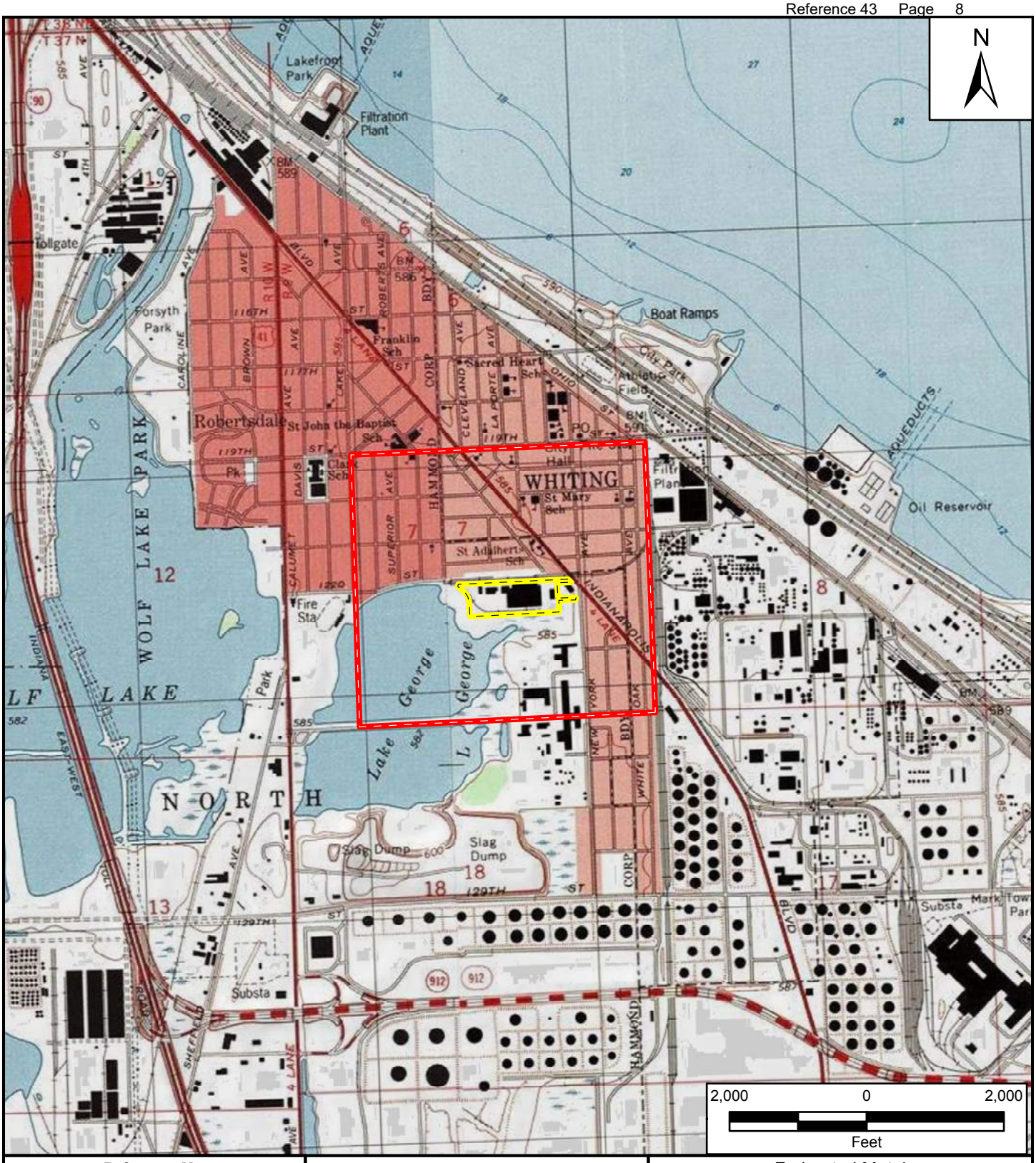
FIGURES



Reference Map

Legend

- Proposed Sampling Area
- Approximate Site Boundary

Source: USGS 7.5-Minute Topographic Quadrangle Map: Whiting, IN 1988.

Federated Metals
2230 Indianapolis Boulevard
Whting, Lake County, Indiana

Figure 1
Site Location Map

TETRA TECH

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Date Saved: 11/9/2016 EPA Contract No.: EP-S5-13-01 TDD No.: S05-0001-1610-003

Coordinate System: GCS WGS 1984
Datum: WGS 1984
Units: Degree

Reference Map

Legend

Approximate Site Boundary

Source: Bing Maps Hybrid (2013).

Federated Metals
2230 Indianapolis Boulevard
Whting, Lake County, Indiana

Figure 2
Site Layout Map

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Coordinate System: GCS WGS 1984
Datum: WGS 1984
Units: Degree

Reference Map

Legend

Proposed Sampling Area

Approximate Site Boundary

Source: Bing Maps Hybrid (2013).

Federated Metals
2230 Indianapolis Boulevard
Whting, Lake County, Indiana

Figure 3
Proposed Sampling Area Map

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