



Erik Armistead
Project Manager

April 9, 2009

Mr. Rich Fetzer
On-Scene Coordinator
U.S. Environmental Protection Agency Region 3
1650 Arch Street
Philadelphia, Pennsylvania 19103

**Subject: Sampling and Analysis Plan for Phase II Soil Sampling
at the Former Mohr Orchard Site
EPA Contract No. EP-S3-05-02
TDD No. E33-020-08-07-025
Document Tracking No. 0677**

Dear Mr. Fetzer:

Tetra Tech EM Inc. (Tetra Tech) is submitting the sampling and analysis plan (SAP) for the Former Mohr Orchard site. The SAP summarizes the planned activities for the surface and subsurface soil sampling at the site. If you have any questions regarding this report, please call me at (267) 446-2837.

Sincerely,

A handwritten signature in cursive script, reading 'Erik Armistead'.

Erik Armistead
Project Manager

Enclosure

cc: TDD File

SAMPLING AND ANALYSIS PLAN
FOR PHASE II SOIL SAMPLING
AT THE FORMER MOHR ORCHARD SITE
NORTH WHITEHALL TOWNSHIP, LEHIGH COUNTY, PENNSYLVANIA

Prepared for

U.S. Environmental Protection Agency Region 3
Hazardous Site Cleanup Division
1650 Arch Street
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EPA Contract No. EP-S3-05-02

Technical Direction Document No. E33-020-08-07-025
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April 9, 2009

Prepared by



Erik Armistead
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Approved by



Donna Davies
START Backup Point of Contact

CONTENTS

<u>Section</u>	<u>Page</u>
1.0 INTRODUCTION	1
2.0 BACKGROUND	1
2.1 SITE LOCATION.....	1
2.2 SITE DESCRIPTION	3
2.3 PREVIOUS SITE INVESTIGATIONS	3
3.0 OBJECTIVE AND DATA USE	5
4.0 PROPOSED ACTIVITIES	6
4.1 SCOPE OF WORK.....	6
4.2 KEY PROJECT PERSONNEL	6
4.3 SAMPLE COLLECTION.....	8
4.4 SAMPLE HANDLING AND PREPERATION	12
4.5 EQUIPMENT DECONTAMINATION	13
5.0 ANALYTICAL PARAMETERS AND METHODS	13
6.0 QUALITY ASSURANCE AND QUALITY CONTROL PROCEDURES	14
6.1 RESPONSIBILITY.....	14
6.2 FIELD QUALITY CONTROL.....	14
6.3 X-RAY FLUORESCENCE QUALITY CONTROL	15
6.4 LABORATORY QUALITY CONTROL.....	15
6.5 DATA VALIDATION.....	15
6.6 DATA EVALUATION AND MANAGEMENT	16
6.6.1 Data Evaluation.....	16
6.6.2 Data Representativeness and Completeness	16
6.6.3 Data Management	16
7.0 DELIVERABLES.....	17
8.0 SCHEDULE.....	17
REFERENCES.....	18

FIGURES

<u>Figure</u>		<u>Page</u>
1	SITE LOCATION MAP	2
2	AERIAL PHOTOGRAPH.....	4
3	PROPOSED RESIDENTIAL SAMPLING AREAS	10

TABLES

<u>Table</u>		<u>Page</u>
1	PROPOSED TETRA TECH PROJECT PERSONNEL.....	7
2	SOIL SAMPLING SUMMARY FOR STATION 9999	11
3	ANALYTICAL PARAMETERS	14
4	PROJECT SCHEDULE	17

1.0 INTRODUCTION

Under Eastern Area Superfund Technical Assessment and Response Team (START) Contract No. EP-S3-05-02, Technical Direction Document (TDD) No. E33-020-08-07-025, the U.S. Environmental Protection Agency (EPA) Region 3 tasked Tetra Tech EM Inc. (Tetra Tech) to conduct a Phase II sampling assessment at the Former Mohr Orchard site in North Whitehall Township, Lehigh County, Pennsylvania. The objective of this assessment is to determine whether elevated lead and arsenic concentrations are present in soils at individual residential properties at concentrations that could pose a threat to public health and/or the environment. Soil samples will be collected from varying depths between 0 to 12 inches below ground surface (bgs) and analyzed in the field through the use of x-ray fluorescence (XRF) technology. For quality assurance purposes, a minimum of 5 percent of soil samples will be shipped to an approved laboratory for confirmatory lead and arsenic analysis.

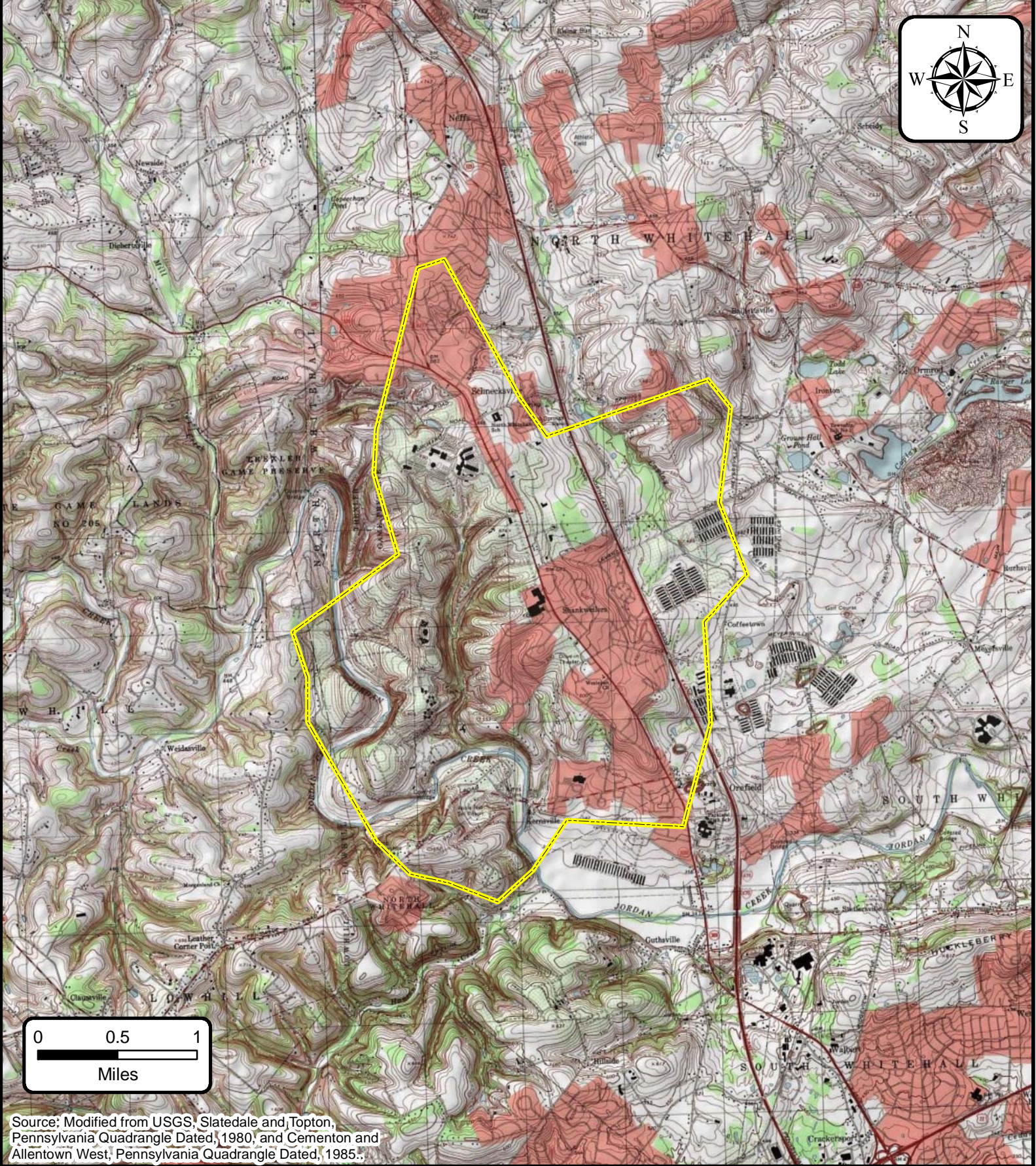
This sampling and analysis plan (SAP) presents site background information in Section 2.0, outlines project objectives and data use in Section 3.0, describes proposed field activities in Section 4.0, summarizes analytical parameters and methods in Section 5.0, specifies quality assurance and quality control (QA/QC) procedures in Section 6.0, presents proposed deliverables in Section 7.0, and outlines the proposed project schedule in Section 8.0. All references cited in this SAP are listed after the text. Tetra Tech developed this SAP in accordance with the provisions of the Quality Assurance Project Plan (QAPP) for START (Tetra Tech 2006).

2.0 BACKGROUND

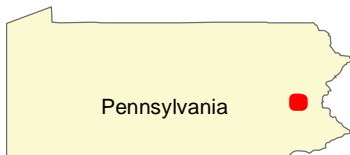
This section describes the site location, presents a description of the site, and summarizes previous site investigation activities.

2.1 SITE LOCATION

The site is primarily located within North Whitehall Township with a small portion extending into South Whitehall Township, in Lehigh County, Pennsylvania, as shown in Figure 1.



Approximate Site Location = 



Legend

 Site Boundary

Former Mohr Orchard Site
North Whitehall Township, Lehigh County, Pennsylvania

Figure 1
Site Location Map

TDD No. E33-020-08-07-025
 EPA Contract No. EP-S3-05-02

Map created on July 25, 2008
 by A. Dye, Tetra Tech EM Inc.



The geographic coordinates of the approximate center of the site are 40.6464° north latitude and 75.6014° west longitude. Numerous small unnamed ponds are located within the immediate vicinity of the site. Jordan Creek and Mill Creek are located approximately 0.25 mile west and northwest of the site, respectively.

2.2 SITE DESCRIPTION

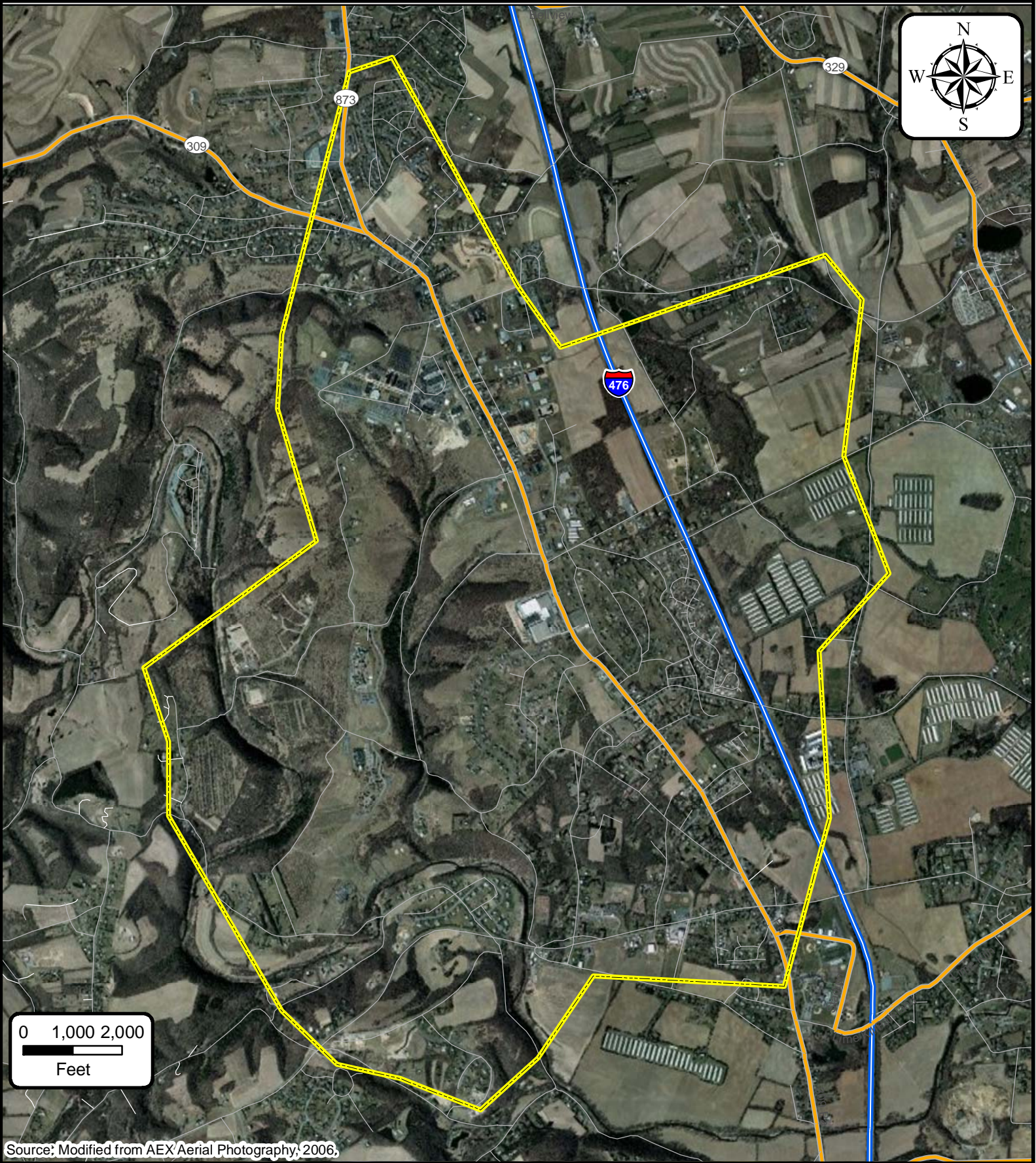
The Former Mohr Orchard site covers approximately 4,416.5 acres and consists of farmland, woodland, residential, commercial, and industrial properties. Historically, large portions of the site were utilized as orchard. State Route 309 runs from north to south through the center of the site, through Schnecksville to the north and Orefield to the south, as shown on Figure 2. Interstate 476 also runs from north to south through the site. The nearest access point to Interstate 476 is located approximately 5 miles to the south of the site.

This sampling assessment will focus on specific residences on site. Residential areas of the site that are part of this assessment were identified during prior sampling activities.

2.3 PREVIOUS SITE INVESTIGATIONS

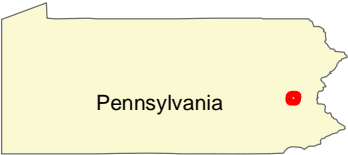
In August 2008, under the current TDD, EPA tasked Tetra Tech to collect 12 background soil and five groundwater samples from locations considered outside the former orchard areas. Orchard areas were identified based on historical aerial photography and through assistance of North Whitehall Township officials. These background samples were collected as grab samples from residential or public-use areas made accessible by local officials. Arsenic concentrations in these background samples ranged from 3.5 to 29.9 parts per million (ppm), with a mean concentration of approximately 9.9 ppm. Lead concentrations ranged from 20.6 to 218 ppm, with a mean concentration of approximately 58 ppm.

Between September and December 2008, EPA tasked Tetra Tech to perform a soil sampling assessment of all residential and public-use areas within the Former Mohr Orchard site. An adaptive cluster sampling strategy was used for the initial surface soil assessment. The site was




Source: Modified from AEX Aerial Photography, 2006.

Approximate Site Location = 



Legend

 Site Boundary

Former Mohr Orchard Site
North Whitehall Township, Lehigh County, Pennsylvania

Figure 2
Aerial Photograph

TDD No. E33-020-08-07-025
EPA Contract No. EP-S3-05-02

Map created on July 25, 2008
by A. Dye, Tetra Tech EM Inc.



divided into a sampling grid with 200 by 200-foot cells, 25 percent of which were selected for initial sampling. A 10-point composite sample was collected from within each cell and analyzed on site using XRF technology. Additional sampling locations were chosen to the north, south, east, and west of any cells that showed arsenic concentrations greater than 40 ppm. A limited number of samples were collected from the selected sampling locations because of access restrictions.

Occupied residential areas with an average arsenic concentration greater than 40 ppm or an average lead concentration greater than 400 ppm were selected for additional assessment. During the initial assessment, all soil samples were collected from a depth of 0 to 3 inches bgs. Arsenic concentrations ranged from non detect to 149 ppm in composite surface soil samples collected and analyzed at the site between September and December 2008. The average concentration of arsenic in the surface soil samples was approximately 50 ppm. Lead concentrations for composite surface samples ranged from 35 to 1,951 ppm in surface soil samples. The average concentration of lead in the surface soil samples was approximately 349 ppm. Site specific action levels are currently in development for the Former Mohr Orchard site.

3.0 OBJECTIVE AND DATA USE

The objective of the Phase II sampling assessment is to determine whether elevated lead and/or arsenic concentrations in soils on residential properties are present in concentrations that could pose a threat to public health and/or the environment. To accomplish this, Tetra Tech proposes to collect surface and subsurface soil samples in areas identified for further assessment during previous assessment activities. EPA will consider analytical data, site conditions (including accessibility), and current engineering controls to contain contamination when evaluating whether a further removal action is necessary.

Identifying properties which have elevated lead or arsenic concentrations in soils greater than background will aid in determining whether soils in the area are at levels of concern. However, this identification is only a preliminary step in determining whether former orchard activities in the site pose a threat to public health and/or the environment. The Agency for Toxic Substances and Disease Registry (ATSDR) will assist in evaluation of the overall data package for

determining whether site conditions due to arsenic and lead contamination from former orchard activities poses a risk to public health or are below levels of concern.

4.0 PROPOSED ACTIVITIES

This section describes the scope of work; Tetra Tech project personnel; proposed sampling activities; and equipment decontamination procedures for the project.

4.1 SCOPE OF WORK

As part of the Phase II soil sampling assessment for the Former Mohr Orchard site, Tetra Tech will perform the following tasks:

- Identify sampling locations in the field based on consultation with property owners, strategies identified in this sampling plan, and field conditions during the time of sampling
- Collect grab and composite soil samples from each property
- Record each sampling location using a Trimble global positioning system and/or site sketch
- Prepare soil samples and conduct ex-situ XRF analysis of soil samples by EPA Method 6200
- Ship a minimum of 5 percent of soil samples to an EPA Contract Laboratory Program (CLP) laboratory for lead and arsenic analysis to confirm the accuracy of results obtained on site by XRF technology
- Prepare and submit a trip report summarizing site activities and analytical data gathered during the Phase II soil sampling assessment

4.2 KEY PROJECT PERSONNEL

The Tetra Tech project manager for the TDD is Mr. Erik Armistead. As project manager, Mr. Armistead is responsible and accountable for all aspects of the project scope of work, including achieving the technical, financial, and scheduling objectives for the project. Mr. Armistead will

communicate directly with the EPA Work Assignment Manager (WAM) for this project, Mr. Richard Fetzer.

Other Tetra Tech personnel proposed for the project are presented in Table 1. Technical or field support personnel used for the project may vary depending on the specific needs of the project, as well as on-site conditions and availability of staff.

TABLE 1
PROPOSED TETRA TECH PROJECT PERSONNEL

Project Function	Name	Role
Project Manager	Erik Armistead	The project manager is responsible for implementing all activities identified in the TDD; responsible for developing and implementing the site health and safety plan; has authority to commit resources necessary to complete the work; prepares deliverables required by the TDD; communicates directly with the EPA WAM, the project team, and any other personnel needed to complete the project
Field Support Personnel	To be determined (3)	The field support personnel perform necessary sampling or monitoring, as well as other tasks defined in the TDD or assigned by the EPA WAM or the Tetra Tech project manager; communicate directly with the Tetra Tech project manager and, when appropriate, the EPA WAM
Health and Safety Officer	Chris Draper	The health and safety officer oversees and supports development of the site health and safety plan; communicates directly with the Tetra Tech project manager to ensure that all corporate health and safety protocols applicable to the site are being followed
Chemist	Josh Cope	The chemist coordinates with the Tetra Tech project manager regarding the analytical requirements for the project; solicits and procures necessary laboratory services; reviews and validates analytical data, if necessary; communicates directly with the Tetra Tech project manager, field support personnel, EPA WAM, and START program manager as necessary
Graphics and Mapping Specialist	Andrew Dye	The graphics and mapping specialist generates maps and other figures for project deliverables or presentations; assists the Tetra Tech project manager or other personnel when global positioning system activities are required. Prepares Scribe database.
Financial Manager	Bob Rynkar	The financial manager works with the Tetra Tech project manager in planning related to the TDD budget and completion date; enters financial information on the project into the Tetra Tech management information system; prepares regular and special reports to assist the Tetra Tech project manager in managing the project.
Point of Contact	Sara Legard	The point of contact assists the Tetra Tech project manager as necessary to implement the project; commits or helps obtain all necessary company resources to meet the objectives of the TDD; provides document quality control reviews; addresses and helps resolve project management issues with the Tetra Tech project manager

TABLE 1
PROPOSED TETRA TECH PROJECT PERSONNEL

Project Function	Name	Role
Quality Assurance Manager	Andy Mazzeo	The quality assurance manager is responsible for all quality assurance/quality control aspects of the START contract

Notes:

EPA = U.S. Environmental Protection Agency

START = Superfund Technical Assessment and Response Team

WAM = Work Assignment Manager

TDD = Technical Direction Document

Tetra Tech = Tetra Tech EM Inc.

4.3 SAMPLE COLLECTION

This section describes the proposed soil sampling activities and summarizes the identifiers, quantities, and locations for each sample to be collected as part of this assessment. Tetra Tech will use a unique identifier for each sample collected. Samples will be designated in the following format:

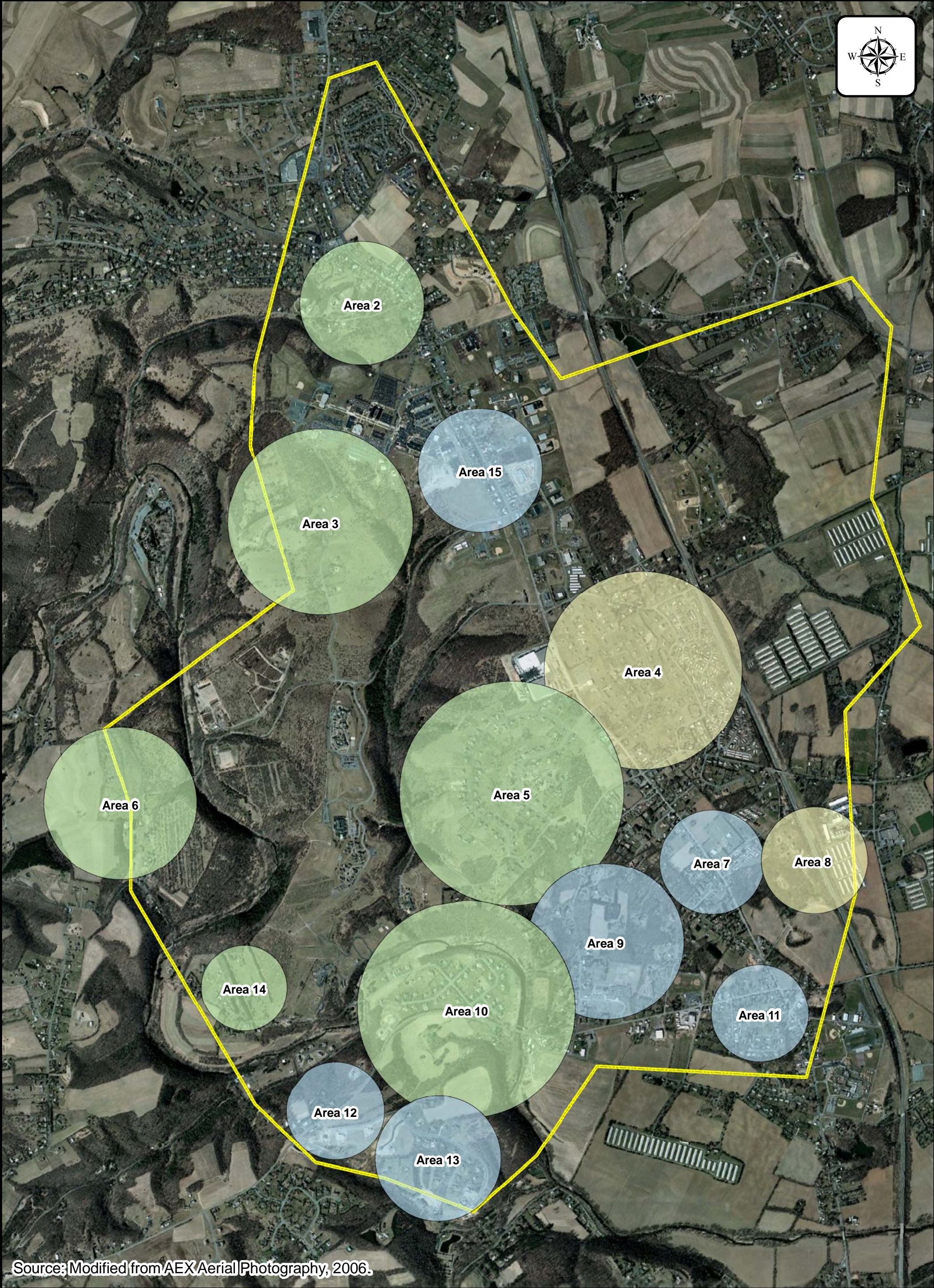
- FMO09-SS-XXXX-FY (for front yard composite surface soil samples)
- FMO09-SB-XXXX-FY-## (for front yard grab subsurface soil samples)
- FMO09-SS-XXXX-BY (for back yard composite surface soil samples)
- FMO09-SB-XXXX-BY-## (for back yard grab subsurface soil samples)
- FMO09-SS-XXXX-GA (for garden area grab surface soil samples)
- FMO09-SS-XXXX-TPA (for play area grab surface soil samples)

The “FMO09” portion of the sample designation refers to the Former Mohr Orchard site name and the 2009 sampling event; “SS” represents surface soil sample; “SB” represents subsurface soil sample; “XXXX” represents the station ID for each property; “FY” represents front yard; “BY” represents back yard; “GA” represents garden area; “TPA” represents toddler play area; and “##” represents the numeric value for that location (01, 02, 03, etc).


During this assessment, sampling is proposed for (1) all residential properties with dwellings in areas identified for further assessment during previous soil sampling activities, (2) residential properties with dwellings within areas that were not sampled during prior sampling events, (3)

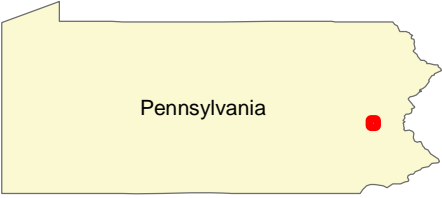
residences whose property owners granted access for sampling during previous events, but were not sampled because of denied access to other properties within that sampling grid, and (4) a randomly selected group of 25 percent of all residential properties which historically bordered the active orchard. Sampling will not be offered to properties where access has been previously denied. Residential properties will be sent access agreements prior to sample collection within the areas identified in Figure 3. The randomly selected group of residential properties which historically bordered the active orchard will also be sent access agreements prior to sample collection, however this group is not identified in Figure 3. Upon receipt of a signed access agreement from each property, sampling activities will be scheduled per property and conducted in accordance with this SAP.

Composite surface soil samples will be collected at a depth of 0 to 3 inches bgs from five discrete points in both the front and back yards of the property. Each of the discrete points will be located within 40 feet of the dwelling and screened in-situ prior to sample collection. One of the discrete locations in both the front and back yard will be selected randomly for a grab subsurface soil sample from 6 to 12 inches bgs. One grab surface soil sample will be collected from a designated garden area, if present on the property, with the highest exposure risk at a depth of 0 to 6 inches bgs. One grab surface soil sample will be collected from a designated toddler playing area, if present on the property, at a depth of 0 to 3 inches bgs. Table 2 lists the proposed sample identifiers, matrices, types, and descriptions for samples to be collected from each property. A fictitious station number of “9999” is used for this sampling summary table.







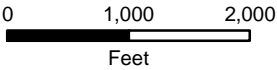
Source: Modified from AEX Aerial Photography, 2006.

Approximate Site Location = 



Legend

-  Areas identified for further assessment
-  Areas that were not sampled during prior sampling events
-  Property owners granted access for sampling during previous events, but were not sampled because of denied access to other properties within that sampling grid.
-  Site Boundary



**Former Mohr Orchard Site
North Whitehall Township, Lehigh County, Pennsylvania**

**Figure 3
Proposed Residential Sampling Areas**

TDD No. E33-020-08-07-025
EPA Contract No. EP-S3-05-02

Map created on March 16,
2009 by A. Dye, Tetra Tech EM Inc.



TABLE 2
SOIL SAMPLING SUMMARY FOR STATION 9999

Sample Identifier	Matrix	Type	Depth (inches)	Sampling Location Description
FMO09-SS-9999-FY	SS	Composite	0-3	Front yard surface soil sample
FMO09-SS-9999-BY	SS	Composite	0-3	Back yard surface soil sample
FMO09-DS-9999-FY-01*	SB	Grab	6-12	Front yard subsurface soil sample
FMO09-DS-9999-BY-04*	SB	Grab	6-12	Back yard subsurface soil sample
FMO09-SS-9999-GA	SS	Grab	0-6	Garden area surface soil sample
FMO09-SS-9999-TPA	SS	Grab	0-3	Toddler play area surface soil sample

Notes:

* - Randomly selected soil locations and could be at any of the five locations in each yard

FMO - Former Mohr Orchard

SB - Subsurface Soil

SS - Surface Soil

Prior to sample collection, Tetra Tech will prepare the ground surface by removing any vegetation or debris with a pickaxe or trowel and, if necessary, loosen the soil. Five sample locations will compose one composite sample. Each sample location that makes up a composite sample will be screened with in-situ XRF analysis for 60 seconds prior to sampling. Surface soil samples will be biased towards high-traffic areas and collected from a depth of 0 to 3 inches bgs, with the exception of the garden area sample from a depth of 0 to 6 inches bgs, using clean, dedicated, and disposable plastic scoops and nitrile sample gloves. The soil will be placed into a dedicated aluminum pan and homogenized before the sample is transferred into a labeled, sealable plastic bag. The location of each soil sample will be documented on a sketch of the station.

One subsurface sample will be collected from one of the five surface sampling locations in each of the front and back yard areas. This location will be selected from each of five numbered surface sample locations using the random number generator within Microsoft® Office Excel 2003. Subsurface soil samples will be collected with a hand auger at a depth of 6 to 12 inches bgs. The soil aliquots from each sampling location will be collected and placed into a labeled, sealable plastic bag. The location of each soil sample will be documented on a sketch of the station.

Soil samples will be collected in accordance with Tetra Tech Standard Operating Procedure (SOP) No. 005, “Soil Sampling” (Tetra Tech 1999c).

All soil samples will be analyzed for lead and arsenic by ex-situ XRF analysis, EPA Method 6200, “Field Portable XRF Spectrometry for the Determination of Elemental Concentrations in Soil and Sediment” (EPA 1998). At a minimum, 5 percent of the surface or subsurface soil samples will be sent to an EPA CLP laboratory for confirmation of the lead and arsenic results acquired by XRF analysis in the field.

4.4 SAMPLE HANDLING AND PREPERATION

Sample handling, packaging, and shipment procedures will be in accordance with Tetra Tech SOP No. 019, “Packaging and Shipping Samples” (Tetra Tech 2000). Samples to be shipped to a CLP laboratory will be recorded on a Forms2Lite chain-of-custody and traffic report.

The Tetra Tech project manager will assure that sample quality and integrity are maintained in accordance with Tetra Tech’s “QAPP for START” (Tetra Tech 2006).

Soil samples will be prepared for XRF analysis in accordance with EPA Method 6200 (EPA 1998). A 20- to 50-gram aliquot of each sample will be dried in an oven at less than 150° Celsius for at least 2 hours, or until dry. Each aliquot will then be sieved through a number 60-mesh sieve. The dried and sieved aliquots will then be transferred to labeled, dedicated XRF sampling cups for analysis. Each dedicated XRF sampling cup will be labeled with the corresponding site-specific sampling location identifier. All XRF analytical activities will be logged in the site logbook. XRF results for samples analyzed in the field will also be entered into the site logbook.

Regulations for packaging, marking, labeling, and shipping hazardous materials and wastes are promulgated by the U.S. Department of Transportation. Air carriers that transport hazardous materials (in particular, Federal Express) require compliance with the current International Air Transport Association (IATA) regulations, which apply to shipment and transport of hazardous materials by air carrier. Tetra Tech will follow all applicable IATA regulations.

4.5 EQUIPMENT DECONTAMINATION

Dedicated sampling equipment and personal protective equipment will be double-bagged and disposed of as dry, industrial waste. Non-dedicated sampling equipment will undergo a gross decontamination with Alconox and nitric acid, followed by a double rinse with distilled water, in accordance with Tetra Tech SOP No. 002, "General Equipment Decontamination" (Tetra Tech 1999b). A pick axe, trowel, hand auger, and sieves will be used during sample collection and analysis. These items will be decontaminated before each use. All investigation-derived waste will be double-bagged and disposed of as dry, industrial waste.

5.0 ANALYTICAL PARAMETERS AND METHODS

Tetra Tech will analyze soil samples in the field for lead and arsenic using XRF technology. Soil samples will be analyzed in accordance with EPA Method 6200 (EPA 1998). Detection limits will be determined during field analysis. As prescribed in EPA Method 6200, a minimum of 5 percent of the soil samples analyzed by XRF instrumentation will be sent to a CLP laboratory for analysis of total lead and arsenic following CLP Statement of Work (SOW) ILM05.4 (EPA 2007). Specific analytical methods and detection limits will be assigned by EPA's Office of Analytical Service and Quality Assurance (OASQA). Tetra Tech has requested a detection limit of 5 milligram per kilogram (mg/kg) for both arsenic and lead. Table 3 summarizes analytical parameters, including matrices, analysis, analytical methods, containers and preservatives, detection limits, and maximum holding times for soil samples proposed for collection during this sampling event.

TABLE 3
ANALYTICAL PARAMETERS

Matrix	Analysis	Analytical Method	Containers and Preservatives	Detection Limit	Holding Time
Soil (SS/SB)	Arsenic/lead and instrument-specific metals	EPA 6200	XRF sampling cup	Instrument-specific	180 days
Soil (SS/SB)	Arsenic/lead	CLP SOW ILM05.4 ICP/AES	XRF sampling cup; ice to keep samples at 4° Celsius or less	5 mg/kg	180 days

Notes:

AES = Atomic emission spectrometry
 CLP = Contract Laboratory Program
 EPA = U.S. Environmental Protection Agency
 ICP = Inductively coupled plasma
 ILM = Inorganic low to medium
 mg/kg = Milligrams per kilogram
 SB = Subsurface soil sample
 SS = Surface soil sample
 SOW = Statement of work
 XRF = X-ray fluorescence

6.0 QUALITY ASSURANCE AND QUALITY CONTROL PROCEDURES

This section describes the quality assurance (QA) and quality control (QC) procedures for personnel during the site sampling event, including responsibilities, field QC, XRF QC, laboratory QC, and data evaluation, and management.

6.1 RESPONSIBILITY

The Tetra Tech project manager, Mr. Armistead, will be responsible for ensuring that sample quality and integrity are maintained in accordance with the EPA “Quality Assurance/Quality Control Guidance for Removal Actions” (EPA 1990), and that sample labeling and documentation procedures are in accordance with Tetra Tech’s QAPP for START (Tetra Tech 2006).

6.2 FIELD QUALITY CONTROL

Each sampling location will be noted in the field logbook in accordance with Tetra Tech SOP No. 024, “Recording of Notes in Field Logbook” (Tetra Tech 1999a). Field QA/QC measures

will consist of collecting field duplicates and equipment blank samples, and maintaining photographic, logbook, and chain-of-custody documentation. These measures will be applied in accordance with Tetra Tech's QAPP for START (Tetra Tech 2006). Confirmation samples, at a minimum of 5 percent of samples analyzed by XRF, will be analyzed by a CLP laboratory in accordance with EPA Method 6200 (EPA 1998), and will be used to test the accuracy of the XRF analysis.

6.3 X-RAY FLUORESCENCE QUALITY CONTROL

XRF QC measures will consist of the collection of instrument blanks, continuing calibration measurements, and precision measurements, in accordance with EPA Method 6200 (EPA 1998). An instrument blank will be analyzed at the beginning and end of each work day, and once every 20 samples, to test for any contamination that may have been introduced to the instrument. Continuing calibration measurements, using a known standard, will be analyzed at the beginning and end of each work day. Precision measurement samples will be run at least once per day by analyzing a known standard seven times to check the precision of the instrument.

6.4 LABORATORY QUALITY CONTROL

Samples will be shipped to the EPA CLP laboratory assigned by the EPA Region 3's OASQAB. Laboratory QC measures will consist of all QC elements identified in the CLP SOW and will include all forms and deliverables required in the SOW.

6.5 DATA VALIDATION

QA staff at the EPA Region 3 Central Regional Laboratory will validate data for the field samples sent to the CLP laboratory. The data will be validated in accordance with EPA Region 3 modifications to the CLP national functional guidelines for data review, and will be validated to the inorganic IM2 level (EPA 1993, 1995). After the data are validated, OASQA staff will prepare a data usability report. Validated data for soil obtained from the CLP laboratory will be used as part of the QA/QC process in validating XRF data. After validated confirmation data have been received from the EPA Region 3 OASQA staff, Tetra Tech will review the XRF data

with the same guidance used by EPA to an IM1 level. Based on this review, Tetra Tech will prepare a data quality report (DQR) that summarizes XRF analytical results and all QC elements, including data from confirmation samples.

6.6 DATA EVALUATION AND MANAGEMENT

This section describes how Tetra Tech will (1) evaluate data generated from the sampling event, (2) determine whether data are representative of the site, and (3) make certain that data are secure and retrievable.

6.6.1 Data Evaluation

Tetra Tech will evaluate the data for lead and arsenic obtained by XRF and laboratory analysis to determine whether lead and/or arsenic concentrations exceed any applicable site-specific screening levels for soil. Conclusions from the data evaluation will be included in the trip report summarizing this sampling event.

6.6.2 Data Representativeness and Completeness

This SAP is designed to obtain data representative of site conditions. If sampling activities vary significantly from this plan because of unexpected conditions in the field or other unforeseeable factors, Tetra Tech will discuss in the trip report how those variations affect data representativeness.

6.6.3 Data Management

Tetra Tech will record XRF analytical results in the site logbook and prepare a Scribe database for the site. If possible, the laboratory will submit analytical data in electronic form, as well as in the required hard-copy packages. Tetra Tech will compare the electronic data deliverables with the hard-copy data packages to ensure consistency. After the data set has been approved by CLP QA/QC staff and the appropriate data qualifiers have been attached, the electronic data will be released to the Tetra Tech project manager for reporting. If analytical data are not available from the laboratory in electronic form, Tetra Tech will manually enter the data into a Microsoft

Excel or Scribe database. Each hard-copy data package will be kept in the EPA site project file maintained by Tetra Tech.

7.0 DELIVERABLES

When sampling and the appropriate QA/QC procedures are complete, Tetra Tech will submit a trip report to EPA that summarizes sampling activities and analytical results.

8.0 SCHEDULE

Tetra Tech estimates that this SAP will be implemented in April through June 2009, as access is granted to each residence on site. In-situ screening may only be completed in dry conditions. Significant quantities of rain may delay sampling activities. Validated data reports from the CLP laboratory are due 28 days after samples are received at the laboratory. Tetra Tech will provide a draft trip report 7 days after the validated data report has been received from the laboratory. A final trip report will be provided 7 days after EPA review of the draft trip report. Table 4 below provides the proposed project schedule.

**TABLE 4
PROJECT SCHEDULE**

Task	Completion Timeframe
Receive and accept TDD	July 9, 2008
Develop site health and safety plan	August 2008
Submit SAP	March 2009
Mobilize to site	April 2009
Conduct field work	April - June 2009
Receive verbal data from the laboratory	14 days after the laboratory receives the samples
Receive validated analytical data	28 days after laboratory receipt of samples
Evaluate data	4 days after receipt of data
Develop and submit draft trip report	7 days after data validation
Submit final trip report	7 days after receiving comment from EPA WAM
Write AOC and close out TDD	30 days after all work is completed

Notes:

AOC = Acknowledgement of completion
SAP = Sampling and analysis plan
WAM = Work assignment manager

EPA = U.S. Environmental Protection Agency
TDD = Technical Direction Document

REFERENCES

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