

**QUALITY ASSURANCE PROJECT PLAN  
PHASE 2 & 3 REMOVAL PROPERTIES SUBSURFACE SOIL SAMPLING  
EVENT**

**35<sup>th</sup> AVENUE REMOVAL SITE  
BIRMINGHAM, JEFFERSON COUNTY, ALABAMA**

**Revision 0**

**Prepared for:**




**U.S. ENVIRONMENTAL PROTECTION AGENCY  
Region 4  
61 Forsyth Street  
Atlanta, Georgia 30303**

**Prepared by:**

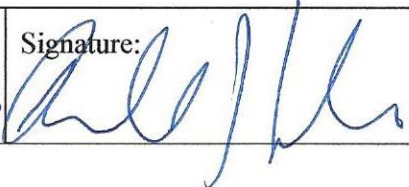
**Oneida Total Integrated Enterprises  
1220 Kennestone Circle, Suite 106  
Marietta, Georgia 30066**

Contract No.	:	EP-S4-15-01
Task Order No.	:	0002/OT-02-002
Date Submitted	:	March 18, 2016
EPA Task Monitor	:	Rick Jardine / Subash Patel
Telephone No.	:	404-562-8764
Prepared by	:	Limari Krebs
Telephone No.	:	678-355-5550

**QUALITY ASSURANCE PROJECT PLAN**  
**U.S. ENVIRONMENTAL PROTECTION AGENCY (USEPA)**  
**REGION 4 SUPERFUND TECHNICAL ASSESSMENT AND RESPONSE TEAM (START)**  
**ONEIDA TOTAL INTEGRATED ENTERPRISES (OTIE) – CONTRACT EP-S4-15-01**

SECTION A: Project Planning Elements			
<b>A1. Title (Project Name):</b>	35 <sup>th</sup> Avenue Removal Site – Phase 2 and 3 Removal Properties Subsurface Soil Sampling Event		
Project Location:	The site encompasses three residential neighborhoods: Fairmont, Collegeville, and Harriman Park in Birmingham, Jefferson County Alabama (Figures 1 and 2). The geographic coordinates for an approximate center point of the site are 33.561625 North latitude and -86.802568 West longitude. The Fairmont neighborhood comprises the western portion of the site, Collegeville the southern portion, and Harriman Park the eastern portion.		
Location Description:	<p>The study area for the site is a mixture of residential properties surrounded by industrial facilities historically associated with limestone quarrying, foundries, recycling, and coke and chemical manufacturing operations. It encompasses approximately 2,060 residential and residential-use (childcare facilities; church playgrounds; City Parks and playgrounds; and schools) parcels located south of 49th Street, east of 26th Street/Highway 31, north of 27th Avenue, and west of the railroad lines (Figure 2).</p> <p>This investigation will focus on residential and residential-use properties where surface soils were found to be contaminated with levels of arsenic, lead, and/or polycyclic aromatic hydrocarbons (PAH) exceeding the 10<sup>-4</sup> risk levels for direct contact with residential soil during the 2012-2013 and ongoing EPA Emergency Response and Removal Branch (ERRB) Removal Investigation (Figures 3 -8). Table 1A and 1B summarizes the Phase 2 and 3 locations.</p>		
Originating Organization:	OTIE, 1220 Kennestone Circle, Suite 106, Marietta, Georgia (GA)		
Document Version/Date:	Revision 0 / March 18, 2016		
<i>Approvals</i>			
Approved By:	Russell Henderson	Date:	Signature:
Title	OTIE Project Manager	3/18/16	
Approved By:	Limari Krebs	Date:	Signature:
Title	OTIE Quality Assurance Manager	3/18/16	
Approved By:	Greg Kowalski	Date:	Signature:
Title	OTIE START III Program Manager	3/18/16	

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Approved By:  Title	Rick Jardine / Subash Patel USEPA On Scene Coordinator (OSC)	Date:  28 MAR 16	Signature: 
<b>A2. Table of Contents</b>	See Page i		
<b>A3. Distribution List</b>	Katrina Jones	USEPA Region 4 Contract Manager	
	Rick Jardine	USEPA Region 4 OSC	
	Subash Patel	USEPA Region 4 OSC	
	OTIE Files	OTIE, Marietta, GA	

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**A4. Project/Task Organization**

Project Personnel	Organization	Responsibilities
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*See attached organizational chart*

**A5. Project Definition and Background**

From November 2012 through June 2013, the surface soils of 1,116 residential and residential-use parcels were sampled as part of the EPA ERRB Removal Investigation. Sampling was conducted to identify the nature and extent of contamination in the surface soils (0-4 inches below ground surface [bgs]) of parcels located within the study boundary of the site. A total 3,160 (2,976 composite and 184 grab) surface soil samples were collected primarily for polycyclic aromatic hydrocarbons (PAH) and Resource Conservation and Recovery Act (RCRA) metals analysis. Field samples were screened ex situ for RCRA metals concentrations using a Niton XL3t X-Ray Fluorescence (XRF) instrument to efficiently identify properties with elevated concentrations in soil. A portion of 1,823 field samples were sieved using a 2-millimeter sieve, and screened in order to assess the lead uptake of the contamination. Of the 3,160 soil samples collected, all but three were analyzed for target compound list (TCL) PAH. XRF field screening results and laboratory analytical data showed arsenic and/or lead concentrations exceeding the Removal Management Levels (RMLs) for direct contact with residential soil in 450 locations in 324 parcels. Analytical data show elevated levels of PAHs, primarily benzo(a)pyrene, at concentrations exceeding the RML of 1.5 milligrams per kilogram (mg/kg) in 145 locations in 102 parcels.

Overall, 394 parcels throughout the site had surface soil results in exceedance of the RMLs for one or more compounds during the November 2012 through June 2013 EPA ERRB Removal Investigation. Depth sampling for removal action purposes has been conducted at approximately 52 parcels. Phase 2 includes 37 parcels where children are known to reside. Phase 3 includes 31 parcels with carcinogenic constituents in exceedance of approximately 2xs RML.

The purpose of depth sampling is to conduct subsurface soil sampling and analysis activities at select residential-use properties where previous sampling by EPA ERRB indicate arsenic, lead, and/or PAH contamination in the surface soils at concentrations exceeding the  $10^{-4}$  or HQ=1 risk levels.

**A6. Project Description:**

START will collect subsurface soil samples from four distinct depth intervals (up to 24 inches bgs) to assess the vertical extent of contamination at select properties meeting specific criteria where surface soil concentrations exceeded the  $10^{-4}$  or HQ=1 risk levels.

Samples collected will be submitted to TestAmerica Laboratories (TestAmerica) in Savannah, Georgia, a National Environmental Laboratory Accreditation Conference (NELAC) certified laboratory, for analysis. All samples will be analyzed for arsenic and lead in accordance with SW846-6010 and low-level PAHs in accordance with SW846-8270D.

The analytical data gathered during this field investigation will provide EPA with sufficient information to identify the maximum depth at which removal shall be conducted at the individual properties assessed.

START anticipates collecting 452 field samples from 68 parcels (113 locations). Additional quality assurance/quality control (QAQC) samples including 45 field duplicates and eight rinsate blanks will also be collected.



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Applicable regulatory information, actions levels, etc.	<u>Compound</u> Benzo(a)pyrene Arsenic Lead	<u>10<sup>-3</sup> Risk Levels</u> 15 mg/kg 390 mg/kg 1,200 mg/kg	<u>RML</u> 1.5 mg/kg 39 mg/kg 400 mg/kg
Field Study Date:	July 6 – July 30, 2014		
Projected Lab Completion Date:	14 calendar days from the date of sample receipt at the laboratory to submittal of the Electronic Data Deliverable (EDD) and Level IV analytical data package.		
Final Report Completion Date:	Final, validated analytical result tables will be prepared and provided to the OSC two weeks following receipt of the final, Level IV data package from the laboratory.		
<b>A7. Quality Objectives and Criteria</b>			
<b><i>Problem Statement</i></b>	Elevated concentrations of hazardous constituents associated with historical operations have been identified in the surface soils of residential properties located at the site. Surface soils at 37 parcels where children were in permanent residence were found to have concentrations of arsenic, lead, and/or PAH exceeding 10 <sup>-4</sup> and/or or HQ=1 risk levels for direct contact with residential soil. Surface soils at an additional 31 parcels were found to have carcinogenic constituents in exceedance of 2xs the RML.		
<b><i>Identify the Decisions</i></b>	<p>This sampling event will focus on determining the vertical extent of contamination where elevated levels of arsenic, lead, and/or PAH were identified in the surface soils during the EPA ERRB Removal Investigation.</p> <p>Therefore, the following primary decisions have been identified:</p> <p>(1) Are contaminants of concern present on residential properties in the subsurface soils at 6 inches bgs, 12 inches bgs, 18 inches bgs, and 24 inches bgs.</p> <p>(2) Do the concentrations of the detected contaminants exceed RML values?</p> <p>(3) Do the concentrations of the detected contaminants pose an unacceptable risk to human health and/or the environment?</p>		
<b><i>Decision Inputs</i></b>	The primary input needed to support the decision making process is the reported analytical concentrations of contamination in samples collected. Analytical results used in the decision-making process will come from TestAmerica laboratories. Reporting limits for target analytes are provided in Attachment 1		
<b><i>Study Boundary</i></b>	The site boundary is shown in Figure 2. Figures 3 – 5 show the properties to be sampled as part of this investigation.		
<b><i>Decision Rule</i></b>	<ul style="list-style-type: none"><li>All soil samples collected will be analyzed for low-level PAHs in accordance with SW846-8270 and arsenic/lead in accordance with SW846-6010.</li></ul>		

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<i><b>Error Limits</b></i>	This sampling effort is designed to sample in areas where surface soil contamination is known to exist based on evidence gathered during previous investigations. However, random and systematic errors could be introduced during sample collection, sample handling and storage, sample analysis and data reduction. The QC measures set forth in this QAPP and the specific analytical methods will serve to minimize these errors. QC samples will be used to monitor the accuracy and precision of the sampling activity as well as the analytical process.
<i><b>Optimize Sampling Design</b></i>	The data collection activities will focus on identifying the vertical extent of contamination at properties where surface soil contamination is known to exist. Section B will describe sampling design in detail.
<b>A8. Special Training/Certifications</b>	
<p>Individuals implementing this QAPP must receive, at a minimum, orientation to the project's purpose, scope, and methods of implementation. This orientation is the responsibility of the Project Manager or designee.</p> <p>Any field team members involved with sample collection or handling will have received 40-hour hazardous waste operations and emergency response (HAZWOPER – 29 CFR 1910.120) training.</p> <p>The Health and Safety Officer will have received 8-hour supervisor training course (HAZWOPER – 29 CFR 1910.120). Any other safety-related training is defined in the project HASP.</p> <p>The laboratory performing the analysis for this project is certified under the NELAC in the State of Alabama. The laboratory managers are responsible for ensuring that personnel training are current and documented as defined in the laboratory's SOPs. It is the laboratory's manager's responsibility to determine specific training and certification needs, and for ensuring that any required training is documented.</p>	

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**A9. Documents and Records**

Field records that may be generated include the following:

- |   |  |
|---|--|
| <input checked="" type="checkbox"/> Chains-of-Custody Forms     | <input type="checkbox"/> Field Instrument Calibration Logs |
| <input type="checkbox"/> Field Monitoring and Screening Results | <input type="checkbox"/> Soil Borings and Well Logs        |
| <input checked="" type="checkbox"/> Site Maps and Drawings      | <input checked="" type="checkbox"/> Health and Safety Plan |
| <input checked="" type="checkbox"/> Photographic Log            | <input checked="" type="checkbox"/> Site Logbook           |
| <input type="checkbox"/> Waste Manifests                        | <input checked="" type="checkbox"/> Access Agreements      |

Field documentation and records will be generated and maintained in accordance with the requirements presented in the following EPA SEDS Field Branches Quality System and Technical Procedures: Control of Records (SESDPROC-002-R6), October 2014; Sample and Evidence Management (SESDPROC-005-R2), January 2013; and Logbooks (SESDPROC-010-R5), May 2013. These documents can be found at the following web address: <http://www.epa.gov/region4/sesd/fbgstp/index.html>.

START will retain all file information related to the site in the Marietta, Georgia, OTIE office. Upon EPA request, the entire site file, including all documents generated under the work assignment, will be inventoried and submitted to EPA or to an EPA-designated location within three weeks of the request. In addition, START will provide digital copies of all documents generated under the work assignment, including reports, e-mails, and figures if requested by EPA. All documents generated for the work assignment are the property of EPA and will be retained as part of EPA files. All EPA files will be delivered to EPA at the conclusion of the START contract.

START will use the information collected at the site to complete a Subsurface Soil Sampling Event summary letter report, which summarizes the field investigation activities, and the nature and extent of contamination at the properties studied. Environmental and QA/QC analytical data will be evaluated and data tables will be attached to the report. Significant QA/QC issues regarding sample collection, handling, and analysis will be identified in the report.

A draft version of the report will be available for review and commenting by EPA within six weeks following the completion of the field sampling event. A final version of the report will be available within two weeks following receipt of comments by EPA. Laboratory data will be released to the EPA OSC as validated data two weeks following receipt of the final results from the laboratory.

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**SECTION B: Data Generation and Acquisition**

**B1. Sampling Design**

START has developed a sampling design to ensure that DQOs are fulfilled for the sampling investigation. Specifically, the design takes into account data needs, key decisions, and environmental variables, such as physical and site constraints, and how the spatial and temporal boundaries of the contamination and population at risk will be identified. The sampling design presented in the following sections has been developed based on information obtained from historical investigations performed at residential properties within the site boundary.

Samples will be collected from the 6 inch, 12 inch, 18 inch, and 24 inch bgs depths from the same aliquot locations sampled during the Removal Investigation. A Trimble Global Positioning System (GPS) will be used by sampling team to navigate to each of the geographic coordinates for surface soil aliquots sampled during the Removal Investigation. Table 2A and 2B provide a listing of the geographic coordinates for each location to be assessed during Phase 2 and 3 sampling events.

START anticipates collecting 452 field samples from 68 residential-use properties. Soil samples will be submitted to TestAmerica for arsenic and lead analysis by SW846-6010 and low-level PAH by SW846-8270D. Additional QAQC samples including 45 field duplicates and eight rinsate blanks will also be collected.

**B2. Sampling Methods, General Procedures**

Sampling will be conducted in accordance with the following SESD FBSQTP:

- |   |   |
|---|---|
| <input type="checkbox"/> Ambient Air Sampling (SESDPROC-303-R4)                     | <input type="checkbox"/> Benthic Macroinvertebrate Sorting and Taxonomic Identification (SESDPROC-509-R1) |
| <input type="checkbox"/> Dye Tracer Measurements (SESDPROC-504-R1)                  | <input type="checkbox"/> Fish Field Sampling (SESDPROC-512-R4)  |
| <input type="checkbox"/> Fluvial Sediment Sampling (SESDPROC-500-R2)                | <input type="checkbox"/> Groundwater Sampling (SESDPROC-301-R3)   |
| <input type="checkbox"/> Hydrologic Studies (SESDPROC-501-R3)                       | <input type="checkbox"/> Marine Macroinvertebrates (SESDPROC-511-R3)                                      |
| <input type="checkbox"/> Multi-Habitat Macroinvertebrate Sampling (SESDPROC-508-R3) | <input type="checkbox"/> Porewater Sampling (SESDPROC-513-R2)   |
| <input type="checkbox"/> Potable Water Supply Sampling (SESDPROC-305-R1)            | <input type="checkbox"/> Pump Operation (SESDPROC-203-R2)   |
| <input type="checkbox"/> Reaeration Measurement By Diffusion Dome (SESDPROC-505-R3) | <input type="checkbox"/> Reaeration Measurement Using Krypton Gas (SESDPROC-506-R3)                       |
| <input type="checkbox"/> Sediment Oxygen Demand (SESDPROC-507-R4)                   | <input type="checkbox"/> Sediment Sampling (SESDPROC-200-R3)  |
| <input type="checkbox"/> Soil Gas Sampling (SESDPROC-307-R3)                        | <input checked="" type="checkbox"/> Soil Sampling (SESDPROC-300-R3)                                       |
| <input type="checkbox"/> Surface Water Sampling (SESDPROC-201-R3)                   | <input type="checkbox"/> Trace Contaminant Sampling (SESDPROC-502-R3)                                     |
| <input type="checkbox"/> Waste Sampling (SESDPROC-302-R2)                           | <input type="checkbox"/> Water Column Oxygen Metabolism (SESDPROC-504-R2)                                 |
| <input type="checkbox"/> Wastewater Sampling (SESDPROC-306-R3)                      | Other: EPA Environmental Response Team (ERT)  |
|   | <input type="checkbox"/> SOP for “Construction and Installation of Permanent Sub-Slab Soil Gas Wells      |

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Field measurements will be collected in accordance with the following SESD FBSQTP:

- |   |   |
|---|---|
| <input type="checkbox"/> Field DO Measurement<br>(SESDPROC-106-R3)                        | <input type="checkbox"/> Field Measurement of ORP<br>(SESDPROC-113-R1)      |
| <input type="checkbox"/> Field Measurement of Total Residue Chlorine<br>(SESDPROC-112-R4) | <input type="checkbox"/> Field pH Measurement<br>(SESDPROC-100-R3)          |
| <input type="checkbox"/> Field Specific Conductance<br>(SESDPROC-101-R5)                  | <input type="checkbox"/> Field Temperature Measurement<br>(SESDPROC-102-R4) |
| <input type="checkbox"/> Field Turbidity Measurement<br>(SESDPROC-103-R3)                 | <input type="checkbox"/> Field XRF Measurement<br>(SESDPROC-107-R2)         |
| <input checked="" type="checkbox"/> Global Positioning System<br>(SESDPROC-110-R4)        | <input type="checkbox"/> Groundwater Level Measurement<br>(SESDPROC-105-R2) |
| <input type="checkbox"/> In Situ Water Quality Mon<br>(SESDPROC-111-R3)                   | <input type="checkbox"/> Wastewater Flow Measurement<br>(SESDPROC-109-R4)   |
| <input type="checkbox"/> Other:   |   |

Soil Sampling

Composite and/or grab soil samples will be collected from previously sampled locations in accordance with FBSQTP for Soil Sampling (SESDPROC-300-R3), from the 6 inch, 12 inch, 18 inch, and 24 inch bgs depths at each aliquot location using stainless steel hand augers. A clean and decontaminated hand auger bucket will be used to auger to 6 inches bgs at each aliquot point for a sample. Once the sampling depth is reached, a second clean and decontaminated auger bucket will be used to collect sample material from each aliquot comprising the 6 inch depth composite sample. Following sample collection, the same auger bucket may be used to auger down to 12 inch sampling depth. Once the sampling depth is reached, a third clean and decontaminated auger bucket will be used to collect sample material from 12 inch depth. The process of hand augering to the desired depth and using a clean and decontaminated auger bucket to collect the sample will be repeated for the 18 and 24 inch depth samples.

Each soil sample will be homogenized in a stainless steel bowl using a stainless steel spoon following collection. One 4-ounce jar will be filled at properties where arsenic and lead are the only constituents of concern. Two 4-ounce jars will be filled at properties where PAHs are the constituents of concern. Information identifying the location and date/time will be inscribed on each jar. All sampling jars will then be placed on ice.

The samples will be submitted to TestAmerica for arsenic/lead and PAH analysis.

Sampling activities will not be conducted during or one day after rain events, at the discretion of the OSC, to allow soil material to effectively dry prior to sample collection.

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All equipment will be handled in accordance with the FBQSTP Field Equipment Inventory and Management procedure (SESDPROC-108-R5).

Non-dedicated equipment will be decontaminated in accordance with FBQSTP Field Equipment Cleaning and Decontamination (SESDPROC-205-R2) prior to mobilization to the site.

Sample containers used for sample collection will be QC grade purchased from Environmental Sampling Supply (ESS) and will be prepared according to the procedures contained in the EPA Specifications and Guidance for Obtaining Contaminant-Free Sample Containers (OSWER Directive 93240.0-05).

The following lists the sampling equipment and supplies to be used during this investigation:

sampling instruments

- Handheld GPS - Trimble GeoXT

sampling supplies

- Stainless Steel Hand-Auger buckets
- Stainless Steel bowls
- Stainless Steel scoop
- Nitric preservative
- 1 Liter Ultra Pure Water (12)
- Coolers
- Ice
- Strapping tape
- Custody seals
- Printer
- Sample Jar labels

Decontamination supplies

- Buckets
- Brushes
- Water
- Aluminum foil
- Distilled water
- Paper towels

PPE

- Nitrile gloves
- hand sanitizer
- hand soap
- water
- insect repellent
- hand wipes
- sunscreen

Other Items

- Logbooks

All investigation derived waste (IDW) will be properly disposed of according to best management practices and regulatory requirements.

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**B3. Sampling Handling and Custody**

All samples will be handled and custody maintained in accordance with the FBQSTP Operating Procedure for Sample Evidence Management (SESDPROC-005-R2) and Packing, Marking, Labeling and Shipping of Environmental and Waste Samples (SESDPROC-209-R3).

Once collected, all samples will be placed in a custody-sealed container and held in a secure location. The FPL or his designee will ensure that custody of samples is maintained until they are shipped to the laboratory.

Chain-of-custody and associated field records will be used to document the samples from collection through delivery to the laboratory.

Samples will be processed using EPA Scribe software.

**B4. Analytical Methods**

The laboratory analytical data packages will be validated by a START Sr. Chemist.

<b>SESD:</b>	N/A
<b>CLP:</b>	N/A
<b>Other:</b>	low-level PAH in accordance with SW846-8270D arsenic and lead in accordance with SW846-6010C

**B5. Quality Control**

<b>Field:</b>	Quality control for field monitoring and measurements will be conducted in accordance with FBQSTP Field Sampling Quality Control (SESDPROC-011-R4).  The following QC samples will be collected as part of this investigation: <ul style="list-style-type: none"> <li>• Field duplicates at a rate of 1 per 10 samples</li> <li>• Rinsate blanks after each decon event</li> <li>• MS/MSD samples at a rate of 1 per 20 samples.</li> </ul>
<b>Laboratory:</b>	SW846 methods describe the required accuracy, precision, sensitivity of the analysis required for this project. The MDL/RLs for TestAmerica are provided in Attachment 1.

**B6. Instrument/Equipment Testing, Inspection and Maintenance**

All equipment will be handled in accordance with the FBQSTP Equipment Inventory and Management procedure (SESDPROC-108-R5).

**B7. Instrument/Equipment Calibration and Frequency**

All equipment will be calibrated according to the manufacturer's instructions. In addition, all equipment will be handled in accordance with the FBQSTP Equipment Inventory and Management procedure (SESDPROC-108-R5).

**B8. Inspection/Acceptance for Supplies and Consumables**

All critical supplies and consumables for this field investigation are inspected and maintained by the OTIE Field Team Leader.

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**B9. Non-direct Measurements:**

Optional (Applicability of this item is site-specific).

**B10. Data Management**

The project manager will be responsible for ensuring that all requirements for data management are met. The reference materials generated during this investigation and included in the final reports will be submitted to the EPA OSC in electronic format on compact disc, and a Scribe database will be created for the analytical results. The Scribe database will be submitted to the EPA OSC at the completion of the project. All field-generated data will be managed as part of the permanent field record for the project. All laboratory analytical data will be managed in accordance with the requirements of the methods, as well as the EPA Region 4 policy and applicable federal regulations. Finally, all field-generated data and other records generated or obtained during this project will be managed according to the requirements of START IV Contract No. EP-S4-15-01.

**SECTION C: Assessment/Oversight**

**C1. Assessments and Response Actions**

Assessments will be conducted during the field investigation according to the SESD Operating Procedure for Project Planning; SESDPROC-016-R4 to ensure the QAPP is being implemented as approved. The Project Manager is responsible for all corrective actions while in the field.

**C2. Reports to Management**

The Project Manager will be responsible for notifying the EPA Project Manager if any circumstances arise during the field investigation that may adversely impact the quality of the data collected.



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**SECTION D: Data Validation and Usability**

**D1. Data Review, Verification, and Validation**

OTIE START will perform data assessment on laboratories' hardcopy (and electronic, where applicable) deliverables based on contractual and technical requirements outlined in the analytical method. The PM will review the data qualifier report to determine any data limitations and the impact of any qualified data on overall data usability for the project. Detailed guidance for data assessment may be found in the Guidance for Data Quality Assessment (EPA QA/G-9 2000).

**D2. Verification and Validation Methods**

The laboratory analytical data packages will be validated by an experienced Sr. START Chemist in accordance with the National Functional Guidelines (NFG). The following guidance documents shall serve as the basis for all data validation:

- USEPA National Functional Guidelines for Organic Data Review, (OSWER 9240.1-05A-P, PB99-963506, EPA 540/R-99-008, October 1999)
- USEPA National Functional Guidelines for Inorganic Data Review, (OSWER 9240.1-45, EPA 540-R-04-004, October 2004).
- USEPA National Functional Guidelines for Low Concentration Organic Data Review, (OSWER 9240.1-34, EPA540-R-00-006, June 2001)

The USEPA performs data validation using a "tiered" approach. The data packages will be evaluated and qualified for all quantitative QC elements e.g., spike recoveries, method and field blank contamination, duplicate sample %RSD, and instrument stability and performance (e.g., initial and continuing calibration results, instrument tuning and internal standard areas) using hard-copy summary forms. This Summary Validation of 100% of the data is equivalent to an EPA CLP "QA Level III" validation and is considered Tier 1. Specific QC elements that will be reviewed during the Summary Validation include:

- Presence and completeness of COC and "cooler receipt form" (also known as sample receipt form) documentation
- Sample Index (correlation of field sample ID to laboratory sample ID)
- Laboratory Case Narrative (method deviations and QC anomalies)
- Analytical holding times
- Where applicable, laboratory control standard recoveries
- Method blank contamination
- Surrogate spike recoveries
- Matrix spike compound recoveries
- Matrix spike/matrix spike duplicate RPD values
- Field duplicate RPD values
- Laboratory Duplicate RPD values
- Summaries of initial and continuing Calibration
- Summaries of instrument blanks (e.g., initial calibration blank, CCB, if specified in method)
- Review of reagent/preparation blanks (inorganics)
- Review of Laboratory Control Standards (LCS)
- Instrument stability and performance (e.g., tuning, serial dilution)
- Summaries of internal standards

**QUALITY ASSURANCE PROJECT PLAN  
U.S. ENVIRONMENTAL PROTECTION AGENCY (USEPA)  
REGION 4 SUPERFUND TECHNICAL ASSESSMENT AND RESPONSE TEAM (START)  
ONEIDA TOTAL INTEGRATED ENTERPRISES (OTIE) – CONTRACT EP-S4-15-01**

**D3. Reconciliation with User Requirements**



Data results and site findings are intended to be used by USEPA to make a determination regarding the impact of contaminants to the local environment. OTIE START will perform a review of contaminant concentrations and will summarize these findings in a final report to the USEPA.

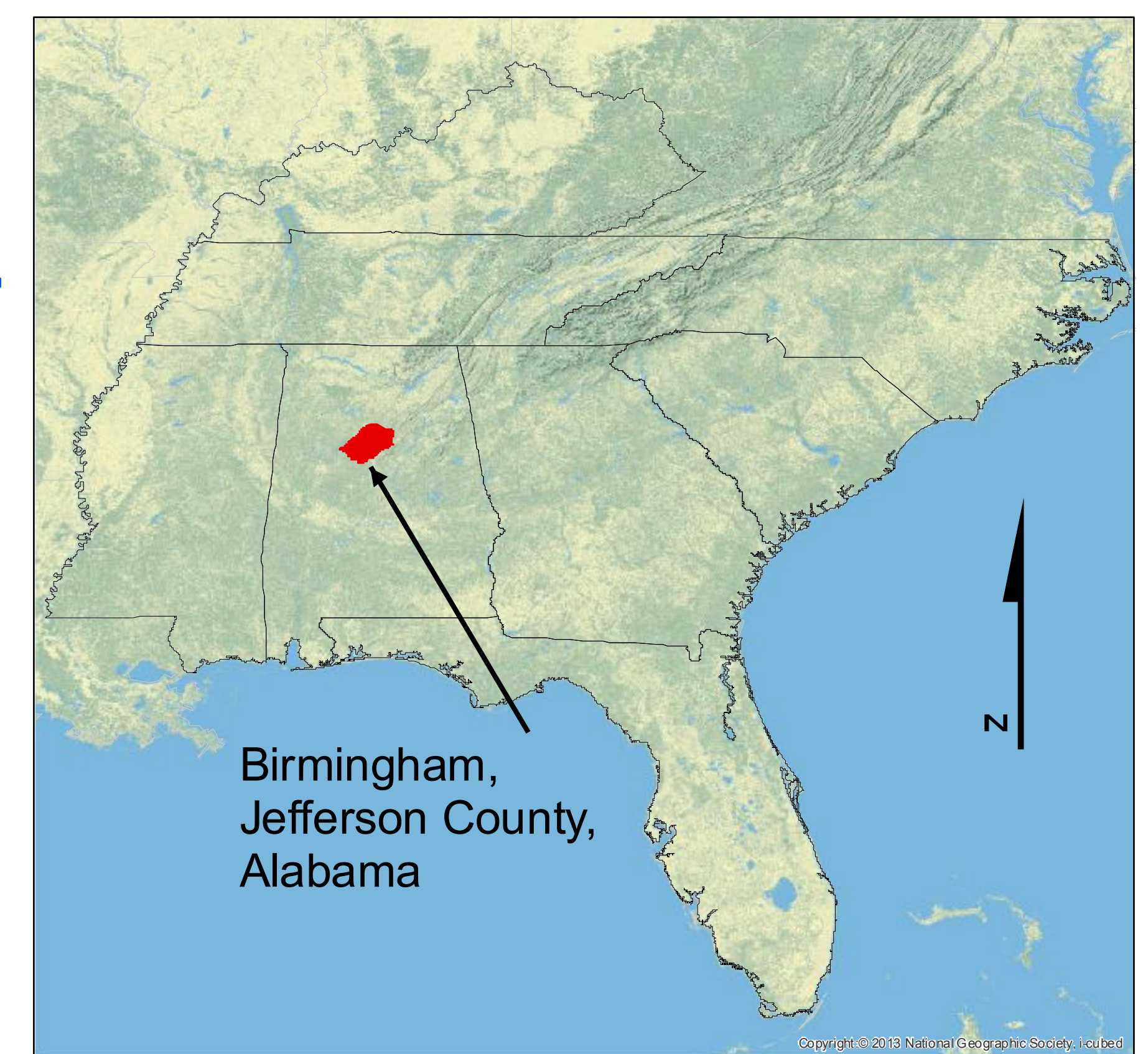
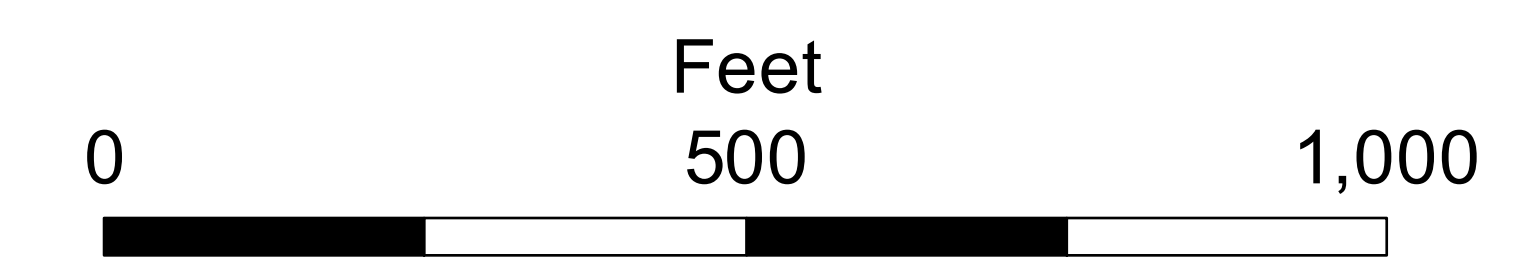
**\*\*Footnotes:** This Quality Assurance Project Plan (QAPP) has been prepared and approved according to the EPA *Requirements for Quality Assurance Project Plans (EPA QA/R5 EPA/240/B-01/003)*, U.S. Environmental Protection Agency, Office of Environmental Information, Washington, DC, March 2001 (USEPA, 2001). This document will be used to ensure that the environmental data collected for this project are of the type and quality for the intended purposes.





# Legend

-  Depth Sampling Property
-  EPA Study Line



35TH AVENUE SUPERFUND SITE  
BIRMINGHAM  
JEFFERSON COUNTY  
ALABAMA  
TDD NO. 0001 / OT-01-001  
DEPTH SAMPLING  
PHASE II PROPERTIES MAP  
COLLEGEVILLE





United States Environmental Protection Agency

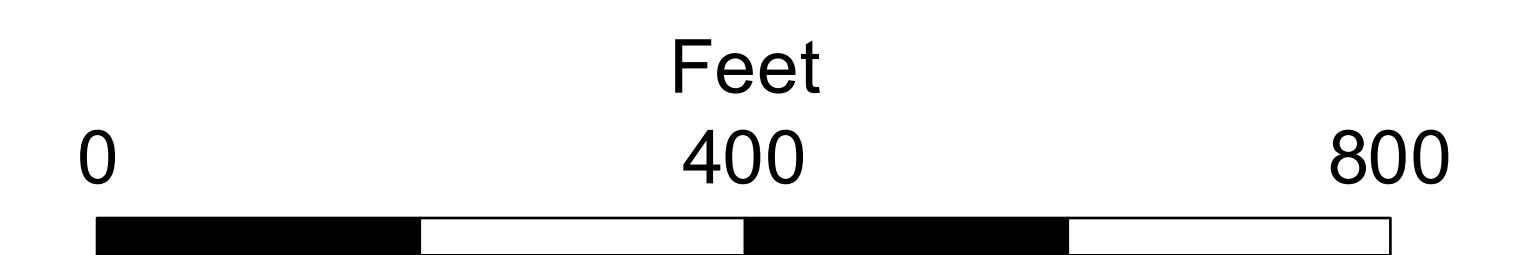






# Legend

-  Depth Sampling Property
-  EPA Study Line



35TH AVENUE SUPERFUND SITE  
BIRMINGHAM  
JEFFERSON COUNTY  
ALABAMA  
TDD NO. 0001 / OT-01-001  
DEPTH SAMPLING  
PHASE II PROPERTIES MAP  
FAIRMONT





United States Environmental Protection Agency



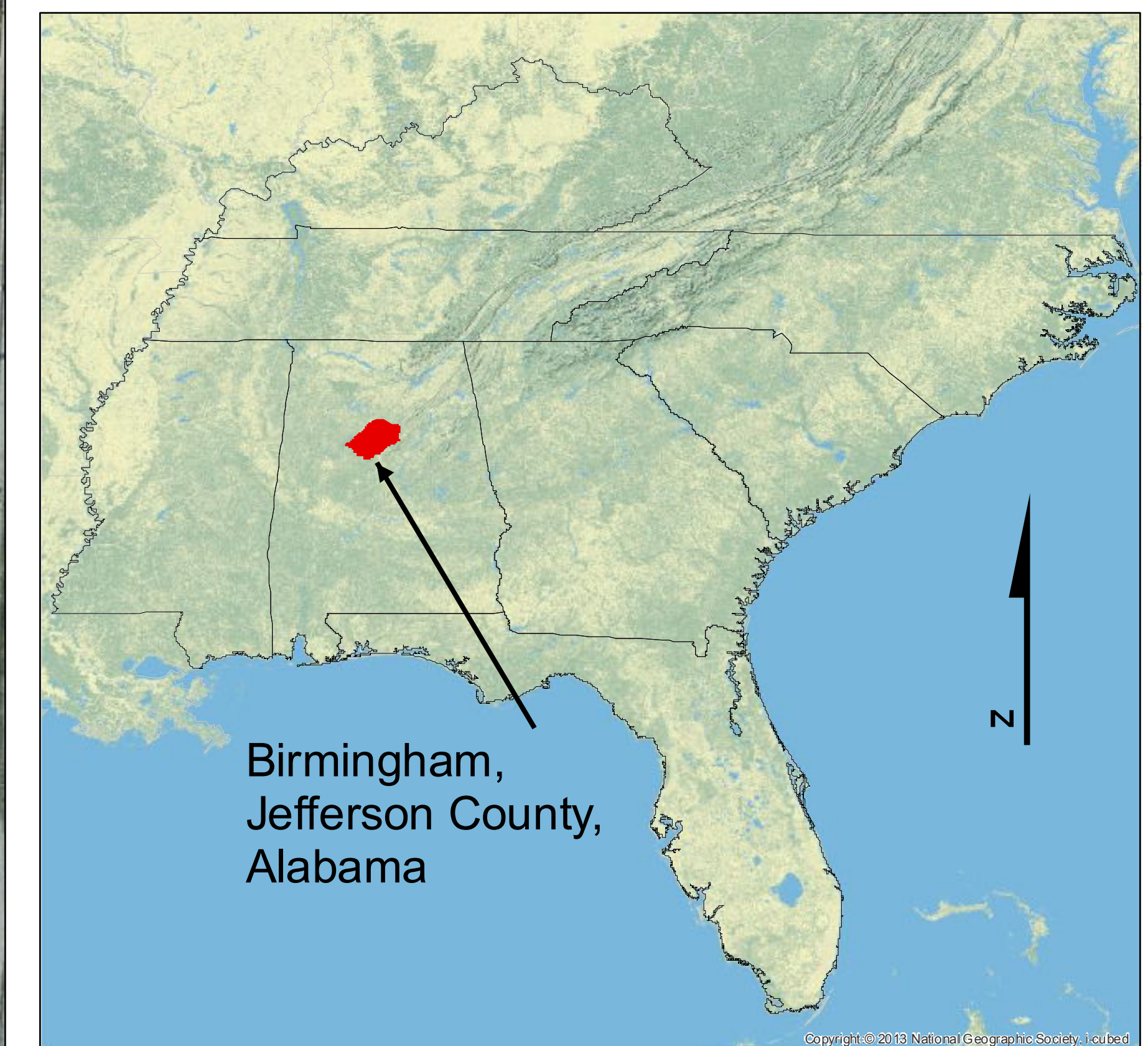




## Legend

-  Depth Sampling Property
-  EPA Study Line

0 Feet 312.5 625



35TH AVENUE SUPERFUND SITE  
BIRMINGHAM  
JEFFERSON COUNTY  
ALABAMA  
TDD NO. 0001 / OT-01-001  
DEPTH SAMPLING  
PHASE II PROPERTIES MAP  
HARRIMAN PARK





United States Environmental Protection Agency

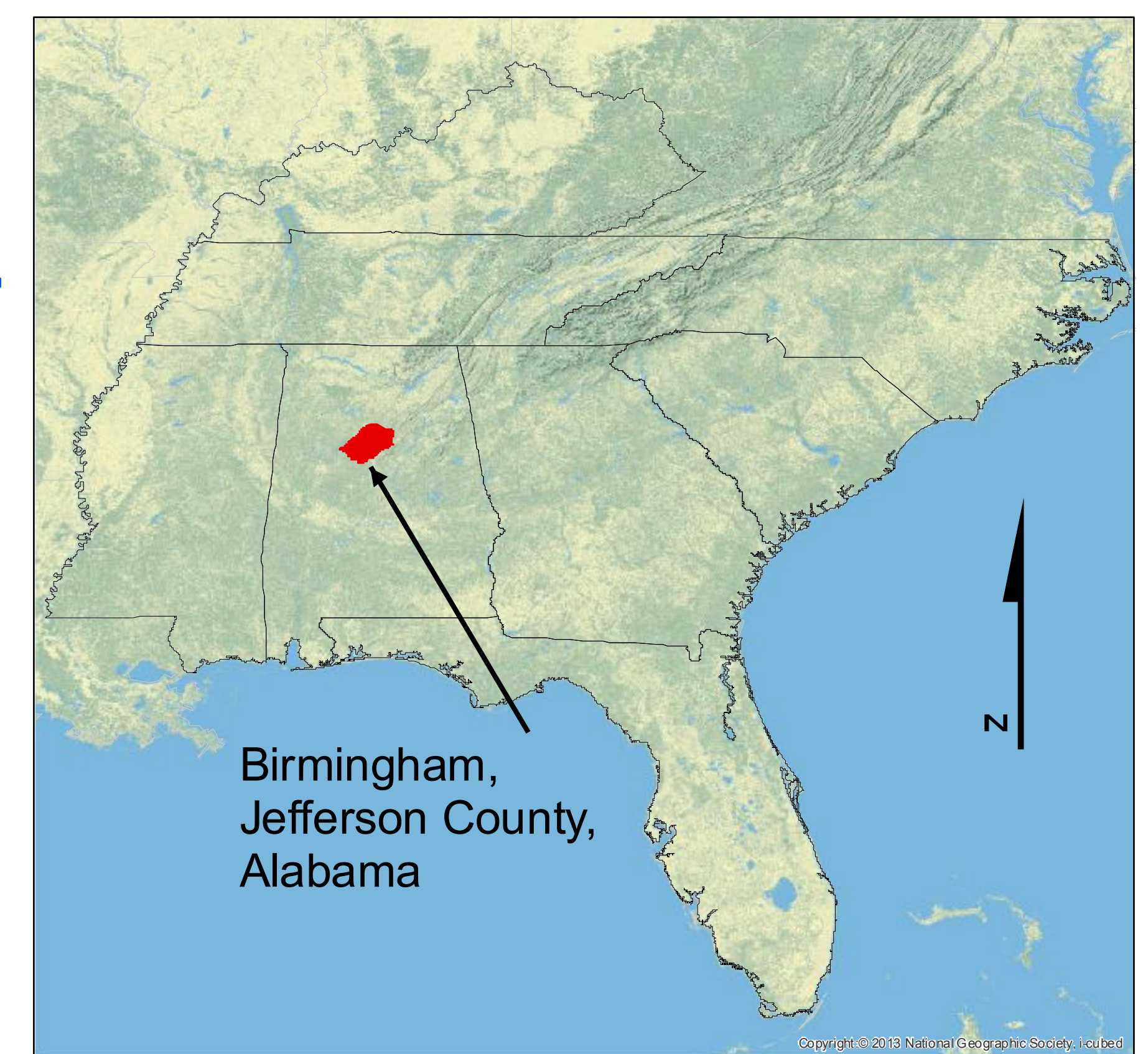
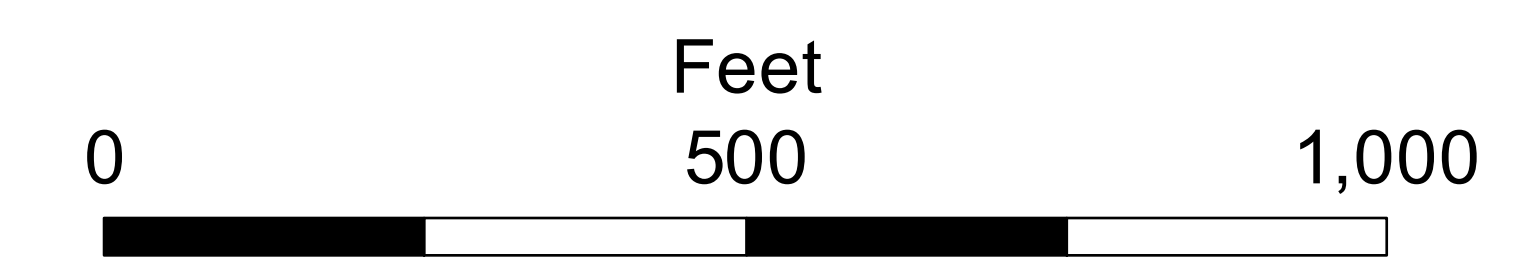






## Legend

-  Depth Sample Property
-  EPA Study Line



35TH AVENUE SUPERFUND SITE  
BIRMINGHAM  
JEFFERSON COUNTY  
ALABAMA  
TDD NO. 0001 / OT-01-001  
DEPTH SAMPLING  
PHASE II PROPERTIES MAP  
COLLEGEVILLE





United States Environmental Protection Agency

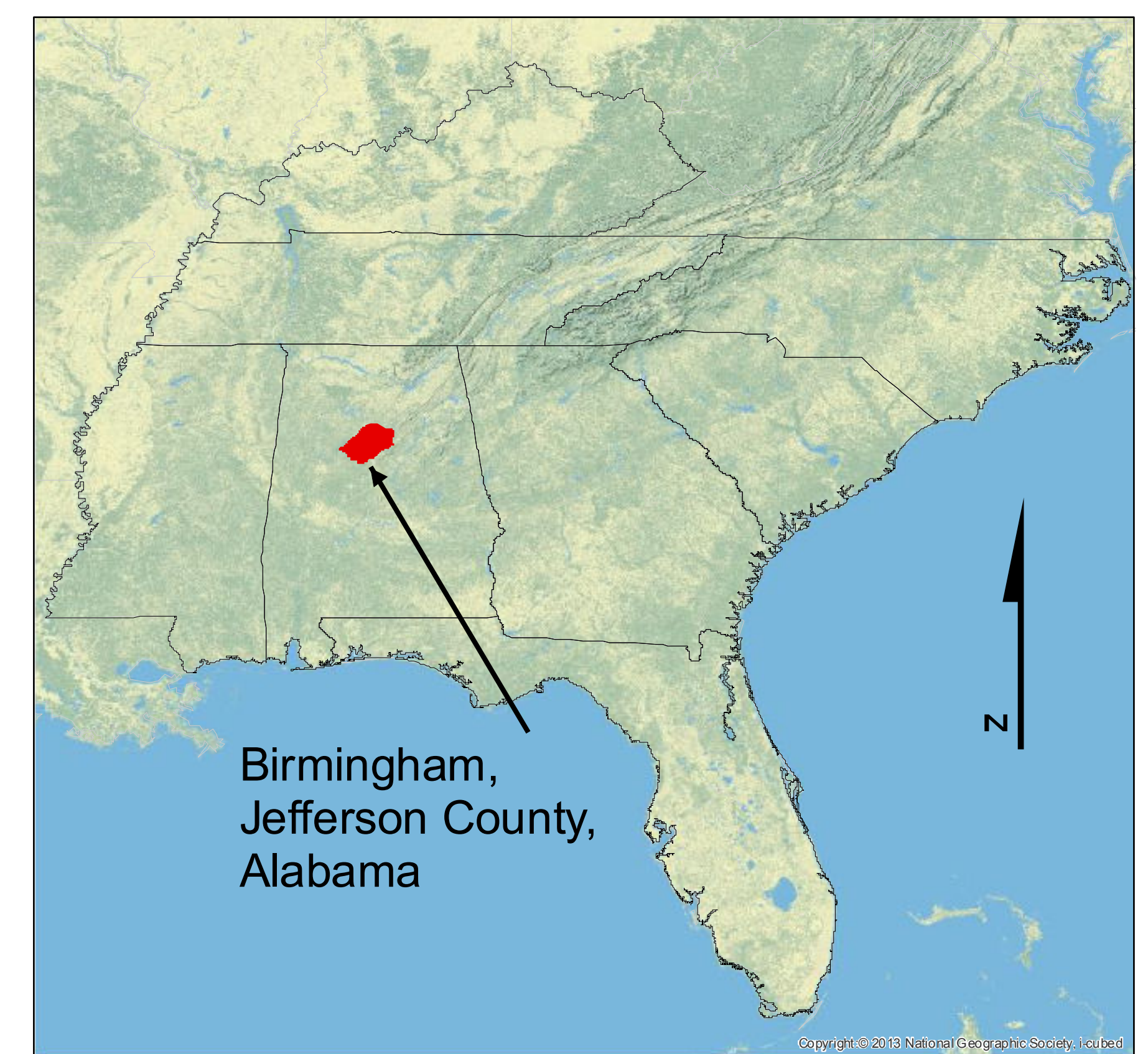
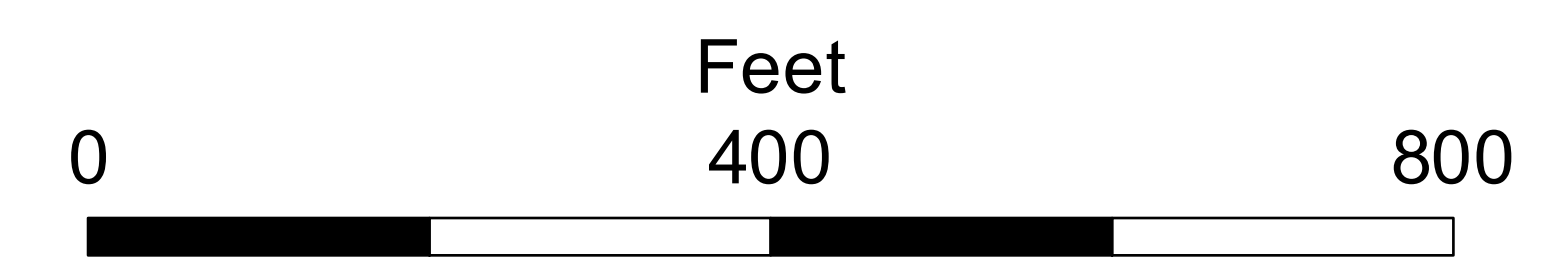






## Legend

-  Depth Sample Property
-  EPA Study Line



35TH AVENUE SUPERFUND SITE  
BIRMINGHAM  
JEFFERSON COUNTY  
ALABAMA  
TDD NO. 0001 / OT-01-001  
DEPTH SAMPLING  
PHASE II PROPERTIES MAP  
FAIRMONT





United States Environmental Protection Agency

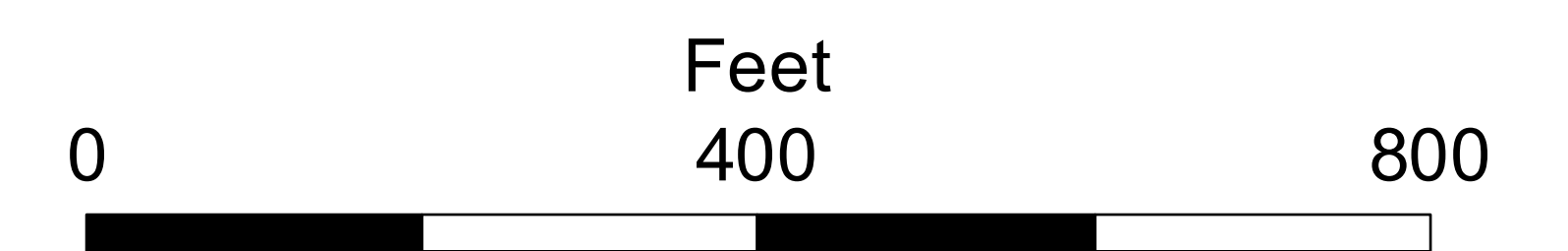






## Legend

-  Depth Sample Property
-  EPA Study Line



35TH AVENUE SUPERFUND SITE  
BIRMINGHAM  
JEFFERSON COUNTY  
ALABAMA  
TDD NO. 0001 / OT-01-001  
DEPTH SAMPLING  
PHASE II PROPERTIES MAP  
HARRIMAN PARK



United States Environmental Protection Agency





**TABLE 1A**  
**35TH AVENUE REMOVAL SITE**  
**SUMMARY OF PHASE II PARCELS**

Parcel ID	Street Name	Street Number	Sublocation	Sample Collection	Location	Lead	Lead Sieved	XRF Lead	XRF Lead Sieved	Arsenic	Arsenic Sieved	XRF Arsenic	XRF Arsenic Sieved	Benzo(a)pyrene	BaP TEQ
<b>COLLEGEVILLE</b>															
012200133001045002 3001	Huntsville Rd		Comp.	Housing Project	CV0005AA		450		404						
			Grab	Housing Project	CV0005AC									2.5	
			Comp.	Housing Project	CV0005BB									1.6	
			Comp.	Housing Project	CV0005E				435						
			Comp.	Housing Project	CV0005Y	410	400								
012200131016027000 3460	31st Way N		Comp.	Side Yard	CV0194C	415	470								
012200134006009000 3316	32nd Pl N		Comp.	Front Yard	CV0222A				430						
012200134006010000 3320	32nd Pl N		Comp.	Front Yard	CV0224A				894						
			Comp.	Back Yard	CV0224B							64			
012200131017010000 3408	32nd St N		Grab	Veg Garden	CV0272D	460			416						
012200134002017000 3424	33rd Ave N		Comp.	Front Yard	CV0302A				461						
012200133001018000 3028	33rd Ct N		Comp.	Back Yard	CV0323B		410								
012200131010062000 3356	33rd Pl N		Comp.	Back/Side Yard	CV0395B	470	650	1,093	589						
012200131015035000 3476	33rd St N		Comp.	Back Yard	CV0497B				652						
012200133001006000 3029	33rd Ter N		Comp.	Front Yard	CV0502A					81					
012200133001001000 3111	33rd Ter N		Comp.	School	CV0509KK										1.5866
			Comp.	School	CV0509X										2.156
			Comp.	School	CV0509T									1.7	
012200131015015000 3148	34th Ct N		Comp.	Front Yard	CV0530A									1.7	
012200134003017000 3326	34th St N		Comp.	Back yard	CV0555B	460	490	434	406						
012200131015005000 3148	34th Ter N		Comp.	Front Yard	CV0590A									3.4	
012200134008001000 3300	Huntsville Rd		Comp.	School	CV0613A										1.6017
			Comp.	School	CV0613B									2.3	
012200134007006000 3321	Huntsville Rd		Comp.	Front Yard	CV0615A									1.6	
012200131008009000 3933	Huntsville Rd		Grab	Vacant Lot	CV0627A										2.11
			Comp.	Front Yard	CV0724A									2.4	
			Comp.	Back Yard	CV0724B									2.1	
012300182002016000 3504	34th Ave N		Comp.	Front Yard	CV0739A	990	750	697	842					14	
012200133001045001 3031	29th Ave N		Comp.	Housing Project	CV0748WW									1.9	
012200134017016000 3422	30th Ave N		Comp.	Back Yard	CV0752B		410		403	571					
			Comp.	Back Yard	CV0755A				512	1,200					
012200134017020000 3436	30th Ave N		Comp.	Back Yard	CV0755B					462					
			Grab	Playset	CV0755C				415	635					
			Comp.	Back Yard	CV0829B	520	410								
012200134017006000 3425	31st Ave N		Comp.	Side Yard	CV0837A	460			417						
012200134020007000 3013	33rd St N		Comp.	Back/Side Yard	CV0876A				427	476					
			Comp.	Side Yard	CV0876B		650		510	547					
012200132023007000 3334	30th Way N		Comp.	Back Yard	CV0965C		450								
012200133001045003 3001	29th Ave N		Comp.	Housing Project	CV0971A	470				150					
			Grab	Housing Project	CV0971AO				416	473					
			Grab	Housing Project	CV0971AP				416	487					
			Comp.	Housing Project	CV0971E	420									
			Comp.	Housing Project	CV0971JJ										1.6624
			Comp.	Housing Project	CV0971K	440									
			Comp.	Housing Project	CV0971NN									2	
			Comp.	Housing Project	CV0971O										1.7539
			Comp.	Housing Project	CV0971P									4.1	
			Comp.	Housing Project	CV0971SS				421						
			Comp.	Housing Project	CV0971TT										1.9893
			Comp.	Housing Project	CV0971VV		450		433						
			Comp.	Housing Project	CV0971WW	530	510		474						
012200134043005000 3219	27th Ct N		Comp.	Front Yard	CV1067A				402						
012200134027014000 2932	34th St N		Comp.	Back Yard	CV1067B	490	750	431	493						
			Comp.	Back Yard	CV1357B				406						

**TABLE 1A**  
**35TH AVENUE REMOVAL SITE**  
**SUMMARY OF PHASE II PARCELS**

Parcel ID	Street Name	Street Number	Sublocation	Sample Collection	Location	Lead	Lead Sieved	XRF Lead	XRF Lead Sieved	Arsenic	Arsenic Sieved	XRF Arsenic	XRF Arsenic Sieved	Benzo(a)pyrene	BaP TEQ
FAIRMONT															
012200123009001000	3040	44th Ave N	Grab	Housing Project	FM0161AV									2.8	
012200132005007000	4036	Fairmont Way	Comp.	Church	FM0284A									11	
			Comp.	Church	FM0284C	610	460								
			Comp.	Church	FM0284D								2.9		
			Comp.	Church	FM0284G		430								
HARRIMAN PARK															
012300073011023000	3532	42nd Ave N	Comp.	Back Yard	HP0084B	460	540	469	445						
012300073012007000	3533	42nd Ave N	Comp.	Front Yard	HP0085A									1.5	
			Comp.	Back Yard	HP0085B	500		514							
012300073011030000	3560	42nd Ave N	Comp.	Back Yard	HP0098B								61		
012300073010007000	3637	43rd Ave N	Comp.	Front Yard	HP0187A									4.4	
			Comp.	Back Yard	HP0187B	500	490	512	421						
012300073008004000	3653	44th Ave N	Comp.	Side yard	HP0241A		630	609	467						
			Comp.	Back yard	HP0241B			651	505						
			Comp.	Back yard	HP0241C			493	559						
012200131009001000	3419	Huntsville Rd	Comp.	School	HP0320C										1.8618
			Comp.	School	HP0320E										1.6105
			Comp.	School	HP0320K									3.9	

**Notes:**

Results reports in mg/kg or ppm (XRF)

Comp. - Composite

XRF - X-Ray fluorescence

**TABLE 1B**  
**35TH AVENUE REMOVAL SITE**  
**SUMMARY OF PHASE III PARCELS**

Parcel ID	Street Name	Street Number	Sublocation	Sample Collection	Location	Lead	Lead Sieved	XRF Lead	XRF Lead Sieved	Arsenic	Arsenic Sieved	XRF Arsenic	XRF Arsenic Sieved	Benzo(a)pyrene	BaP TEQ
COLLEGEVILLE															
012200132018016000	3436	30th Way N	Comp.	Back Yard	CV0045B									6.8	
012200132020015000	3414	31st Pl N	Comp.	Front Yard	CV0104A										1.6559
			Comp.	Side Yard	CV0104B								3.6		
012200132020011004	3417	31st St N	Comp.	Back Yard	CV0144B									3.1	
012200131026008000	3338	31st Way N	Comp.	Front Yard	CV0162A									3.9	
012200134015014000	3404	32nd Ave N	Comp.	Back Yard	CV0197C	540				370	340	187	198		
012200134005004000	3325	32nd Pl N	Comp.	Front Yard	CV0227A				457						
			Comp.	Back Yard	CV0227B			1,113				122			
012200134006006000	3313	32nd St N	Comp.	Front Yard	CV0254A									2.4	
			Comp.	Back Yard	CV0254B	470		434							
012200134015005000	3431	33rd Ave N	Comp.	Back Yard	CV0305B									6.2	
012200134015001000	3449	33rd Ave N	Comp.	Back Yard	CV0312A								62	4.6	
012200134001012000	3420	33rd Ct N	Comp.	Back Yard	CV0339B									6	
012200134001013000	3428	33rd Ct N	Comp.	Vacant Lot	CV0341B	570	440								
012200131010080000	3369	33rd Pl N	Comp.	Back Yard	CV0401B									4.4	
012200131010068000	3384	33rd Pl N	Comp.	Front Yard	CV0408A									2.9	
012200133001008000	3021	33rd Ter N	Comp.	Front Yard	CV0500A									2.4	
012200133001005000	3035	33rd Ter N	Comp.	Front Yard	CV0503A					66	74	61			
			Comp.	Front Yard	CV0503B								2.3		
012200132018005000	3030	34th Ave N	Comp.	Front Yard	CV0523A									3.4	
012200131010086000	3344	34th St N	Comp.	Front Yard	CV0559A									3.3	
			Comp.	Back Yard	CV0559B								2.3		
			Grab	Low Lying Area	CV0559C								1.5		
012200131015002000	3136	34th Ter N	Comp.	Front Yard	CV0584A									3.3	
012200131008009000	3933	Huntsville Rd	Comp.	Front Yard	CV0724A									2.4	
			Comp.	Back Yard	CV0724B								2.1		
012200134022047000	3232	30th Ct N	Comp.	Back Yard	CV0793B									2.6	
012200134016017000	3410	31st Ave N	Comp.	Front Yard	CV0823A	480	550		409			385			
			Comp.	Back Yard	CV0823B				475						
012200134016013000	3117	34th Ave N	Comp.	Front Yard	CV0912A									6.2	
012200134039010000	3436	27th Ct N	Comp.	Front Yard	CV1114A									2.5	
012200134030002000	3439	29th Ave N	Comp.	Back Yard	CV1264B									3.5	
012200134029003000	3437	30th Ave N	Comp.	Back Yard	CV1290A									4.7	
FAIRMONT															
012200132003008000	4005	29th St N	Comp.	Front Yard	FM0047A									2.5	
			Comp.	Side Yard	FM0047B								2.3		
			Comp.	Side Yard	FM0047E								1.6		
012200123001002000	3142	46th Ave N	Comp.	Back Yard	FM0215B									7.5	
012200124003002000	3158	46th Ave N	Comp.	Side Yard	FM0227C									2.1	
			Comp.	Back Yard	FM0227D								4.1		
HARRIMAN PARK															
012200131008014000	3430	34th Ter N	Comp.	Front Yard	HP0006A									6.5	
012300073014009000	3649	42nd Ave N	Comp.	Front Yard	HP0125A									9.5	
012300073009010000	3708	43rd Ave N	Comp.	Front Yard	HP0205A									3	

**Notes:**  
Results reports in mg/kg or ppm (XRF)  
Comp. - Composite  
XRF - X-Ray fluorescence

**TABLE 2A**  
**35TH AVENUE REMOVAL SITE**  
**SUMMARY OF PHASE II LOCATIONS TO BE SAMPLED**

Location	Removal Investigation Sampling Aliquot Geographic Coordinates						Constituent of Concern	
	1	2	3	4	5	Grab	Ar, Pb	PAH
<b>COLLEGEVILLE</b>								
CV0005AA	-86.8078795861, 33.5521432985	-86.8078792844, 33.552091794	-86.808288316, 33.5521456117	-86.8086468587, 33.5521587098	-86.8086457285, 33.552107393		X	
CV0005AC	-86.8054955555, 33.5521563251					X		X
CV0005BB	-86.8087126754, 33.5521599565	-86.8087120737, 33.5521086687	-86.8088286491, 33.5521361245	-86.808954311, 33.5521146338	-86.8089579191, 33.5521666086			X
CV0005E	-86.8084405799, 33.5529152615	-86.8089597258, 33.5528399733	-86.8087008889, 33.5528688311	-86.8084408792, 33.5528355936	-86.8089374236, 33.5527926279		X	
CV0005Y	-86.8063543248, 33.5520665616	-86.8070068195, 33.5520771564	-86.8066872023, 33.5521138619	-86.8063665688, 33.5521290208	-86.807001453, 33.5521361439		X	
CV0194C	-86.8042973037, 33.5603508861	-86.804220994, 33.5603511897	-86.8041418451, 33.5603514447				X	
CV0222A	-86.8017386214, 33.556056684	-86.8017694824, 33.5560583624	-86.8017524886, 33.5560309316	-86.8017419632, 33.5559987267	-86.8017745225, 33.5559988111		X	
CV0224A	-86.8017448249, 33.5562399823	-86.8017836388, 33.556248174	-86.8017603085, 33.5562885568	-86.8017614959, 33.5563260087	-86.801745304, 33.5563207623		X	
CV0224B	-86.8020369598, 33.5562516942	-86.8021782104, 33.5562491427	-86.8020999057, 33.5563142202	-86.8021552656, 33.5563680595	-86.80203844, 33.5563574668		X	
CV0272D	-86.8035322532, 33.5585492256					X	X	
CV0302A	-86.7971952013, 33.5552993226	-86.7971913794, 33.5553293151	-86.7971574904, 33.5553192611	-86.7971195329, 33.5553319577	-86.7971161629, 33.5553012422		X	
CV0323A	-86.8077777536, 33.5563639578	-86.8077631337, 33.5564171754	-86.8077193033, 33.5563897416	-86.8076452363, 33.556399043	-86.8076301676, 33.5563733129		X	
CV0323B	-86.8077784656, 33.5565511108	-86.8077639257, 33.5566465332	-86.8077096905, 33.5566039944	-86.8076466465, 33.5566457897	-86.8077138019, 33.5565433837		X	
CV0395B	-86.799822556, 33.5573626235	-86.7999405293, 33.5573659326	-86.799863538, 33.5574165392	-86.7999355636, 33.5574892604	-86.7998131297, 33.5575041586		X	
CV0497B	-86.8028734382, 33.5605731963	-86.8028746223, 33.5604562296	-86.8029393198, 33.5605146407	-86.8029569202, 33.5604704533	-86.8029382302, 33.5605729003		X	
CV0502A	-86.80773100070, 33.55697491790	-86.80763677410, 33.55697301430	-86.80767674900, 33.55695397860	-86.80772814540, 33.55693113580	-86.80764248480, 33.55692732870		X	
CV0509KK	-86.8049469077, 33.5559869623	-86.8050769566, 33.5559926742	-86.8050245792, 33.555837842	-86.804957653, 33.5556435613	-86.8050844324, 33.5556497957			X
CV0509T	-86.8056193793, 33.5552100531	-86.8054009335, 33.5552014979	-86.8054847017, 33.5551643873	-86.8054080827, 33.5551430167	-86.8056234902, 33.5551488451			X
CV0509X	-86.80515066, 33.5551988553	-86.8052825791, 33.5551993866	-86.8052139444, 33.5551663572	-86.8051535291, 33.5551371967	-86.8052865044, 33.5551429413			X
CV0530A	-86.8031957921, 33.5594532044	-86.8031943952, 33.5594950637	-86.8031559526, 33.5594682763	-86.8031083688, 33.5594896118	-86.8031008043, 33.5594431564			X
CV0555B	-86.7987049385, 33.5565852376	-86.7988621187, 33.5565685771	-86.7987790211, 33.5565469795	-86.7988600174, 33.5565028383	-86.798693514, 33.5564993903		X	
CV0590A	-86.8033103027, 33.5601680816	-86.8033133785, 33.5601281438	-86.8032789274, 33.5601550476	-86.8032496268, 33.5602025753	-86.8032506196, 33.5601155751			X
CV0613A	-86.8046867062, 33.5557043637	-86.8045393318, 33.5556739315	-86.80458626, 33.5557651883	-86.8046147687, 33.5558524467	-86.8044679876, 33.5558047745			X
CV0613B	-86.8044280089, 33.5558753183	-86.8045175965, 33.5559147302	-86.8044240494, 33.5559795666	-86.8043239148, 33.5560733132	-86.8043818339, 33.5560937472			X
CV0615A	-86.8040364245, 33.5562793171	-86.804049813, 33.5562362628	-86.8040661671, 33.5562017095	-86.8040709563, 33.5561851434	-86.8040935067, 33.5561514036			X
CV0627B	-86.7991664039, 33.5606134746					X		X
CV0724A	-86.7985547732, 33.5615374014	-86.7985076837, 33.5615529077	-86.7984950598, 33.5615993892					X
CV0724B	-86.7982764018, 33.56159604	-86.7982734773, 33.561549858	-86.798228209, 33.5615736252	-86.7981850494, 33.5615510054	-86.7981830633, 33.5615987221			X
CV0739A	-86.79827613900, 33.55700375640	-86.79592393100, 33.55788634130	-86.79589605030, 33.55788496650	-86.79592078140, 33.55790446520	-86.79661344200, 33.55761553430		X	X
CV0748WW	-86.8052035777, 33.5534318037	-86.8051041918, 33.5537558793	-86.8051437721, 33.553550938	-86.8052503337, 33.553449967	-86.8051541546, 33.553760529			X
CV0752B	-86.7973822141, 33.5530998161	-86.7973486431, 33.5531554827	-86.7973441697, 33.5531299231	-86.797281371, 33.5531512798	-86.7972624775, 33.5531272372		X	
CV0755A	-86.7967041574, 33.5528396134	-86.7966316272, 33.5528532358	-86.7966714529, 33.5529108879	-86.7967095572, 33.5529726292	-86.7966342967, 33.5529787626		X	

**TABLE 2A**  
**35TH AVENUE REMOVAL SITE**  
**SUMMARY OF PHASE II LOCATIONS TO BE SAMPLED**

Location	Removal Investigation Sampling Aliquot Geographic Coordinates						Constituent of Concern	
	1	2	3	4	5	Grab	Ar, Pb	PAH
CV0755B	-86.7967167317, 33.553039217	-86.7966463296, 33.5530498049	-86.7966861927, 33.5530962451	-86.796716339, 33.5531674934	-86.7966693739, 33.5531678462		X	
CV0755C	-86.79666514360, 33.55300136520					X	X	
CV0829B	-86.7971345429, 33.5533167773	-86.7972562597, 33.55332947	-86.7971812846, 33.5532813812	-86.7971596972, 33.5532548916	-86.7972423726, 33.5532908816		X	
CV0837A	-86.7963444892, 33.5536661969	-86.7963082499, 33.5537243152	-86.7963078622, 33.5537908624				X	
CV0876A	-86.800328926, 33.5534559624	-86.800275526, 33.553451263	-86.8002574574, 33.5534120643	-86.8002414912, 33.5533663616	-86.7954933751, 33.5568478872		X	
CV0876B	-86.8002974424, 33.5533263701	-86.8003359042, 33.5533268583	-86.800380151, 33.553327862	-86.8004326404, 33.5533298596	-86.8005025371, 33.5533244699		X	
CV0965C	-86.8070438876, 33.557104098	-86.8070341471, 33.5573181149	-86.8070868585, 33.5572009435	-86.8071124639, 33.5571145285	-86.8071141983, 33.557317921		X	
CV0971A	-86.8060688439, 33.5518992818	-86.8056678198, 33.5518816237	-86.8059450974, 33.5518825634	-86.8060921839, 33.5518518487	-86.8056974335, 33.5518155694		X	
CV0971AO	-86.8086284263, 33.5512058967					X	X	
CV0971AP	-86.808754183, 33.5510799016					X	X	
CV0971E	-86.8069750159, 33.5501579903	-86.8070253848, 33.5501005423	-86.8071454221, 33.5501984198	-86.8072370823, 33.5503104838	-86.8072869534, 33.5502396784		X	
CV0971JJ	-86.8084370461, 33.5510240413	-86.8084439638, 33.5508793656	-86.8085120916, 33.5509702501	-86.8085654791, 33.5510410928	-86.8085563192, 33.5508559881			X
CV0971K	-86.8062144918, 33.5518836776	-86.8062571135, 33.5517196972	-86.8064526619, 33.551793835	-86.8065915882, 33.5518888014	-86.8065841867, 33.5516452544		X	
CV0971NN	-86.8088553323, 33.551327191	-86.8087706413, 33.5510619622	-86.8088533783, 33.5511684468	-86.8089138547, 33.5513164191	-86.8088431314, 33.5510504948			X
CV0971O	-86.8069570383, 33.5517267777	-86.8069625854, 33.5515820965	-86.8071204778, 33.5516722411	-86.8072292496, 33.5517357445	-86.8071737283, 33.5516436894			X
CV0971P	-86.8071445016, 33.5514862524	-86.8071524555, 33.5511615185	-86.8071965704, 33.5513035038	-86.8072300864, 33.5514780655	-86.807234189, 33.551165706			X
CV0971SS	-86.8091210201, 33.550731763	-86.8090964856, 33.5506052235	-86.8093314338, 33.5506491989	-86.8095081217, 33.550744171	-86.809475322, 33.550551792		X	
CV0971TT	-86.8090939096, 33.5505333802	-86.8091006974, 33.5504249908	-86.8092936145, 33.5504815278	-86.8094614035, 33.5504988801	-86.8094414376, 33.5504421055			X
CV0971VV	-86.80977579, 33.551632845	-86.8095981134, 33.5510904343	-86.8097198313, 33.5513467178	-86.8098383199, 33.5516175906	-86.8096706065, 33.5510712536		X	
CV0971WW	-86.8083431726, 33.5519500834	-86.8083373207, 33.5518958781	-86.8086625254, 33.5519270229	-86.8089935112, 33.5519607249	-86.8089960211, 33.551905396		X	
CV1067A	-86.8014403338, 33.5503410596	-86.8015070716, 33.5503414309	-86.8015271759, 33.5503431773				X	
CV1067B	-86.8014562094, 33.5501634786	-86.801553122, 33.5501604296	-86.8014983348, 33.5501146894				X	
CV1357B	-86.7986884676, 33.5523186136	-86.7986889936, 33.5523823155	-86.7987088601, 33.552356378	-86.7987398522, 33.5523110754	-86.7987422329, 33.5523964786		X	
<b>FAIRMONT</b>								
FM0161AV	-86.8082479681, 33.5665251007					X		X
FM0284A	-86.8129098964, 33.5636167909	-86.8127511587, 33.563619605	-86.8128200293, 33.5635040673	-86.8127295212, 33.5634088914	-86.8128992021, 33.5634050067			X
FM0284C	-86.813148117, 33.563315944	-86.8129828912, 33.5633364597	-86.8130592673, 33.563244919	-86.8129969129, 33.5631261141	-86.8131511183, 33.5631170391		X	
FM0284D	-86.8131121635, 33.5636146391	-86.8129747333, 33.5636194628	-86.8130519936, 33.5634942262	-86.8129850423, 33.5634119547	-86.8131492505, 33.5634167137			X
FM0284G	-86.8131529184, 33.564451438	-86.8129450805, 33.5644509104	-86.8130461905, 33.5644240183	-86.8131427795, 33.5643839819	-86.8129607176, 33.5643867838		X	
<b>HARRIMAN PARK</b>								
HP0084B	-86.7953942058, 33.5652504729	-86.7953867703, 33.5653256009	-86.7953792845, 33.5653467201	-86.795358757, 33.56538325	-86.7952996601, 33.5653930986		X	
HP0085A	-86.7953048539, 33.5649475495	-86.795305625, 33.5649276368	-86.7952507325, 33.5649456297	-86.7952004234, 33.5649435822	-86.7952084444, 33.5649078211			X
HP0085B	-86.7952321456, 33.5647397183	-86.7952413311, 33.5646373836	-86.7952804186, 33.5646901022	-86.7953176084, 33.5647389531	-86.7953156167, 33.564649945		X	
HP0098B		-86.7942712075, 33.565347474	-86.794302203, 33.5653705184	-86.794345512, 33.5653682503	-86.794232781, 33.5653170017		X	

**TABLE 2A**  
**35TH AVENUE REMOVAL SITE**  
**SUMMARY OF PHASE II LOCATIONS TO BE SAMPLED**

Location	Removal Investigation Sampling Aliquot Geographic Coordinates						Constituent of Concern	
	1	2	3	4	5	Grab	Ar, Pb	PAH
HP0187A	-86.7921408883, 33.5657008619	-86.7921507144, 33.5656854263	-86.7920972134, 33.5656996688	-86.7920547401, 33.5657039801	-86.7920419425, 33.5656865937			X
HP0187B	-86.7921463781, 33.5655734356	-86.7921713147, 33.5655269739	-86.7921064623, 33.5655587182	-86.7920644679, 33.5655899271	-86.7920815577, 33.5655595612		X	
HP0241A	-86.7914632615, 33.5665753317	-86.7914610519, 33.5665731426	-86.7914260963, 33.566481784	-86.7913752034, 33.5664292034	-86.7914715025, 33.5664468135		X	
HP0241B	-86.7914708375, 33.5664078772	-86.7913962918, 33.5664125385	-86.791414166, 33.5663026398	-86.7914040897, 33.5662515385	-86.7914681266, 33.5662422574		X	
HP0241C	-86.7914971448, 33.5664078379	-86.7915685635, 33.5664105905	-86.7915315192, 33.5663396616	-86.7914916078, 33.5662798549	-86.7915656592, 33.5662704506		X	
HP0320C	-86.7991168553, 33.5608443369	-86.7991606111, 33.5608677827	-86.7991815019, 33.5607929076	-86.7991719302, 33.5606832881	-86.799270026, 33.560750494			X
HP0320E	-86.7983783985, 33.5607027864	-86.7980818535, 33.5607030455	-86.7982139529, 33.5606622125	-86.7983766507, 33.5606223218	-86.7980811553, 33.5606204339			X
HP0320J	-86.7975711352, 33.5610720618	-86.7976669413, 33.5610765006	-86.7977610944, 33.561080719	-86.7978472346, 33.5610856666	-86.7979457602, 33.5610876358			X
HP0320K	-86.7978885772, 33.5610220464	-86.7978902848, 33.5609263479	-86.7979566858, 33.5609214932	-86.7980241589, 33.5609208947	-86.7980943938, 33.5609237325			X

**TABLE 2B**  
**35TH AVENUE REMOVAL SITE**  
**SUMMARY OF PHASE III LOCATIONS TO BE SAMPLED**

Location	Removal Investigation Sampling Aliquot Geographic Coordinates						Constituent of Concern	
	1	2	3	4	5	Grab	Ar, Pb	PAH
<b>COLLEGEVILLE</b>								
CV0045B	-86.8067208892, 33.5594801029	-86.8068087814, 33.5595485665	-86.8067184547, 33.5595875877	-86.8067186501, 33.559676432	-86.8066271467, 33.5596278057			X
CV0104A	-86.8050155283, 33.5587626515	-86.8050287046, 33.5588048984	-86.8050138262, 33.5588522828					X
CV0104B	-86.8051027923, 33.5587564544	-86.8051603873, 33.5587583751	-86.8052225649, 33.5587617134					X
CV0144B	-86.8054437033, 33.558670891	-86.8055539054, 33.5586832899	-86.805470439, 33.5587140642	-86.8055416118, 33.5587387994	-86.8054300202, 33.5587427644			X
CV0162A	-86.8041373283, 33.5572219451	-86.8041378853, 33.557240387	-86.8041379428, 33.5572683685	-86.8041403103, 33.5572982938	-86.8041886855, 33.5573135129			X
CV0197C	-86.79808686, 33.55451101	-86.79803897, 33.55451286	86.79797390, 33.5541252				X	
CV0227A	-86.8015848237, 33.5564857109	-86.8015278822, 33.55649636	-86.8015537947, 33.5564467995	-86.8015341203, 33.5564112184	-86.8015899758, 33.5564222106		X	
CV0227B	-86.8012299807, 33.5564659597	-86.8012265341, 33.5564703735	-86.8012515476, 33.5564281179	-86.8011929168, 33.5563960466	-86.8012717889, 33.5563966781		X	
CV0252	-86.8027126059, 33.5556071961	-86.8027085567, 33.555605686	-86.8026761282, 33.5555763094	-86.8026511098, 33.5556056846	-86.8026329921, 33.5555803451			
CV0254A	-86.8026808689, 33.5561062142	-86.802685283, 33.556073065	-86.8026933612, 33.5559963047	-86.8026283095, 33.5559939735	-86.8025623624, 33.5559929666			X
CV0254B	-86.8024622107, 33.5561064957	-86.802483603, 33.5559746398	-86.8023507653, 33.5560382172	-86.8022811531, 33.5560889712	-86.8022981303, 33.5559915507		X	
CV0305B	-86.7969838582, 33.5549930034	-86.7969685495, 33.5548787527	-86.797016841, 33.5549420575	-86.7970879729, 33.5548788703	-86.7970883761, 33.5549877233			X
CV0312A	-86.7962967385, 33.5549825267	-86.7963010237, 33.5549251305	-86.7963198389, 33.5548672893	-86.7963474938, 33.5548561957	-86.7964177422, 33.5548624981		X	X
CV0339B	-86.79740169, 33.556113747	86.79735932, 33.55612215	-86.7927838, 33.55612195					X
CV0341B	-86.79718245, 33.55612326	-86.79718686, 33.55624114	-86.79714668, 33.55619850	-86.79712617, 33.55625644	-86.79712193, 33.55612127		X	
CV0401B	-86.7991503013, 33.5578354282	-86.7990087355, 33.5578236671	-86.7990603538, 33.5577954538	-86.7990050365, 33.5577383406	-86.7991685393, 33.55774395			X
CV0408A	-86.7995581684, 33.5581278536	-86.7996207174, 33.5581336434	-86.7995898912, 33.5581632372	-86.79955636, 33.5582040443	-86.7996303202, 33.5581994355			X
CV0500A	-86.808012955, 33.5569834411	-86.808117195, 33.5569884242	-86.8080835379, 33.5569565559	-86.8080195652, 33.5569347165	-86.8081336134, 33.5569368557			X
CV0503A	-86.80750430, 33.55697247	-86.80750488, 33.55694972	-86.80755023, 33.55695207	-86.80761217, 33.55692824	86.80761667, 33.5569820		X	
CV0503B	-86.80747912, 33.55681084	-86.80747314, 33.55673463	-86.80753636, 33.556752125	-86.80761475, 33.55677180	-86.80761174, 33.55670634			X
CV0523A	-86.8071679688, 33.5586814687	-86.8071788915, 33.558770296	-86.8072295483, 33.5587098395	-86.8073394675, 33.5587511161	-86.8073494142, 33.5586682219			X
CV0559A	-86.7984644228, 33.5569945536	-86.7985036224, 33.5569866563	-86.7984869827, 33.5570142696	-86.7985094533, 33.5570517554	-86.7984664223, 33.5570450553			X
CV0559B	-86.7986974422, 33.5570000155	-86.7988775369, 33.5570016918	-86.7987628154, 33.5570322401	-86.7988820797, 33.5570827937	-86.7986873067, 33.5570775172			X
CV0559C	-86.7987710326, 33.5569900813					X		X
CV0584A	-86.8036997994, 33.5602764699	-86.8036082938, 33.5602746769	-86.8036598717, 33.5603109889	-86.8037086749, 33.5603531537	-86.8036041404, 33.5603521139			X
CV0724A	-86.7985547732, 33.5615374014	-86.7985076837, 33.5615529077	-86.7984950598, 33.5615993892			X		X
CV0724B	-86.7982764018, 33.56159604	-86.7982734773, 33.561549858	-86.798228209, 33.5615736252	-86.7981850494, 33.5615510054	-86.7981830633, 33.5615987221			X
CV0793B	-86.8008852286, 33.5534769418	-86.8008837402, 33.5535251098	-86.8008364175, 33.5535077919	-86.8007863705, 33.5534968405	-86.8008154759, 33.5535352091			X
CV0823A	-86.7977343834, 33.5536749639	-86.7976660562, 33.5536734601	-86.7976975444, 33.5536832705	-86.7977333768, 33.5536959511	-86.7976646137, 33.5536975982		X	

**TABLE 2B**  
**35TH AVENUE REMOVAL SITE**  
**SUMMARY OF PHASE III LOCATIONS TO BE SAMPLED**

Location	Removal Investigation Sampling Aliquot Geographic Coordinates						Constituent of Concern	
	1	2	3	4	5	Grab	Ar, Pb	PAH
CV0823B	-86.7977450967, 33.553882082	-86.7976515519, 33.5538695996	-86.7977019977, 33.5539242202	-86.7977455519, 33.5539964937	-86.7976715207, 33.5539972729		X	
CV0912A	-86.7982766345, 33.554360044	-86.7982026809, 33.5543614785	-86.7982493356, 33.5542964706	-86.798208678, 33.5542332226	-86.7982881049, 33.5542265377			X
CV1114A	-86.7967141771, 33.5503578269	-86.79660204, 33.5503664997	-86.79665004, 33.5503713863	-86.7967177328, 33.5503891147	-86.7966017272, 33.5503930488			X
CV1264B	-86.7964357759, 33.5515683126	-86.7965482674, 33.5515747566	-86.7965137453, 33.5515394448	-86.7964496756, 33.5514905983	-86.7965556207, 33.5515110095			X
CV1290A	-86.7965919557, 33.5523730855	-86.7966975144, 33.5524026568	-86.7966500338, 33.5523519423	-86.7966160022, 33.5522611601	-86.7967101074, 33.5523445491			X
<b>FAIRMONT</b>								
FM0047A	-86.8114189713, 33.5632731391	-86.8114169197, 33.5631916626	-86.8114022517, 33.5632487566	-86.8113871444, 33.5632852625	-86.811393993, 33.5631956726			X
FM0047B	-86.8112934801, 33.5633162392	-86.8112565862, 33.5633138028	-86.8112209962, 33.5633142625					X
FM0047E	-86.8113429781, 33.5631841181	-86.8113015676, 33.5631895319	-86.8112578286, 33.5631869845					X
FM0215B	-86.80508295, 33.57149211	-86.80518713, 33.57150069	-86.80512587, 33.57152210	-86.80507960, 33.57157490	-86.80516892, 33.57157144			X
FM0227C	-86.8045556783, 33.5712434979	-86.8045715459, 33.5713467278	-86.8045638021, 33.5714282295	-86.8045633099, 33.5714830599	-86.8045453263, 33.5715856095			X
FM0227D	-86.8045335455, 33.5714979761	-86.804539897, 33.5714152754	-86.8045114141, 33.5714544946	-86.8044731325, 33.5714978863	-86.8044763991, 33.5714197477			X
<b>HARRIMAN PARK</b>								
HP0006A	-86.7977365548, 33.561238145	-86.7977354074, 33.5612452813						X
HP0125A	-86.7920661888, 33.5648022146	-86.7920749254, 33.5647451365	-86.7921109604, 33.5647739564	-86.7921580423, 33.5647630827	-86.7921589099, 33.5648048322			X
HP0205A	-86.7902237937, 33.5657572553	-86.7902311481, 33.5658411596	-86.7903162687, 33.5657947631	-86.7903890603, 33.5657430946	-86.7903919728, 33.5658514468			X



## Sample Login Analytes / Limits

## Job 680-91068-2

<b>Client Job Description:</b>	35th Avenue Superfund Site	<b>Report To:</b>	Oneida Total Integrated Enterprises LLC
<b>Purchase Order #:</b>	2005148-1356		Limari Krebs
<b>Work Order #:</b>			1220 Kennestone Circle
<b>Project Manager:</b>	Lisa Harvey		Suite 106
<b>Job Due Date:</b>	6/18/2013		Marietta, GA 30060
<b>Job TAT:</b>	12 Day Rush		
<b>Max Deliverable Level:</b>	IV	<b>Bill To:</b>	Oneida Total Integrated Enterprises LLC
			Accounts Payable
<b>Earliest Deliverable Due:</b>	6/18/2013		1033 North Mayfair Road
			Suite 200
			Milwaukee, WI 53226

## Login 680-91068

<b>Sample Receipt:</b>	6/6/2013 9:00:00 AM	<b>Number of Coolers:</b>	1
<b>Method of Delivery:</b>	FedEx Priority Overnight	<b>Cooler Temperature(s) (C°):</b>	5.1;

Method	Method Description	Rpt Basis			Units	Sample #s Applicable
200.7_CWA	<b>ICP Metals</b>	Total	MDL	RL		21
	Arsenic		4.6	20	ug/L	
	Barium		2.3	10	ug/L	
	Cadmium		2	5	ug/L	
	Chromium		1.2	10	ug/L	
	Lead		4	10	ug/L	
	Selenium		6.4	20	ug/L	
	Silver		0.89	10	ug/L	
245.1	<b>Mercury</b>	Total	MDL	RL		21
	Mercury		0.091	0.2	ug/L	
6010C	<b>ICP Metals</b>	Total	MDL	RL		12,12MS,12MSD,17,19,20
	Arsenic		0.59	2	mg/Kg	
	Barium		0.3	1	mg/Kg	
	Cadmium		0.1	0.5	mg/Kg	
	Chromium		0.5	1	mg/Kg	
	Lead		0.53	1	mg/Kg	
	Selenium		1	2.5	mg/Kg	
	Silver		0.096	1	mg/Kg	
7471B	<b>Mercury</b>	Total	MDL	RL		12,12MS,12MSD,17,19,20
	Mercury		0.0082	0.02	mg/Kg	
Moisture	<b>Percent Moisture</b>	Total	RL	RL		1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18
	Percent Moisture		0.1	0.1	%	
Moisture	<b>Percent Moisture</b>	Total	RL	RL		19,20
	Percent Moisture		0.01	0.01	%	

## Sample Login Analytes / Limits

## Job 680-91068-1

<b>Client Job Description:</b>	35th Avenue Superfund Site	<b>Report To:</b>	Oneida Total Integrated Enterprises LLC
<b>Purchase Order #:</b>	2005148-1356		Limari Krebs
<b>Work Order #:</b>			1220 Kennestone Circle
<b>Project Manager:</b>	Lisa Harvey		Suite 106
<b>Job Due Date:</b>	6/18/2013		Marietta, GA 30060
<b>Job TAT:</b>	12 Day Rush		
<b>Max Deliverable Level:</b>	IV	<b>Bill To:</b>	Oneida Total Integrated Enterprises LLC
			Accounts Payable
<b>Earliest Deliverable Due:</b>	6/18/2013		1033 North Mayfair Road
			Suite 200
			Milwaukee, WI 53226

## Login 680-91068

<b>Sample Receipt:</b>	6/6/2013 9:00:00 AM	<b>Number of Coolers:</b>	1
<b>Method of Delivery:</b>	FedEx Priority Overnight	<b>Cooler Temperature(s) (C°):</b>	5.1;

Method	Method Description	Rpt Basis			Units	Sample #s Applicable
8270C_LL	Low Level PAHs	Total	MDL	RL		1,2,3,4,5,6,7,8,9,10,11,12,12M S,12MSD,13,14,15,16,17,18
	1-Methylnaphthalene		4.4	40	ug/Kg	
	2-Methylnaphthalene		7.1	40	ug/Kg	
	Acenaphthene		20	100	ug/Kg	
	Acenaphthylene		5	40	ug/Kg	
	Anthracene		4.2	8.4	ug/Kg	
	Benzo[a]anthracene		3.9	8	ug/Kg	
	Benzo[a]pyrene		5.2	10.4	ug/Kg	
	Benzo[b]fluoranthene		6.1	12.2	ug/Kg	
	Benzo[g,h,i]perylene		4.4	20	ug/Kg	
	Benzo[k]fluoranthene		3.6	8	ug/Kg	
	Chrysene		4.5	9	ug/Kg	
	Dibenz(a,h)anthracene		4.1	20	ug/Kg	
	Fluoranthene		4	20	ug/Kg	
	Fluorene		4.1	20	ug/Kg	
	Indeno[1,2,3-cd]pyrene		7.1	20	ug/Kg	
	Naphthalene		4.4	40	ug/Kg	
	Phenanthrene		3.9	8	ug/Kg	
	Pyrene		3.7	20	ug/Kg	
8270C_LL	Low-Level PAH	Total	MDL	RL		21
	1-Methylnaphthalene		0.5	2	ug/L	
	2-Methylnaphthalene		0.5	2	ug/L	
	Acenaphthene		0.5	2	ug/L	
	Acenaphthylene		0.25	1	ug/L	
	Anthracene		0.076	0.2	ug/L	
	Benzo[a]anthracene		0.05	0.2	ug/L	
	Benzo[a]pyrene		0.057	0.2	ug/L	
	Benzo[b]fluoranthene		0.05	0.2	ug/L	
	Benzo[g,h,i]perylene		0.1	0.5	ug/L	
	Benzo[k]fluoranthene		0.057	0.2	ug/L	
	Chrysene		0.069	0.2	ug/L	
	Dibenz(a,h)anthracene		0.05	0.2	ug/L	
	Fluoranthene		0.054	0.5	ug/L	
	Fluorene		0.5	2	ug/L	
	Indeno[1,2,3-cd]pyrene		0.05	0.2	ug/L	
	Naphthalene		0.25	2	ug/L	
	Phenanthrene		0.2	0.5	ug/L	
	Pyrene		0.089	0.5	ug/L	
Moisture	Percent Moisture	Total	RL	RL		1,2,3,4,5,6,7,8,9,10,11,12,13,14 ,15,16,17,18
	Percent Moisture		0.1	0.1	%	