TETRA TECH

July 24, 2015

Mr. Steve Spurlin
On-Scene Coordinator
U.S. Environmental Protection Agency, Region 4
61 Forsyth Street, SW
Atlanta, Georgia 30303

Subject: **Final Sampling and Analysis Plan**
Multimedia Sample Collection during Removal Activities
Wrigley Charcoal Removal Action
EPA Contract No. EP-S4-14-03 (START IV Region 4)
Technical Direction Document (TDD) Number: TT-01-026

Dear Mr. Spurlin:

The Tetra Tech, Inc. (Tetra Tech) Superfund Technical Assessment and Response Team (START) submits this final sampling and analysis plan for the multimedia sampling to be conducted at the Wrigley Charcoal site located in Lyles, Hickman County, Tennessee.

The technical approach has been prepared for your approval and includes a health and safety plan. Please call Paul Prys at (678) 775-3106 if you have any comments or questions regarding this document.

Sincerely,

Paul Prys
START IV Senior Scientist

Andrew F. Johnson
START IV Program Manager

Appendix

cc: Katrina Jones, EPA Project Officer
Angel Reed, Tetra Tech START IV Document Control Coordinator

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FINAL
SAMPLING AND ANALYSIS PLAN
MULTIMEDIA SAMPLING DURING REMOVAL ACTIVITIES

WRIGLEY CHARCOAL
LYLES, HICKMAN COUNTY, TENNESSEE

Prepared for

U.S. ENVIRONMENTAL PROTECTION AGENCY
Region 4
Atlanta, Georgia 30303

Contract No.	:	EP-S4-14-03
TDD No.	:	TT-01-026
Date Prepared	:	July 24, 2015
EPA Task Monitor	:	Steve Spurlin
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Prepared by	:	Tetra Tech, Inc.
START IV Project Manager	:	Paul Prys
Telephone No.	:	(678) 775-3106

Prepared by	Reviewed by	Approved by	Approved by
Paul Prys START IV Senior Scientist	Chris Jones START IV Technical Reviewer	Andrew F. Johnson START IV Program Manager	Steve Spurlin EPA On-Scene Coordinator

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Appendix

1.0 INTRODUCTION

Under Superfund Technical Assessment and Response Team (START) Contract Number (No.) EP-S4-14-03, Technical Direction Document Number: TT-01-026, the U.S. Environmental Protection Agency (EPA) tasked Tetra Tech, Inc. (Tetra Tech) with preparing a sampling and analysis plan (SAP) for the multimedia sampling that will be conducted during removal activities at the Wrigley Charcoal Industrial Plastics Company (WC) in Lyles, Hickman County, Tennessee (Appendix A, Figure 1). Multimedia sampling will include perimeter and personal air sampling, bulk material sampling, and soil sampling. The purpose of this SAP is to specify the proposed sampling locations and the type, number, and location of samples to be collected during removal activities, as well as to describe the sampling methods to be followed. The sampling will be conducted by Tetra Tech START under the direction of the EPA Region 4 Emergency Response, Removal, and Prevention Branch (ERRPB).

All activities and procedures discussed and described in this SAP will be conducted in accordance with the approved Tetra Tech Quality Management Plan dated June 2013 (Reference [Ref.] 1). Tetra Tech will carry out site activities in accordance with applicable EPA and other guidance documents to further ensure that all data quality objectives (DQO) are met. These guidance documents specifically apply to various aspects of field events, including sampling locations, sample types, sampling procedures, analytical methods, sample analysis for each type of sample, field quality assurance and quality control (QA/QC), and related topics (Refs. 2 through 8; 11, 12). This SAP is intended as a general, flexible guidance document that will not inhibit discretion and subsequent variation in the approach that is anticipated for sampling during removal activities that could result from unexpected site conditions, personal observations, and the professional opinions of field personnel. These, and possibly other, influences may contribute to deviations in actual field or other project-related activities from the specifications presented in this SAP and the guidance documents cited in this document. Sampling will include the following:

- Collecting perimeter area air samples for analysis by phase contrast microscopy (PCM) and transmission electron microscopy (TEM);
- Collecting personal air samples for analysis by PCM and TEM;
- Collecting asbestos soil samples for asbestos analysis;
- Colleting bulk material samples of suspect asbestos-containing material (ACM) as directed;
- Obtaining and documenting global positioning system (GPS) data for sampling locations; and
- Preparing written and photographic documentation of site features, sampling locations, and removal actions.

The remainder of this SAP for the multimedia sampling during removal activities at the WC site is organized as follows:

- Section 2.0 describes the site background, including its history and general setting.
- Section 3.0 summarizes the proposed sampling activities, including the types of sampling, sampling locations, sampling methods, and sampling procedures.
- Section 4.0 summarizes the laboratory analytical methods.
- Section 5.0 discusses DQOs.
- Section 6.0 summarizes anticipated field activities and presents the field team and its responsibilities.
- Section 7.0 discusses disposal of investigation-derived waste (IDW).
- Section 8.0 presents the references cited in this SAP.
- Appendix A presents figures showing the site location, site layout, and proposed perimeter air sampling locations and soil sampling areas.
- Appendix B provides tables summarizing samples, sampling equipment and specifications, sampling nomenclature, analytical parameters and methods, required sample containers, preservation methods, and holding times.
- Appendix C provides the site-specific health and safety plan (HASP).

2.0 SITE BACKGROUND

This section describes the site background, including its history and general setting.

2.1 SITE HISTORY

The Wrigley Charcoal Plant Superfund site, which includes the Industrial Plastics site, was placed on the National Priorities List (NPL) in 1989 and involves active remediation and groundwater monitoring of site contaminants — including wood tar chemicals, metals, and creosote — throughout the property. Industrial Plastics is a small-scale recycling facility that recycles metals and plastics, stores waste products, and is involved in other related activities. The Industrial Plastics property occupies approximately 35 acres and consists of a large warehouse, a large processing building, and approximately 5 acres of outdoor and uncovered storage of processed and unprocessed acrylic, polycarbonate,

acrylonitrile butadiene styrene (ABS), polyethylene, polypropylene, styrene, polyvinyl chloride (PVC), and polyethylene terephthalate (PETG) plastics in totes and piles (Ref. 9).

On December 18, 2013, Region 4 Remedial Branch staff observed an active fire at Industrial Plastics during an on-site meeting to discuss remediation of the Wrigley Charcoal Plant Superfund site and notified the EPA's ERRB. EPA mobilized Tetra Tech START and an Emergency Response and Removal Services (ERRS) contractor to supplement local fire resources and provide community air monitoring support. ERRS used soil from a local borrow pit to smother the fire, while Tetra Tech conducted air monitoring to protect on-site personnel and the surrounding community. By 09:00 hours on December 20, 2013, ERRS had extinguished the fire and began placing erosion control barriers (silt fencing and straw wattles) to protect the creek adjacent to the site. On December 20, 2013, all EPA personnel and contractors associated with response activities demobilized from the site (Ref. 9).

On January 27 and February 11, 2015, EPA, Tennessee Department of Environment and Conservation (TDEC), Tetra Tech, and ERRS representatives conducted site visits to discuss bulk material and soil sampling and removal activities.

On April 20 through 21, 2015, EPA and Tetra Tech conducted a site assessment of the Industrial Plastics site to delineate the extent of the asbestos contamination at the site for removal activities. Tetra Tech collected bulk samples of suspect asbestos-containing building materials (ACBM) from each building and soil samples from delineated areas around the designated removal area of the site. Analytical results from the bulk sampling indicated the cementitious roofing material for each building and the red brick wall of one building contained asbestos. Results further indicated that five of the 25 soil sampling areas located outside of the designated removal area contained asbestos (Ref. 10).

2.2 SETTING

The former Wrigley Charcoal Plant Superfund site occupies 35 acres, 15 of which are occupied by Industrial Plastics on the southern portion of the property. The WC site is located at 8526 Plant Road, Lyles, Hickman County, Tennessee. The coordinates for the site (as measured from the approximate center of Industrial Plastics) are latitude 35.902826 degrees north and longitude 87.352800 degrees west. The western boundary of the WC site is North Fork Mill Creek, with residential neighborhoods surrounding the site. The nearest school, East Hickman Elementary, is located about 2.5 miles northeast

of the WC site. The nearest daycare center, TLC Childcare, is located about 2 miles northeast of the WC site. Figures 1 and 2 in Appendix A depict the site location and general site layout.

3.0 PROPOSED SAMPLING PLAN

Tetra Tech START will collect air samples for analysis by PCM around the perimeter of the property to assess the presence or absence of airborne fibers at concentrations that may be migrating off site during removal activities. Perimeter air samples that yield results greater than the site established action levels of 0.01 fibers per cubic centimeter (f/cc) for industrial areas and 0.001 f/cc for residential areas will also be analyzed via TEM to verify the presence or absence of airborne asbestos fibers. Asbestos personal air samples for EPA and Tetra Tech personnel will be collected and analyzed by PCM to assess personnel exposure during removal activities involving ACBM or asbestos-contaminated soil. Tetra Tech START will also collect surface soil samples from previously identified locations outside of the designated removal area to assess the effectiveness of soil removal activities and from areas not sampled during the previous site assessment. Tetra Tech START will collect bulk material samples of suspect ACM from around the site as directed by the EPA Task Monitor.

Tetra Tech START and the EPA Task Monitor may change sampling locations and the number of samples to be collected in response to site conditions encountered during removal activities. Sampling will be conducted and QA/QC samples will be collected in accordance with procedures documented in the EPA Region 4 SESD *Field Branches Quality System and Technical Procedures* (Ref. 2). Figures 1 through 4 in Appendix A depict the site layout, site location, proposed perimeter air sampling locations, and proposed soil sampling locations.

The proposed perimeter air and soil sampling locations are presented on Figures 3 and 4 in Appendix A. Table 1 in Appendix B outlines the type, number, and location criteria for proposed samples and perimeter air and soil sampling equipment. Table 2 in Appendix B summarizes the field quality control samples to be collected during removal activities. Table 3 in Appendix B presents the analytical parameters and methods, sample containers required, preservation methods, and holding times for the perimeter air and soil samples. Specific analytical methods are further discussed in Section 4.0 of this SAP.

3.1 SITE PERIMETER AIR SAMPLING

EPA and Tetra Tech will conduct initial background and daily perimeter air sampling at four proposed stationary locations (Appendix A, Figure 3). There is one on site location and three locations near residential areas around the perimeter of the site. Results will be used to determine the presence or absence of airborne fibers that have the potential to migrate from the site before and throughout removal activities, as well as to implement appropriate safety controls. Initial background and daily perimeter air sampling will be conducted by a Tetra Tech-certified asbestos project monitor accredited in the State of Tennessee under the Asbestos Accreditation Requirements, Rules of Department of Environment and Conservation, Chapter 1200-01-20 (Ref. 12). EPA established the site action level at 0.01 f/cc for the on site perimeter air sampling location and 0.001 f/cc for the residential perimeter air sampling locations in accordance with Office of Solid Waste and Emergency Response (OSWER) Directive #9200.0-68, *Framework for Investigating Asbestos-Contaminated Superfund Sites* (Ref. 3). The air sampling will be conducted by a State of Tennessee-accredited asbestos project monitor using Gillian AirCon 2 high-volume air sampling pumps fitted with 25 millimeter (mm), 0.8 micrometer (µm) mixed cellulose ester (MCE) filter cassettes that will be analyzed by PCM. Initial background and daily perimeter air samples will be collected approximately 4 to 5 feet above the ground surface (to represent exposures in the breathing zone) before and throughout removal activities. The filter cassettes will be placed in a downward position with the inlet caps of the filter cassettes removed (open-faced) during sampling. Initial and daily perimeter air samples will be collected at a flow rate of 7.5 liters per minute (L/min) or at a flow rate resulting in collection of at least 3,000 liters of air during a 10-hour work shift (Ref. 5). The flow rate of the fully assembled air sampling trains will be calibrated and recorded before samples are collected using a Bios Drycal DC-Lite rotameter or similar device. Once the sampling pump has been adjusted to the desired flow rate, the initial flow rate recorded will be the average of 10 continuous flow readings. The post-sampling period flow rate (also measured using a Bios Drycal DC-Lite rotameter or similar device), however, will typically be measured while the air sampling train is still collecting air at its sampling location, just before the sampling period ends. This near-end-of-sampling flow rate measurement will be used in place of measuring the literal post-sampling flow rate. It is important to use the filter cassette for collecting the actual sample while the flow rate is measured before and after samples are collected; this procedure is especially important for the after-sample-collection flow rate measurement because loading of dust and other materials during sampling may have altered the flow rate throughout the collection period. Without adjusting the flow-rate of the sampling pump, the post-sampling flow rate will be recorded as the average of 10 continuous flow readings.

Perimeter air samples will be analyzed in accordance with the guidelines established in 29 *Code of Federal Regulations* (CFR) 1926.1101, Appendix A and Appendix B (Ref. 4) by a Tetra Tech-procured, American Industrial Hygiene Association- (AIHA) accredited laboratory using National Institute of Occupational Safety and Health (NIOSH) Method 7400, Asbestos and Other Fibers by PCM (Ref. 5). The results of samples will be used to evaluate the effectiveness of engineering and safety controls in preventing the off-site migration of fibers during removal activities and provide the EPA with information necessary to initiate corrective actions as appropriate. Perimeter air samples showing results exceeding 0.001 f/cc will be analyzed for the presence of asbestos, at the direction of the EPA Task Monitor, via TEM in accordance with NIOSH Method 7402, Asbestos by TEM (Ref. 6), to determine the concentration of airborne asbestos fibers in those air samples. For those perimeter air samples with fiber concentrations greater than non-detect and below either 0.01 f/cc or 0.001 f/cc, the EPA will determine whether the air sample with the highest result for that day for each action level will be analyzed for the presence of asbestos fibers via TEM in accordance with NIOSH Method 7402.

3.2 PERSONAL ASBESTOS AIR SAMPLING

Periodic personal air monitoring of EPA and Tetra Tech START personnel will be conducted to establish personal exposure levels to airborne fiber concentrations during removal activities, as well as to establish action levels and implement appropriate safety controls (engineering controls, administrative controls, and personal protective equipment [PPE] requirements). The sampling will be conducted by a State of Tennessee-accredited project monitor using low-volume air monitoring pumps fitted with 25-millimeter (mm), 0.8 micron (µm) MCE filter cassettes that will be analyzed by PCM. Personal samples will be collected in the "breathing zone" near the worker's face and will be representative of the 8-hour, time-weighted average (TWA) and 30-minute short-term exposures of each employee, regardless of the level of respiratory protection being worn. The filter cassettes located near the worker's face will be attached to or near the collar or lapel and placed in a downward-facing position with the inlet caps of the filter cassettes removed (open-faced) during sampling. Personal air samples will be collected at a flow rate of 2.0 to 2.5 L/min. The flow rate of the fully-assembled air sampling trains will be calibrated and recorded before samples are collected using a Bios Drycal DC-Lite rotameter or similar device. Once the sampling pump has been adjusted to the desired flow rate, the initial flow-rate recorded will be the average of 10 continuous flow readings. The post-sampling period flow rate will also be measured using a Bios Drycal DC-Lite rotameter or similar device; however, this measurement will be taken after the air sampling train has completed collecting the personal air sample. Without adjusting the flow rate of the sampling pump, the post-sampling flow rate will be recorded as the average of ten continuous flow readings.

Representative 8-hour TWA personal exposures will be calculated on the basis of one or more samples representing full-shift exposures for each shift employee in each job classification within each work area. Representative 30-minute, short-term personal exposures will be determined on the basis of one or more samples representing 30-minute exposures associated with operations most likely to produce exposures above the Occupational Safety and Health Administration (OSHA) excursion limit of 1.0 f/cc of air for each shift for each job classification within each work area. Once initial monitoring is completed, personal exposures during removal activities will be periodically monitored. Additional exposure monitoring will be conducted when a change in production, process, control equipment, personnel, or work practices may result in new or additional exposures above the TWA PEL or the excursion limit; or if for any suspected reason a change may result in new or additional exposures above the PEL or excursion limit.

Personal air samples will be analyzed by a Tetra Tech-procured AIHA-accredited laboratory in accordance with the guidelines established in 29 CFR 1926.1101, Appendix A and Appendix B (Ref. 4), using NIOSH Method 7400 (Ref. 5). Those personal air samples showing results exceeding the OSHA PEL will be further analyzed for the presence of asbestos fibers via TEM in accordance with NIOSH Method 7402 to determine the concentration of airborne asbestos fibers in those air samples (Ref. 6). In addition, the EPA will determine whether the personal air sample with the highest result for that day will be analyzed via TEM in accordance with NIOSH Method 7402 to determine personal exposures (regardless of the level of respiratory protection worn) to airborne asbestos fibers during removal activities for the personal air samples that are below the OSHA PEL, but indicate a potential exposure.

3.3 SURFACE SOIL SAMPLING

EPA and Tetra Tech will collect surface soil samples from the following areas:

- Sampling areas 10 and 27 outside of the designated removal area to determine the presence or absence of asbestos and whether soil removal is necessary. These locations were not sampled during the previous site assessment because of the large amounts of standing water located in each area.

- Soil removal areas previously identified as containing asbestos will be resampled after soil removal is complete to evaluate the effectiveness of those activities.

A 5-point composite soil sample will be collected from the surface of each grid to a depth of 0 to 1 inch below ground surface (bgs) and homogenized to form one sample for each grid. The sampling grids identified for initial sampling and for soil removal and sampling located around the perimeter of the designated removal area are presented on Figure 4 in Appendix A. All soil samples will be analyzed for

asbestos in accordance with the EPA OSWER Asbestos Committee of the Technical Review Workgroup, *Framework for Investigating Asbestos-Contaminated Superfund Sites*, OSWER Directive #9200.0-68 (Ref. 3) and California Environmental Protection Agency Air Resources Board (CARB) Method 435 (Ref. 8).

3.4 BULK MATERIAL SAMPLING

EPA and Tetra Tech will collect bulk material samples of suspect ACM from debris located around the WC site as directed by the EPA Task Monitor. After suspect ACM is identified, representative samples of all homogenous materials will be collected. The number, type, and locations of asbestos samples to be collected will be established in the field by a Tetra Tech certified asbestos inspector accredited under the EPA Asbestos Model Accreditation Plan, 40 CFR 763, Appendix C (Ref. 11) and in the State of Tennessee under the Asbestos Accreditation Requirements, Rules of Department of Environment and Conservation, Chapter 1200-01-20 (Ref. 12) and the EPA Task Monitor. Bulk asbestos samples will be collected and analyzed in accordance with 40 CFR 763, Appendix C, and the EPA *Test Method for the Determination of Asbestos in Bulk Building Materials* (EPA/600/R-93/116) (Ref 7).

The inspector will visually inspect and touch all suspect ACM to determine its friability. Practical precautions will be used in collecting samples to ensure the safety of the survey personnel. Personal protective equipment, such as half-face or full-face respirators with high-efficiency particulate air (HEPA) filters, will be worn, as appropriate.

Sampling will be performed using procedures and precautions to ensure that asbestos fibers are not released. These procedures include wetting the surface with amended water of the suspect material to be sampled. Samples will be collected by breaking off small pieces with a chisel, coring out a section, or cutting a piece off with a razor knife. The tools will be thoroughly decontaminated after each sample is collected to minimize the potential for cross-contamination. All bulk samples will be carefully collected and inspected to verify that all layers or substrates of suspect materials are obtained. Bulk samples will be individually placed in a labeled, sealable container and delivered to the laboratory for analysis.

4.0 ANALYTICAL METHODS

The samples collected during and after the removal activities at the WC site will be submitted for analysis to a Tetra Tech-procured laboratory. The laboratory analytical methods include the following:

- NIOSH Method 7400, Asbestos and Other Fibers by PCM, for perimeter and personal air sampling (Ref. 5).
- NIOSH Method 7402, Asbestos by TEM, for perimeter and personal air sampling (Ref 6).
- CARB Method 435, Determination of Asbestos Content of Serpentine Aggregate, for soil sampling (Ref. 8).
- EPA Method 600/R-93/116, Method for the Determination Asbestos of Bulk Building Materials, for suspect ACM materials.

Table 3 in Appendix B specifies the analytical methods for each sample matrix, the required sample containers for each sampling medium, sample preservation methods, and sample holding times.

5.0 DATA QUALITY OBJECTIVES

Sampling and laboratory analysis will be conducted to determine: (1) the presence or absence of airborne fiber concentrations during removal activities, (2) the presence or absence of airborne asbestos fiber concentrations during removal activities, (3) the concentrations of asbestos fibers in the surface soils around the perimeter of the designated removal area before and after removal activities, (4) the presence of asbestos in suspect ACM, and (5) the types of asbestos, if detected. Ultimately, the data will be used to evaluate the extent of the removal activities and the effectiveness of environmental controls and health and safety measures implemented at the WC site.

Field QC samples will be collected during the sampling event to monitor sampling precision and assess the cleanliness of the sampling equipment. Table 2 in Appendix B summarizes the sample designations, types, and sampling rationales for all proposed field QC samples.

The sensitivity requirements for the laboratory analytical methods are as follows:

- The analytical range for the CARB Method 435 (Ref. 8) is 0.25 percent to 100 percent asbestos. The detection limit is 0.25 percent asbestos. This detection limit is based on the application of a 400-point-counting approach.

Level II data packages for perimeter and personal air samples, suspect asbestos bulk material, and surface soil samples will be reviewed for completeness, but will not be validated. It will be the responsibility of the EPA Task Monitor to assess the impact of any data qualifications and limitations on data usability.

Chain-of-custody of the samples collected during the field event will follow the appropriate operating procedures in the EPA Region 4 Science and Ecosystem Support Division, *Field Branches Quality System and Technical Procedures* (Ref. 2).

6.0 FIELD WORK SUMMARY

Tetra Tech and EPA will begin conducting multimedia sampling at the WC site in July 2015. Tetra Tech will provide all analytical results for bulk material and soil to EPA in an electronic format. Proposed sampling activities are described in Section 3.0 of this SAP. The Tetra Tech field team leader or the EPA Task Monitor may change sampling locations and the number of samples to be collected in response to site conditions at the time of the field event. Sampling will be conducted, and field quality control samples will be collected, in accordance with the guidance documents presented in Section 1.0 (Refs. 2 through 5; 6, 7).

Tetra Tech will follow the health and safety protocol during the sampling event as outlined in the site-specific HASP presented in Appendix C. Anticipated field team members and their responsibilities are as follows:

- Steve Spurlin, EPA — On-Scene Coordinator
- Todd Taylor, Tetra Tech — Project Manager
- Paul Prys, Tetra Tech — Field Team Leader
- Field Personnel — Field personnel to support the field team leader

All specific training requirements for personnel will be addressed in the site-specific HASP (Appendix C).

7.0 DISPOSAL OF INVESTIGATION-DERIVED WASTE

Various types of IDW will be generated during the bulk material and soil sampling event at the WC site. The IDW will generally consist of disposable latex or nitrile gloves, boot covers, Tyvek (or similar) protective garments, duct tape, plastic bags, and spent breathing air cartridges. These items are used

mainly during sample collection to prevent cross-contamination and to provide protection and sanitary conditions to personnel conducting field work. The IDW listed above will be given to the ERRS contractor for disposal. The IDW generated at the site during removal activities will be disposed of with the asbestos-contaminated debris generated during removal activities.

8.0 REFERENCES

1. Tetra Tech, Inc. (Tetra Tech). 2013. *Quality Management Plan*. EPA Region 4, Superfund Technical Assessment and Response Team (START) III. Revision 2. June.

2. U.S. Environmental Protection Agency (EPA). 2010 through 2013. Region 4 Science and Ecosystem Support Division (SESD). *Field Branches Quality System and Technical Procedures: Control of Records (SESDPROC-002-R6)*, October 2014; *Sample and Evidence Management (SESDPROC-005-R2)*, January 2013; *Logbooks (SESDPROC-010-R5)*, May 2013; *Global Positioning System (SESDPROC-110-R3)*, April 2011; *Ambient Air Sampling* (SESDPROC-303-R4), January 2011; *Soil Sampling (SESDPROC-300-R3)*, August 2014; *Waste Sampling (SESDPROC-302-R2)*, January 2013; *Bulk Sampling for Asbestos (SESDGUID-104-R1)*, June 2013; *Field Sampling Quality Control (SESDPROC-011-R4)*, February 2013; *Packing, Marking, Labeling and Shipping of Environmental and Waste Samples (SESDPROC-209-R2)*, April 2011; *Management of Investigation Derived Waste (SESDPROC-202-R3)*, July 2014; *Field Equipment Cleaning and Decontamination (SESDPROC-205-R2)*, December 2011; *Equipment Inventory and Management (SESDPROC-108-R4)*, February 2013; and *Field Measurement Uncertainty* (SESDPROC-014-R1), April 2012. On-Line Address: http://www.epa.gov/region4/sesd/fbqstp/index.html.

3. EPA. 2008. Asbestos Committee of the Technical Review Workgroup of the Office of Solid Waste and Emergency Response (OSWER). *Framework for Investigating Asbestos-Contaminated Superfund Sites*. OSWER Directive #9200.0-68. September.

4. OSHA. 2011. Code of Federal Regulation, Title 29, Labor, Part 1926, Safety and Health Regulations for Construction, Subpart Z, Toxic and Hazardous Substances, 29 CFR 1926.1101. July.

5. National Institute for Occupational Safety and Health (NIOSH). 1994. Method 7400, Asbestos and Other Fibers by Phase Contrast Microscopy. August.

6. NIOSH. 1994. Method 7402, Asbestos by Transmission Electron Microscopy. August.

7. EPA. 1993. Office of Research and Development. Test Method EPA/600/R-93/116, *Method for the Determination of Asbestos in Bulk Building Materials*. July.

8. California Environmental Protection Agency, Air Resources Board (ARB). 1991. *Method 435, Determination of Asbestos Content of Serpentine Aggregate*. Adopted June 6. This method can be found at the following web address: http://www.epa.gov/ttn/emc/ctm.html.

9. Tetra Tech. 2014. Comprehensive Environmental Response, Compensation, and Liability Act Emergency Response Report, Wrigley Industrial Plastics Company Fire, Lyles, Hickman County, Tennessee. February 26.

10. Tetra Tech. 2015. Removal Assessment Report, Wrigley Charcoal, Lyles, Hickman County, Tennessee. June 4.

11. EPA. Model Accreditation Plan, 40 *Code of Federal Regulations* (CFR) 763, Appendix C.

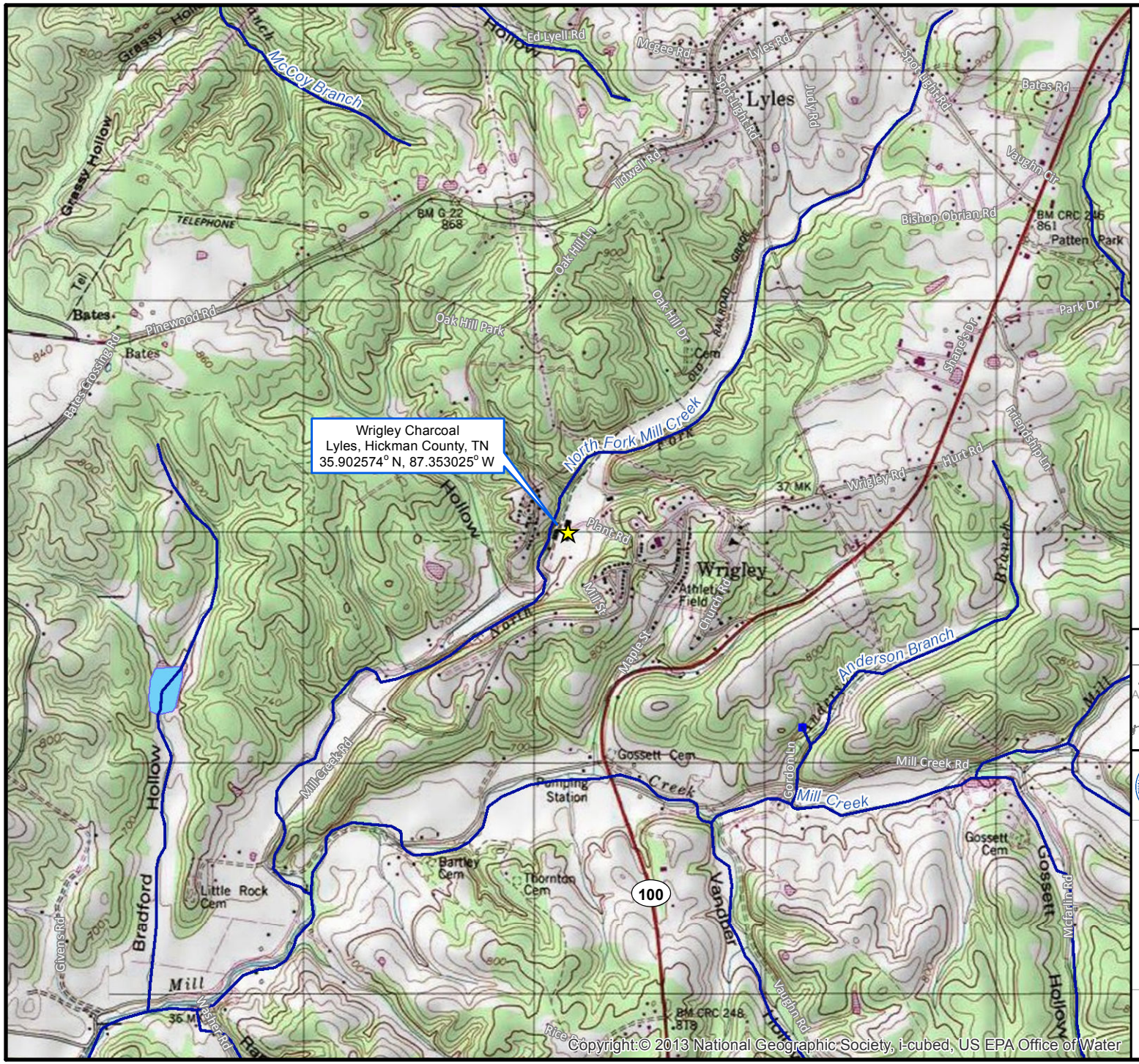
12. Tennessee Department of Environment and Conservation (TDEC). 2009. Asbestos Accreditation Requirements, Rules of Department of Environment and Conservation, Chapter 1200-01-20. June.

APPENDIX A

FIGURES

(Four Pages)

FIGURE



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☆ Site Location

N
W E
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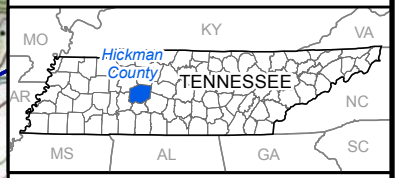
0 980 1,960
Feet

Map Sources:
USGS 7.5 Minute Topographic Quadrangle Maps:
Texas Hollow, TN 1968 & Lyles, TN 1992.
National Hydrology Dataset, 2015.



United States Environmental Protection Agency
Region 4

FIGURE 1

Site Location

TDD Name:	Wrigley Charcoal Removal Action
TDD No.:	TT-01-026

City:	**County:**	**State:**
Lyles	Hickman	Tennessee

TETRA TECH

Date: 7/10/2015
Analyst: jherr

File: C:\X\TT-02-004_Wrigley_Charcoal\mxds\Fig1_Site_Location_07102015.mxd

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Current Site Buildings

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0 40 80
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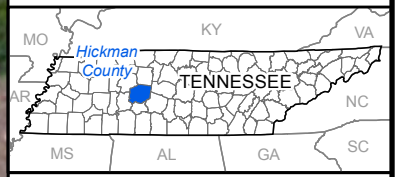
Map Sources:
ESRI Aerial Imagery, 2012.
National Hydrology Dataset, 2015.



United States Environmental Protection Agency Region 4

FIGURE 2

Site Layout

TDD Name: Wrigley Charcoal Removal Action

TDD No.: TT-01-026

City:	County:	State:
Lyles	Hickman	Tennessee

TETRA TECH

Date: 7/13/2015
Analyst: jherr

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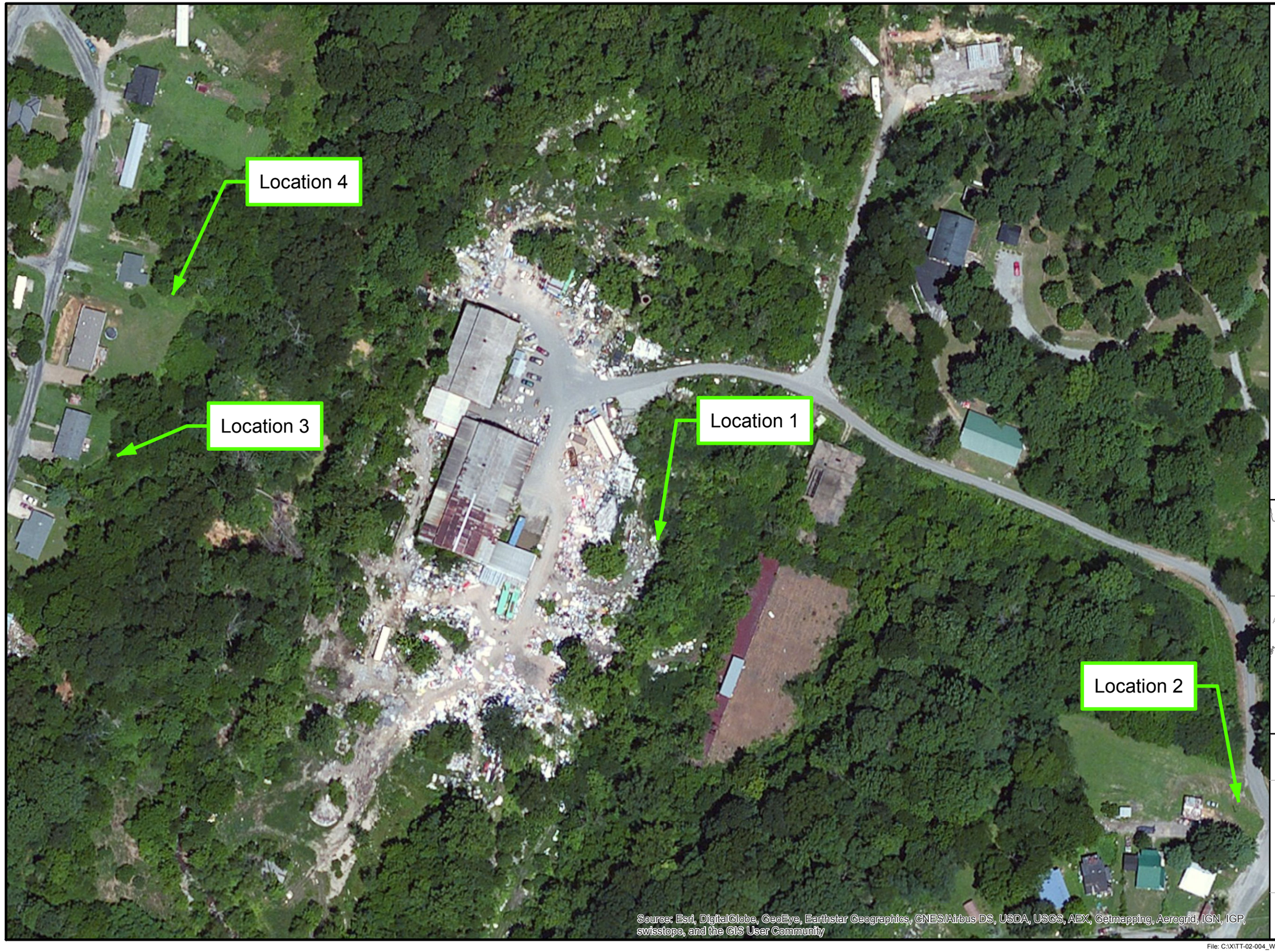

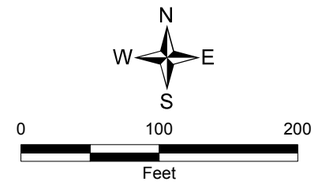

Map Source:
ESRI Aerial Imagery, 2012.
National Hydrology Dataset, 2015.

United States Environmental Protection Agency Region 4

FIGURE 3

Proposed Air Sampling Locations

TDD Name: Wrigley Charcoal Removal Action

TDD No.: TT-01-026

City:	**County:**	**State:**
Lyles	Hickman	Tennessee

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Date: 7/23/2015

Analyst: joelherr

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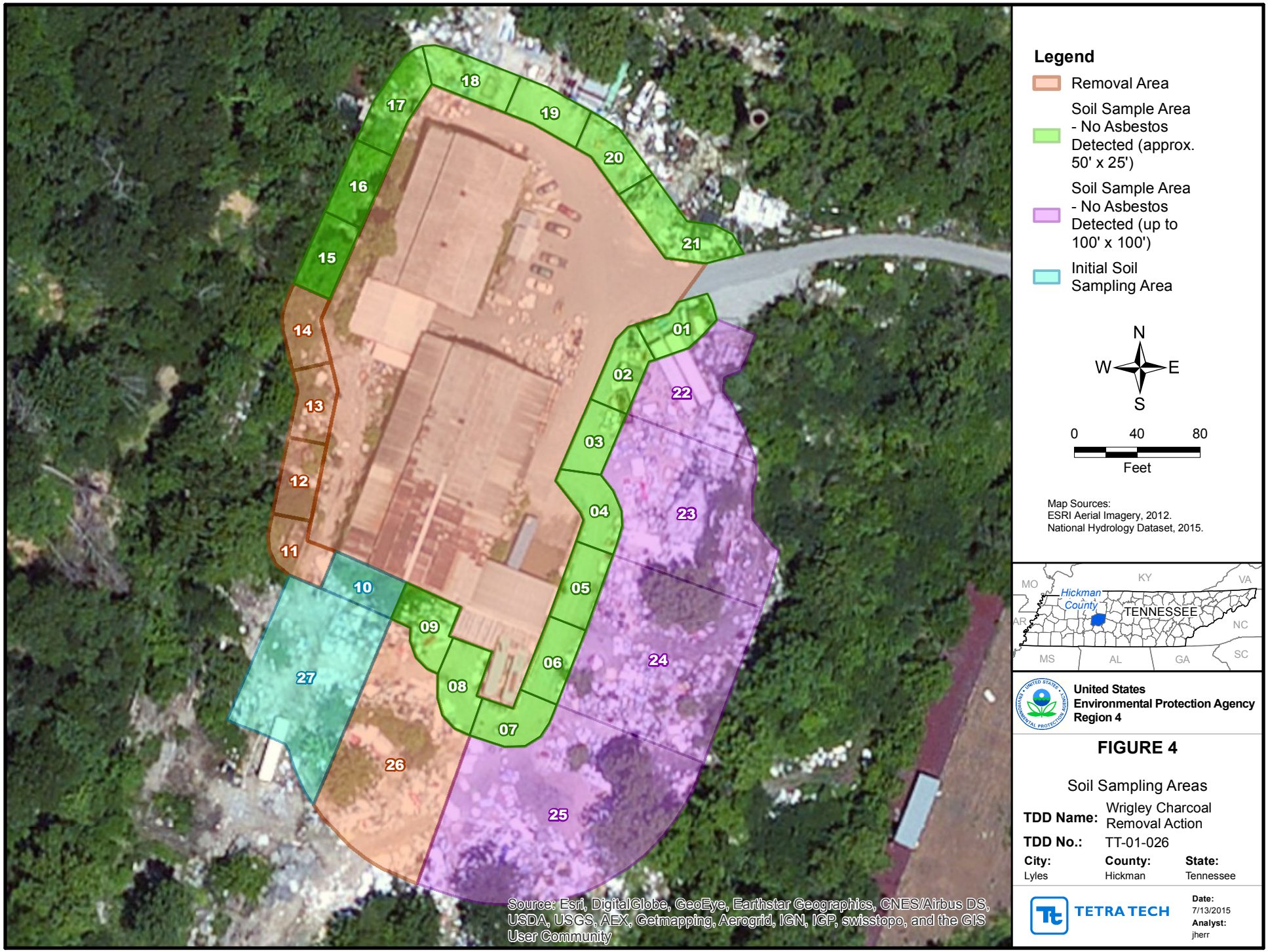

Legend

- Removal Area
- Soil Sample Area - No Asbestos Detected (approx. 50' x 25')
- Soil Sample Area - No Asbestos Detected (up to 100' x 100')
- Initial Soil Sampling Area

N
W E
S

0 40 80
Feet

Map Sources:
ESRI Aerial Imagery, 2012.
National Hydrology Dataset, 2015.

United States Environmental Protection Agency Region 4

FIGURE 4

Soil Sampling Areas

TDD Name: Wrigley Charcoal Removal Action
TDD No.: TT-01-026
City: Lyles
County: Hickman
State: Tennessee

TETRA TECH

Date: 7/13/2015
Analyst: jherr

File: C:\X\TT-02-004_Wrigley_Charcoal\mxds\Fig4_Soil_Sampling_Locations_07132015.mxd

APPENDIX B

TABLES

(Six Pages)

TABLE

TABLE 1
WRIGLEY CHARCOAL REMOVAL ACTION
MULTIMEDIA SAMPLING
SAMPLES, SAMPLING EQUIPMENT AND SPECIFICATIONS, AND SAMPLING LOCATIONS

Station ID	Sample Designation	Pump Flow Rate (L/min)	Sampling Duration (minutes)	Sampling Equipment[a]	Sampling Location and Number of Samples
Background Perimeter Area Air Samples (PCM)					
WCBGL01 through WCBGLXX	WC-BG-LXX-mmddyy	7.5	480	Gillian Aircon 2 25-mm dia., 0.8-µm MCE	Background area air samples will be collected around the perimeter of the site prior to removal activities.
Daily Perimeter Area Air Samples (PCM)					
WCAAL01 through WCAALXX	WC-AA-LXX-mmddyy	7.5	480	Gillian Aircon 2 25-mm dia., 0.8-µm MCE	Daily area air samples will be collected around the perimeter of the site during removal activities.
Personal Air Samples (PCM)					
WCPAFP01 through WCPAFPXX	WC-PA-FPXX-mmddyy	2.0-2.5	30 or 480	SKC Universal PCXR8 or Gillian GilAir 5 25-mm dia., 0.8-µm MCE	Personal air samples (excursion or 8-hour) will be collected on field personnel during removal activities.
Soil Samples					
WCASL01 through WCASLXX	WC-AS-LXX-mmddyy	NA	NA	Stainless steel bowls/spoons 8-ounce glass jars with Teflon lined lids	Multiple multi-point composite soil samples will be collected between 0 to 1 inch bgs after removal activities area completed. EPA Task Monitor will determine the number of samples and aliquots to be collected.
Bulk Material Samples					
WCABXX	WC-AB-MMMM-##	NA	NA	Hand tools and plastic bags	Waste debris on site. Number of samples of each suspect asbestos-containing building material will be determined in the field and collected as directed by the EPA Task Monitor.

TABLE 1
WRIGLEY CHARCOAL REMOVAL ACTION
MULTIMEDIA SAMPLING
SAMPLES, SAMPLING EQUIPMENT AND SPECIFICATIONS, AND SAMPLING LOCATIONS

Notes:

[a]	=	Specific make and model of air pumps is listed in this column; other makes and models may be used as long as they are capable of providing air flow at the designated flow rates, with the same precision as the listed pumps, and over the planned sampling durations.
##	=	Station ID to be assigned during sampling activities.
AA	=	Area air sample
AB	=	Asbestos bulk material
AS	=	Asbestos soil sample
BG	=	Background air sample
bgs	=	Below ground surface
dia.	=	Diameter
EPA	=	Environmental Protection Agency
FP	=	Field personnel
FPXX	=	Field personnel being sampled
ID	=	Identification
L/min	=	Liters per minute
LXX	=	Area sampling location to be assigned during sampling activities
MCE	=	Mixed cellulose ester membrane filter contained in a cassette
µm	=	Micrometer
mm	=	Millimeter
NA	=	Not applicable
mmddyy	=	Date of sample
MMMM	=	Bulk material type
PA	=	Personal air sample
PCM	=	Phase contrast microscopy
WC	=	Wrigley Charcoal

TABLE 2
WRIGLEY CHARCOAL REMOVAL ACTION
MULTIMEDIA SAMPLING
FIELD QUALITY CONTROL SAMPLES

Station ID	Sample Designation	Sample Type	Rationale
WCLOT***yy***	WC-LB-mmddyy	Lot blank for 0.8 µm MCE membrane filter cassettes	Determine whether the sample-collection media are affecting the analytical results for air samples. Two lot blanks will be collected per lot of cassettes.
WCFB***yy***	WC-FB##-mmddyy	Field blank for 0.8 µm MCE membrane filter cassettes	Determine whether the air sample collection media are being contaminated through field handling (but not including collecting air samples) and shipping of the media; thus, affecting the analytical results for air samples. Each set of samples taken will include 10 percent field blanks or a minimum of 2 field blanks. These blanks must come from the same lot as the filters used for sample collection.
WCASLXX	WC-AS-LXX-mmddyy-DUP	Field duplicate for soil samples	One sample will be collected for every 20 soil samples collected per matrix.

Notes:

##	=	Station ID to be assigned during sampling activities.
AS	=	Asbestos soil sample
DUP	=	Duplicate
FB	=	Field blank
ID	=	Identification
LB	=	Lot blank
LOT	=	Lot blank
LXX	=	Area sampling location to be assigned during sampling activities
MCE	=	Mixed cellulose ester membrane filter contained in a cassette
mmddyy	=	Date of sample
µm	=	Micrometer
WC	=	Wrigley Charcoal
yy	=	Sequential station location number to be selected in the field; all station locations will be assigned unique numbers as part of their station IDs.

TABLE 3
WRIGLEY CHARCOAL REMOVAL ACTION
MULTIMEDIA SAMPLING
ANALYTICAL PARAMETERS AND METHODS, REQUIRED SAMPLE CONTAINERS, PRESERVATION METHODS, AND HOLDING TIMES

Analytical Parameter	Matrix	Analytical Method	Number and Type of Sample Container or Sampling Media	Sample Preservation Method	Sample Holding Time
Asbestos by PCM	Air	NIOSH Method 7400[a]	One 25–mm diameter, 0.8-µm MCE membrane filter cassette	None; store in a cool, dark location	Indefinite
Asbestos by TEM	Air	NIOSH Method 7402[b]	One 25–mm diameter, 0.8-µm MCE membrane filter cassette	None; store in a cool, dark location	Indefinite
Asbestos	Soil	CARB Method 435[c]	One 8-ounce glass jar with a Teflon-lined lid	None; store in a cool, dark location	Indefinite
Asbestos	Bulk	EPA/600/R-93/116[d]	Resealable plastic sandwich bags and handtools	None; store in a cool, dark location	Indefinite

TABLE 3
WRIGLEY CHARCOAL REMOVAL ACTION
MULTIMEDIA SAMPLING
ANALYTICAL PARAMETERS AND METHODS, REQUIRED SAMPLE CONTAINERS, PRESERVATION METHODS, AND HOLDING TIMES

Notes:

[a] = Refer to the following references for information on specific requirements on the application of the analytical method listed above to the analysis of the collected samples: National Institute of Occupational Safety and Health (NIOSH) Manual of Analytical Methods, *Asbestos and Other Fibers by Phase Contrast Microscopy, Method 7400*, available at the following web address: http://www.cdc.gov/niosh/docs/2003-154/pdfs/7400.pdf

[b] = Refer to the following references for information on specific requirements on the application of the analytical method listed above to the analysis of the collected samples: National Institute of Occupational Safety and Health (NIOSH) Manual of Analytical Methods, *Asbestos by Transmission Electron Microscopy*, Method 7402, available at the following web address: http://www.cdc.gov/niosh/docs/2003-154/pdfs/7402.pdf

[c] = Refer to the following references for information on specific requirements on the application of the analytical method listed above to the analysis of the collected samples: California Environmental Protection Agency, Air Resources Board (CARB), *Determination of Asbestos Content of Serpentine Aggregate*, Method 435, available at the following web address: http://www.arb.ca.gov/testmeth/vol3/m_435.pdf

[d] = Refer to the following references for information on specific requirements on the application of the analytical method listed above to the analysis of the collected samples: Environmental Protection Agency (EPA), *Method for the Determination of Asbestos in Bulk Building Materials*, Method EPA/600/R-93/116, available at the following web address: . July.

MCE = Mixed cellulose ester membrane filter contained in a cassette
µm = Micrometer
mm = Millimeter
PCM = Phase contrast microscopy
TEM = Transmission electron microscopy

TABLE 4
WRIGLEY CHARCOAL REMOVAL ACTION
MULTIMEDIA SAMPLING
PERFORMANCE OR ACCEPTANCE CRITERIA

AIR SAMPLES AND FIELD QUALITY CONTROL SAMPLES	
Analysis	**Analytical Method**
Asbestos (Air – Phase Contrast Microscopy)	NIOSH Method 7400
Asbestos (Air – Transmission Electron Microscopy)	NIOSH Method 7402
Asbestos (Soil)	CARB 435
Asbestos (Bulk Material)	EPA/600/R-93/116

DATA QUALITY MEASUREMENTS	
Accuracy	Refer to EPA Region 4, SESD FBQSTP for *Ambient Air Sampling* (SESDPROC-303-R4), January 2011; *Global Positioning System* (SESDPROC-110-R3), April 20, 2011; *Bulk Sampling for Asbestos (SESDGUID-104-R1)*, June 2013; *Soil Sampling (SESDPROC-300-R3)*, August 2014; and the analytical method listed in Table 3 of this SAP.
Precision	Refer to EPA Region 4, SESD FBQSTP for *Ambient Air Sampling* (SESDPROC-303-R4), January 2011; *Global Positioning System* (SESDPROC-110-R3), April 20, 2011; *Bulk Sampling for Asbestos (SESDGUID-104-R1)*, June 2013; *Soil Sampling (SESDPROC-300-R3)*, August 2014; and the analytical method listed in Table 3 of this SAP.
Representativeness	Sample representativeness will be achieved by following these guidance documents: EPA Region 4, SESD FBQSTP for *Ambient Air Sampling* (SESDPROC-303-R4), January 2011; *Global Positioning System* (SESDPROC-110-R3), April 20, 2011; *Bulk Sampling for Asbestos (SESDGUID-104-R1)*, June 2013; and *Soil Sampling (SESDPROC-300-R3)*, August 2014. Laboratory: Analytical representativeness will be achieved by following the analytical method listed in Table 3 of this SAP.
Completeness	The scope of work is currently confined to the areas around the perimeter of the site property boundaries. Sample locations will be determined during the field event to ensure completeness.
Comparability	Sample and data comparability is expected to be achieved by conducting all field and laboratory work using the same, well-documented, uniform procedures.

APPENDIX C

LEVEL 2 HEALTH AND SAFETY PLAN

(102 Pages)